The role of national institutions in the internationalisation strategies of wireless service providers in Switzerland and Sweden

Inauguraldissertation
der Philosophisch-naturwissenschaftlichen Fakultät
der Universität Bern

vorgelegt von

Daniela Brandt
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Leiter der Arbeit
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Prof. Dr. Urs Feller

ABSTRACT

When it comes to explaining internationalization strategies of mobile communication incumbents the existing literature is largely derived from business and management studies. In management studies internationalisation strategies are explained by rational, static norm strategies, which tend to proclaim a global marketplace with more or less footloose companies. A few remarks on home and host market aside, general dynamic aspects and a wider contextuality are still neglected in much of this literature. However, recent work in evolutionary economics and economic geography has shown that contextuality provides a valuable framework for the analysis of the development and change of strategic routines. Especially telecommunication incumbents are still influenced by national institutions. Additionally, as national institutions are the outcome of power-relationships with important actors within the national "industrial complex", the framework for strategic developments not only has to be context-sensitive, but dynamic too. Empirical work on the former Swiss and Swedish monopoly players Swisscom Mobile and TeliaSonera Mobile show that while international industry trends ("best/good practices"), undoubtedly play an important role in shaping internationalization strategies, the national path and place dependent elements have to be added to the model in order to reach an overall suitable explanatory framework.

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Preface

Where does the motivation come from to spend four years studying the role of national institutions in the internationalisation processes of mobile communication companies? On the one hand, of course, it is the challenge of doing an in-depth analysis of such a multifaceted, scientific topic. However, it is more than just this rather rational argument - I have actually experienced the change and internationalisation processes in telecom service provision myself while working at former ViagIntercom (today BT Ignite) during the period when it was bought by British Telecom, and I have personally experienced all the challenges of those processes (e.g., different business and national cultures). At that time, I experienced a great fascination for the internationalisation processes in this dynamic industry segment and for the ways they were shaped by national intuitions.

During the last couple of years, friends and family have asked me about my research. Most of them have been interested in what I have learned and what my contribution to business research and practice would be with regard to the subject of this thesis. The answer to this will hopefully become evident through reading the thesis. What may be less evident, however, is how these few years of research have caused great emotions of despair and joy. For some of my friends, this work is what matters the most, as it may be the ultimate proof of what I have learned. To me, the research process itself, the emotions it has created and the way it has changed my way of thinking and reasoning has been my true gain. I have discovered and come to appreciate new things in life, such as geopolitics and geoeconomics, philosophy and Brazilian martial arts (Capoeira). Thus the research process has probably been more valuable and important to me than the actual end result. However, without professional tutors, supportive friends and family, I may not have come through this experience. Looking back at how this thesis evolved, I note the pleasure I had in working with both researchers and practitioners. I would like to thank:

- in particular, my supervisor Professor Paul Messerli for giving me constructive feedback through all stages of the thesis and allowing me to work under relative freedom and responsibility.
- my co-referee Prof. Bertil Thorngren for his supportive feedback and encouragement.
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- the University of Bern as an institution for making it possible to carry out my studies.

A life phase is coming to a close with the finalisation of this PhD thesis, but a fascination for dynamic industries and the spatial development questions they raise will continue on.

Berne, July 2008/Daniela Brandt

Acronyms and Abbreviations

2G	First digital generation of mobile systems (in Europe for example: GSM)
2.5G	Enhanced digital mobile systems with packet data capability, allowing connection at all times (in Europe for example: GPRS).
3G	Broadband radio technology for mobile systems (in Europe for example: UMTS)
4G	4G (also known as beyond 3G), an abbreviation for Fourth-Generation Communications System, is a term used to describe the next complete evolution in wireless communications. A 4G system will be able to provide a comprehensive IP solution where voice, data and streamed multimedia can be given to users on an "Anytime, Anywhere" basis, and at higher data rates than previous generations.
ADSL	Asymmetrical Digital Subscriber Line: a technology to increase transmission speed to the subscriber up to 6Mb/s in a copper cable. ADSL facilitates the division of capacity into a channel with higher speed, typically for video transmission, and a channel with significantly lower speed in the other direction, i.e. asymmetric.
AMPS	Standard system used primarily in North America, Latin America, Australia and parts of Russia and Asia during the 1990s.
AR	Annual Report(s)
ARPU	Average Revenue per User
ASCOM	Association Suisse de Telecommunication (Swiss telecom manufacturer)
ASP	Application Service Provider
ASUT	Association Suisse Duisage de Telecommunication (Swiss Telecommunications Association)
AT&T	American Telephone & Telegraph Corporation
ATM	Asynchronous Transfer Mode: a technology for wide band transmission of high-capacity telecommunication signals. In addition to high-capacity signal transmission, ATM provides considerable flexibility, since the individual subscriber is able to adapt the capacity of a switched connection to current requirements.
AXE	Ericsson's switching communications platform based on an open architecture; a system for computer-controlled digital exchanges that constitute the nodes in large public telecommunication networks and the basis for Ericsson's wire-line and cellular systems.
BAKOM	(OFCOM) Bundesamt für Kommunikation (Federal Office of Communications in Switzerland)
BfS	Bundesamt für Statistik (Swiss Federal Statistics Office)
Bluetooth	A radio technology for short-range communications that permits wireless transmission of data between mobile telephones, portable computers and other electronic equipment up to approximately 100 m.
BT	British Telecom
Der Bund	Swiss daily newspaper published in Berne
CATV	Cable television
CDMA2000	See: CDMA.
CDMA	Code Division Multiple Access: A technology for digital transmission of radio signals between, for example, a mobile telephone and a radio base station. In CDMA, a frequency is divided into a number of codes. See: also IS-95.
Cellular System	See: Mobile Network
CEO	Chief Executive Officer
CEPT	An international organisation composed of European postal and telecommunication authorities. CEPTS' organisation comprises CERP (postal committee), ECTRA (telecommunications committee) and ECR (radio committee).
CFO	Chief Financial Officer
Circuit Switching	A switched circuit is only maintained while the sender and recipient are communicating, as opposed to a dedicated circuit (packed switching), which is held open regardless of whether data is being sent or not.
CG	Corporate Governance
ComCom	Eidgenössische Kommunikationskommission (Federal Communications Commission = regulator in Switzerland)
CRM	Customer Relationship Management
D-AMPS	Digital Advanced Mobile Phone System: designation of the American standard for digital cellular telephony used primarily in North America, Latin America, Australia and parts of Russia and Asia during the 1990s. D-AMPS is based on TDMA (IS-136) technology.
DECT	Digital Enhanced Cordless Telecommunications: a common standard for cordless telephony originally established by ETSI. DECT is primarily used in cordless business communications systems.
DETEC	Federal Department of Environment, Transport, Energy and Communications (communications ministry in Switzerland)
DSL	Digital Subscriber Line
DTAG	Deutsche Telekom AG (German Telecom)
DVB-T	Digital Video Broadcast – Terrestrial
EC	European Comission
EDGE	Enhanced Data rates for Global Evolution: a technology that enables GSM and DAMPS similar capacity to handle services for the third generation of mobile telephony. EDGE was developed to enable the transmission of large amounts of data at high speed, i.e. 384 kb/s.
EEA	European Economic Area
EGV	EU law
Eircom	Former Irish incumbent
EITO	European Information Technology Observation
ETSI	European Telecommunications Standardisation Institute: the European standardisation body for telecommunications.
EU	European Union
FAZ	Frankfurter Allgemeine Zeitung (German daily newspaper published in Frankfurt)
FCC	Federal Communications Commission: one of two regulatory authorities in the US
FDI	Foreign Direct Investment
FMG	Fernmeldegesetz: revised telecommunications law in Switzerland
FT	France Telecom
GATT	General Agreement of Tariffs and Trade

GATS	General Agreement in Trade on Services
GPRS	General Packet Radio Service: a packet-linked technology that enables high-speed, i.e. 115 kb/s wireless Internet and other data communications.
GSM	Global System for Mobile Communications: originally developed as a pan-European standard for digital mobile telephony. GSM has become the world's most widely used cellular system. It is used on the 900 MHz and 1800 MHz frequencies in Europe, Asia and Australia, and the 1900 MHz frequency in North America and Latin America.
HSCDS	High Speed Circuit Switched Data or High Speed Circuit Digital System: a circuit-linked technology for higher transmission speeds, i.e. up to 64 kb/s, primarily in GSM systems.
HSDPA	High Speed Downlink Packet Access (newest and fastest mobile technology in Switzerland)
i-mode	A wireless Internet service popular in Japan and increasing in popularity in other parts of the world, such as Israel. i-mode was launched in Japan on 22 February 1999 (see: WAP in Europe).
IP	Internet Protocol; The IP defines how information travels between systems across the Internet.
IP telephony	See: IP and VoIP
IPR	Intellectual Property Rights
ISDN	Integrated Services Digital Network: a digital communications network in which various types of information, e.g. voice, data, images, can be conveyed simultaneously to a subscriber via a common local line.
ICT	Information and Communication Technology
Incumbent	see: PTO (Public Telecommunications Operator)
INTCH	(anonymous, structured) interview (see: p. 273) with expert in Switzerland or with someone with knowledge about development in Switzerland in general
INTSwe	(anonymous, structured) interview (see: p. 273) with expert in Sweden or with someone with knowledge about development in Sweden in general
IPO	Initial Public Offer
IT	Information Technology
ITU	International Telecommunication Union, with headquarters in Geneva, Switzerland; an international organization within the United Nations where governments and the private sector coordinate global telecom networks and services. ITU's organisation comprises ITU-R, ITU-T and ITU-D.
ITU-D	International Telecommunication Union, development sector
ITU-R	International Telecommunication Union radio communication sector
ITU-T	International Telecommunication Union, telecommunication sector
KPN	Former incumbent in the Netherlands
LAN	Local Area Network: a small data network covering a limited area, such as within a building or group of buildings.
LRIC	Long run incremental cost (interconnection accounting method)
M-commerce	Mobile commerce: secure and personal commercial transactions carried out through a mobile device, including mobile banking, stock trading, mobile shopping, and mobile advertising.
MMS	Multimedia Messaging Services: message containing formatted text, graphics, data, animation, images, audio clips, voice transmissions and/or video sequences.
Mobile Network	Wireless network for mobile communications comprising switches, radio base stations, transmission equipment, servers and software.
Mobile System	See: Mobile Network
Mobitex	A system for mobile data communications developed by Ericsson for Land Mobile Radio.
MNO	Mobile Network Operator
MNC	Multinational Corporation
MTA	Mobile Telephone System A
MTB	Mobile Telephone System B (named after the inventor Berglund)
MVNO	Mobile Virtual Operator (see: also VNO)
NATEL	Nationales Autotelefon (synonymous for mobile phone - brand name used only in Switzerland)
NATEL A	Swiss national mobile standard A (evolution of the system until NATEL D; later implementation of NMT and GSM)
NIS	Non-ionic electromagnetic radiation (nichtionisierte elektromagnetische Strahlung)
NIS	National Innovation System
NMT	Nordic Mobile Telephony: the common Nordic standard for analog mobile telephony as established by the telecommunication administrations in Sweden, Norway, Finland and Denmark during the early 1980s. NMT systems were also installed in some European countries, including parts of Russia, and in the Middle East and Asia.
NR	National Roaming
NRA	National Regulatory Authority
NRP	New Regional Policy (Switzerland)
NZZ	Neue Zürcher Zeitung (Swiss daily newspaper published in Zürich)
NTT	Nippon Telegraph and Telephone Corporation (former Japanese incumbent)
NTT DoCoMo	Biggest telecommunication company in Japan (subsidiary of NTT)
OECD	Organisation for Economic Cooperation and Development
OFCOM	Federal Office of Communications (Switzerland)
OLI Model	Ownership, Location and Internationalisation advantages model (Dunning)
OS	Operating System (in mobile telephony, like Symbian)
Packet switching	A method of switching data in a network where individual packets of a set size and format are accepted by the network and delivered to their destinations. The sequence of the packets is maintained and the destination established by the exchange of control information (also contained in the packets) between the sending terminal and the network before the transmission starts.
PBX	Private Branch Exchange: an exchange system used in companies and organisations to handle internal and external calls.
PC	Personal Computer
PCN	Personal Communications Network: collective term for European mobile telephone services in the 1800 MHz frequency band.
PCS	Personal Communications Services: collective term for American mobile telephone services in the 1900 MHz frequency band.

PDA	Personal Digital Assistant: collective term, e.g. for cellular phones, beepers, hand-held computers with communications capabilities ("palm pilots"), etc.
PPP	Public Private Partnership
PTO	Public Telecommunications Operator
PTS	Post och Telestyrelsen (Swedish Regulatory Authority)
PTT	Postal Telephone and Telegraph Company (see: also PTO)
PSTN	Public Switched Telephone Network (plain old telephone service POTS)
PWC	Price Waterhouse Coopers
PWLAN	Public Wide Area Network (Wireless LAN)
QR	Quartal Report
R&D	Research and Development
ROI	Return on Investment
Router	A data switch that handles connections between different networks. A router identifies the addresses on data passing through the switch, determines which route the transmission should take and collects data in so-called packets which are then sent to their destinations.
SCA	Swedish Competition Authority
Seco	State Secretariat for Economic Affairs (Switzerland)
SICTA	Swiss Association for Information Technologies
SIM (card)	Subscriber Identity Module (for mobile phone)
SIS	Sectoral Innovation System
SME	Small and middle sized company
SMP Operator	Significant Market Power Operator (term in EU regulation)
SMS	Short Message Service: Available on digital networks, allowing messages of up to 160 characters to be sent and received via the network operator's message centre to a cellular phone.
SP	Service Provider: A service provider is often defined as a company in the telecom industry that specializes in marketing end sales, branding, customer care and billing. Such companies, provided they operate in the cellular segments, usually sell SIM-cards under their brand. A service provider is a retailer of telecommunication services.
SSP	Strategic Success Position
STI	Swedish Telecom International
STN	Statens Telenämnd (national telecommunications council, Sweden)
SWOT	Strengths, Weaknesses, Opportunities and Threats (analysis)
TACS	Total Access Communication System: a cellular telephone standard originally used in Britain in the 900 MHz frequency band.
TDMA	Time Division Multiple Access: a technology for digital transmission of radio signals between, for example, a cellular phone and a radio base station. In TDMA, the frequency band is split into a number of channels which in turn are stacked into short time units so that several calls can share a single channel (frequency) without interfering with one another. The IS-136 digital air interface standard as well as cellular systems based on D-AMPS technology are sometimes also called TDMA. See: also IS-136 and D-AMPS.
TEC	Treaty Establishing the European Community
TKG	LCR: Swiss telecommunication law
TUG	Telekommunikations Unternehmensgesetz: telecom company law (Switzerland)
TVG	Telefongesetzt: old telecommunications law (Switzerland)
UMTS	Universal Mobile Telecommunications System: the European term for IMT-2000 and the name for the third generation cellular telephone standard in Europe, standardized by ETSI.
USS	Unisource Alliance Services
VC	Venture Capital
Ventel	Vendors and telecom operators
(M)VNO	(Mobile) Virtual Network Operator
VoIP	Voice over the Internet Protocol: a technology for transmitting ordinary telephone calls (voice) over the Internet using packet-linked routes.
(P) WLAN	(Public) Wide Area Network
WAP	Wireless Application Protocol: a free unlicensed protocol for wireless communications that makes it possible to create advanced telecommunication services and to access Internet pages from a cellular telephone. WAP is a de facto standard that is supported by a large number of suppliers.
W-CDMA	Wide-band Code Division Multiple Access: a technology for wide-band digital radio communications of Internet, multimedia, video and other capacity-demanding applications. WCDMA, developed by Ericsson and other suppliers, was selected for the third generation of cellular telephone systems in Europe, Japan and the United States. The technology is also the principal alternative being discussed in other parts of the world, notably in Asia.
WEKO	Swiss competition authority
W-LAN	Wireless Local Area Network: a wireless version of the LAN. It provides access to the LAN even when the user is not in the office.
WLL	Wireless Local Loop: a wireless connection of a telephone in a home or office to a fixed telephone network.
WTO	World Trade Organisation

1 Introduction

1.1 Setting the scene

From the 1970s and 1980s till today, the complexity of economic globalisation has been raising new challenges for firms as well as for researchers and scientists in the field of company internationalisation. Headline-making company takeovers, relocations and "outsourcings" are buzz-words that frequently appear not only in the financial press but in mainstream newspapers as well to describe the phenomenon of economic internationalisation. Internationalisation has received so much attention because it truly affects individuals, groups, firms, organizations and nations. One example is the surprising, current close-down and international relocation of the Finnish Nokia plant in Bochum (Germany), which affects nearly 6,000 employees in an economically underdeveloped part of Germany (Schulz 2008). Thus the phenomenon is in no respect merely a detail in the field of economics, but a fundamental process that receives top attention in societal and political discussions (Paterna 1996: 1). Today managers and politicians alike are interested in understanding the forces that drive corporate internationalisation, especially among companies in nationally important industry segments (like the semiconductor industry for the US, Korea and Japan, or automobile industry for Germany and the US). These national core industries are also called "national champions"[1] (Ruigrok/van Tulder 1995). Understanding the forces behind the internationalisation of national core companies is of interest, as many of these companies, although facing similar starting conditions, show significantly different internationalisation strategies and performances today (Kogut 2006: 274). This strategic difference is most visible when comparing the international performances of companies at a certain point of time. The performance is mostly characterised by the number of customers or the dimension of geographical or managerial presence worldwide. One example is the divergent internationalisation of "national champions" in the oil industry: Significant differences among national core companies in the oil industry can be seen among European players with comparable starting conditions. While small-country players like Royal Dutch/Shell have managed to join the group of the largest oil companies with *"a very international and potentially global outlook today,"* (Ruigrok/van Tulder 1995: 163pp.) other continental European "national oil champions," like Statoil (Norway), are mainly oriented to a single region. The same difference in international strategic performance may be seen between comparable, larger European players like British Petroleum, which is also active globally today, and CPF (France), for example, which is only oriented to a single world region (Ruigrok/van Tulder 1995: 164). There are numerous similar examples of divergent corporate internationalisation efforts among national core companies operating in the same industry segment. Accordingly, politicians and employers continually ask themselves why some "national champions" are more successful in their internationalisation than others, why managers decide to shift company location or why certain firms in the same industry segment feel pressure to internationalise while others in a different country, but a comparable business situation, do not. From the companies' perspective, the focus is rather on success factors that shape corporate internationalisation among competitors with similar business challenges. In the meanwhile, however, internationalisation has become an especially complex phenomenon, some of whose driving forces are nearly impossible to grasp:

[1] Companies that are "national champions," according to Ruigrok/van Tulder (1995: 36pp.), are mainly characterised by their contribution to national GDP or/and market power in a given industry segment.

> "In times of growing international turbulence, people tend to feel that the world has grown more complex or less manageable than before. This feeling essentially expresses that forces have come up whose strategies and objectives are not (yet) fully understood. (…) In such times, there is always a grateful market for those who translate the "new complexity" into simple formulae. (…) The debate of international restructuring continues to be obscured by best-practice examples of commercial success ("how did they do it?")" (Ruigrok/van Tulder 1995: 1).

In response, conventional internationalisation theories like the eclectical paradigm of Dunning (1993), the oligopolistic approach of Knickerbocker (1973) or the Uppsala model by Johanson/Vahlne (1977), to mention only some of the most famous, appeared in business and management literature in order to explain these phenomena. However, these approaches mostly rely on market structure (value and size), company size, technological know-how and internationalisation experience to understand corporate internationalisation. Among companies that have significantly different starting positions at the beginning of their internationalisation (like divergent company size and home market size), these approaches might easily identify the forces behind their strategies. However, it is not as easy to identify the forces behind divergent corporate internationalisation among companies of similar size, operating in a similar industry segment, characterised by comparable technological know-how and home market challenges (demand, products/services), which is often the case with "national champions" operating in the same industry segment. In addition, firms in the same industry segment usually face international challenges during a similar time period. Thus for the most part, firms of a common industry segment do have the same international experience (Malerba 2004). In this case, conventional internationalisation theory would indicate that companies originating out of such comparable starting conditions would have similar internationalisation strategies. However, as the examples above show, this is not true. In their book, "The Logic of International Restructuring," Ruigrok and van Tulder (1995) also assert that there are major differences in internationalisation strategies among companies operating in the same industry segment and under similar starting internationalisation conditions. This indicates that the explanatory power of the conventional theories seems to be relatively low, especially when it comes to explaining divergent corporate internationalisation among "national champions" (Kutschker/Schmid 2005; Glückler 2006).

Moreover, critique of conventional internationalisation theory has stirred up discussion of alternative, systemic internationalisation approaches in the strategic management literature (see: Pettigrew 2006; Mintzberg 2003), and in the field of international management in particular (see: Kutscher/Schmid 2005; Kogut 2006). According to Pettigrew (2006) and Kogut (2006), the challenge for alternative approaches is to be more context and time sensitive. However, until today few alternative internationalisation approaches have emerged that could comply with Pettigrew's (2006) and Kogut's (2006) call for more context and time sensitive internationalisation models (Kutschker/Schmid 2005). Additionally, the few models that have arisen are still in their infancy and have gone mostly unnoticed in conventional management and business literature (Mintzberg 2003, Kogut 2006). Nevertheless, thought provoking contributions toward a more realistic understanding of corporate internationalisation processes have sprung from neighbouring disciplines, such as the old and new institutionalism (Hodgson 1998; Scott 1995; North 1992) and evolutionary economics (Nelson/Winter 1982; Dosi, et.al. 1988), as well as economic geography (Boschma/Frenken 2006; Hess/Coe 2006; Bathelt/Glückler 2002) and other interdisciplinary studies on international restructuring (see, for example, Ruigrok/vanTulder 1995; Hofstede 1993).

According to the old institutionalism and evolutionary economics (Nelson/Winter 1982, Dosi, et. al. 1988, Malerba 2002), formal and informal institutions (e.g., regulations) and informal customer reactions also play an important role in driving company activities. Institutions in this thesis differ from organisations (e.g. companies etc.) as they are defined as the "selection environement"

(Nelson/Winter 1982) in which individuals persue their activities and thus influence the decisions of the actors (e.g., decision makers)[2]. Understanding different institutional environments can thus help us grasp differences in business practices, with institutions in effect acting as fields of selection that can decide the success or failure of company strategies (Nelson/Winter 1982). In general, basic regulatory conditions, market institutions, technological systems and, nowadays, financial institutions (Zeller 2004) also exert a large influence on corporate strategy making. The human element is essential to consider as well, since corporate strategies are also shaped by the skills and character of powerful decision makers who are embedded in institutional environments. Besides company context, time plays an important role, as in, for example, the precise moment when institutional conditions must be confronted. Traditionally, the authors of innovation and technology studies (Freeman 1992; Lundvall 1992) note the importance of a historical examination of national institutions to understanding differences in company strategies and national competitiveness. Core-industry (biotechnology, ICT, etc.) institutions are most noteworthy in national competitiveness. Ruigrok and van Tulder (1995) also mention the important influence of national environments on corporate strategies of the "national champions."[3] Based on these arguments, the central thesis of this study is that differences in internationalisation strategies and contemporary internationalisation performances may best be understood through a historical examination of the national institutional settings in which the companies have been operating. This leads to the relatively provocative proposal that success or failure in foreign markets is a result of conditions in the home country in which the company arose. In addition, this would indicate that despite advanced economic globalisation, internationalisation strategies are not created in a vacuum at the top management level of "footloose" companies in a global and borderless marketplace (Ohmae 1994). Companies operating in the same industry segment seem not only to follow industry or managerial "best practices" on their way to international success, as conventional management and business literature and even politicians sometimes want us to believe. The dynamic relations between companies and their domestic institutions have been widely neglected even in the current studies on international management and strategy-making (Kogut 2006; Kutschker/Schmid 2005). Thus the central focus of this thesis is the role that national institutions play in an understanding of the divergent corporate internationalisation activities of national core companies in the same industry segment[4].

An examination of "national champions" that have internationalised out of monopoly cooperations is particularly helpful to understanding the process of internationalisation from a national setting. Therefore, the chosen subject of this investigation is the mobile telecommunication industry which grew out of former monopoly firms. Over the last 20 years, former monopoly service providers have undertaken restructuring and transformation on an unprecedented scale (Fransman 2002: 1, Steinbock 2003: 207, Lehrer 2004: 1397). Since the end of the 1980s, competition in home markets, the fragmentation of the value chain, de-regulation, liberalisation and privatisation, the development of new technologies (especially in the mobile communication field), as well as internationalisation of the

[2] The concept of "institution" is central to this study and therefore will be more precisely defined now for the sake of basic understanding (further key concepts will be introduced and defined in the respective chapters on theory): "*Institutional rules are necessary to define the limits within which individuals and firms can pursue their objectives"* (Commons 1924). North (1992) thus recognizes institutions as the game rules of society, as man-made limits on human interaction (North 1992: 3). Institutions limit and define the individual's field of choice through concrete restrictions (rules, laws) and abstract ones (norms, values, customs) (North 1992: 3). Further comments on the concept of institution can be found in the corresponding theory chapter (see chapter: 2.1).

[3] This study will refer only to companies that have internationalised from out of a national environment. Thus so-called "born globals" fall outside of consideration.

[4] The term "industry segment" is used in congruence with the term "sub-sector" in this thesis. The term "sector" is too unspecific, as the example of telecommunications shows. The sector telecommunications itself includes the sub-sectors, or industry segments, of mobile communications and fixed or broadband communications (see also section: 2.1).

customer base have led to continuing pressure on former incumbent service providers to internationalise. The result for the former monopoly players has been enormous internationalisation projects, especially in the field of mobile communications (Hess/Coe 2006). Today, telecommunications in general and mobile communication in particular are considered strategically important sectors per se in which an economy must be competitive (Edquist 2004): *"Mobile telephony is arguably the most well known example of wireless services. It can rightfully be considered a worldwide success by any standard. The number of users is already approaching three billion. This outnumbers by far the accesses to traditional landline networks"* (Thorngren 2007: 25). Building on the dramatic developments in the telecommunication industry prior to the 1980s, internationalisation strategies currently play a key role for former national monopoly service providers. This is confirmed by recent statements in the Financial Times which assert:

> "German Telecom grows only abroad. (…) Even if business in-country appears to be gradually stabilising, in the face of stiff competition, former monopolists still record slumps in home markets. (…) Thereby, domestic profits for Telecom declined by 9.3 percent, while foreign business profits, on the other hand, added up to 14 percent. The slumps were markedly renewed in fixed-line and broadband business as well as in the business clients' division T-Systems, which likewise had to take heavy losses in operative profits" (www.financialtimes.de as of: 01.11.2007).

This statement illustrates that telecommunications' growth segment today is in the mobile branch and in foreign business. These companies are shifting from once-closed national contexts into settings of international competition. Because of clearly traceable internationalisation paths (from approximately 1990 to 2008), national and international forces behind strategy development can be more methodically and systematically detected here than in any other branch. Today the internationalisation strategies of former monopoly telecom enterprises are substantially different. The Spanish company Telefonica has a clear geographic focus in Latin America. Up until now, Asian service providers have been active and successful almost exclusively in Asia. Internationalisation strategy differences are not only visible between large and small players, such as Telefonica and Swisscom, but also among smaller players with comparable starting conditions (e.g., home market structure, international experience).

An example of this is the internationalisation of Swisscom Mobile and the Swedish TeliaSonera Mobile[5]. Both companies face similar technological challenges. Their home markets are comparable in size (approximately 7.3 million inhabitants in Switzerland, 9.1 million inhabitants in Sweden (2008)), and the market value is similar. In both countries there is relatively high buying power and a similar number of multinational companies. Because both countries were once state-owned monopolies (de jure monopoly in Switzerland and de facto monopoly from the 1920s until the late 1970s in Sweden) and most telecom-markets worldwide were still closed, they did not have any significant internationalisation experience before the liberalisation of the telecom markets in Europe. According to the conventional internationalisation theories, which are mainly based on these variables, this would mean similar internationalisation strategies could be expected in both companies today. However, if we look at both firms' current internationalisation performances, as a main outcome of their strategies, we find they are starkly different. TeliaSonera has about 119.3 million (QR-1 TeliaSonera 2008) consolidated customers today and is presently active in the Nordic and Baltic

[5] The focus of this thesis lies in the industry segment (or sub-sector) of mobile communications. A (sub)-sector is according to Malerba (2004) defined by a common technological knowledge base, common demand structure and common products or services. Today, because of the convergence of IT and mobile communication technologies and the shift in business strategy to "triple play" and packed services, a clear classification of the sub-sector of mobile communications is difficult. However, during the time period the thesis was conducted, the mobile segments in most telecommunication companies operated as autonomous entities.

regions as well as in Russia, Eurasia and Turkey. Swisscom Mobile, in contrast, is only active in niche segments (WLAN provision, content-enabling) in Europe and in the US and, with a customer base of 5 million (www.swisscom.ch: 28.01.2008), is geographically focused mainly on the Swiss home market. The difference in consolidated customers worldwide (119.3 million in Sweden and 5 million in Switzerland, according to the latest quarterly reports of both companies) indicates the main disparity in the internationalisation performances of the former Swiss and Swedish incumbents today. This leads to the central question of the thesis: What role do national institutions play in the creation of divergent internationalisation strategies among "national champions" in the same industry segment? In this thesis, Switzerland's and Sweden's former monopoly service providers' internationalisation activities in mobile communications will be analyzed from an institutional-territorial perspective, and an attempt will be made to delineate the important national-institutional forces driving these activities. The influence of national institutions on the internationalisation processes in Sweden and Switzerland will be ascertained mainly through qualitative data (expert interviews), but also through quantitative data (analyses of business reports, regulatory reports, etc.) collected for the period 1990-2008.

1.2 Main objectives

The goal of the thesis is twofold. First, it will criticise the shortcomings of conventional theories of corporate internationalisation and present alternative ideas from institutional and evolutionary economic perspectives. Second, embedded in an evolutionary economic model, the importance of a differentiated view of dynamism and context-sensitivity (e.g., national institutions) will be shown in order to better understand divergent internationalisation strategies. The applicability of the model will be demonstrated with the help of detailed case studies of the former monopoly service providers Swisscom Mobile and TeliaSonera Mobile. Conducting 44 semi-structured interviews with senior executives was methodologically the most appropriate way to address the research objective: to investigate the embedded nature of internationalisation strategies in mobile communications[6]. Arguments presented in this thesis further derive from a synthesis of the interviews` analysis, as well as from a detailed analysis of business and regulatory reports from 1997 to 2008, detailed newspaper analysis (2004-2008) and general background literature relating to the mobile communications industry. Thus consequently, besides the central question of this thesis - *What role do national institutions play in the creation of divergent internationalisation strategies among "national champions" in the same industry segment?* - the following sub-questions are adressed:

- What explanation can be found in conventional internationalisation theory to understand divergent internationalisation strategies between the mobile communication providers of Sweden and Switzerland?
- To what extent do institutional- and evolutionary-economic-based approaches contribute to a deeper understanding of this phenomenon?
- To what extent can internationalisation differences in former monopoly companies in Switzerland and Sweden be attributed to the historical development of national institutions? Which national institutions are relevant for internationalisation processes in general, and for the mobile communications industry in particular? To what extent are international institutions increasingly more significant to the strategic internationalisation decisions?
- Can differences in contemporary internationalisation strategies, in this case among Swisscom Mobile and TeliaSonera Mobile, be adequately understood from territorial-institutional perspectives?

[6] The findings of this study apply mainly to former monopoly firms in the mobile communication field and cannot be generalised arbitrarily, because each branch exhibits unique characteristics and greater or lesser degrees of national inter-dependence. Nevertheless, tendencies can be shown that are valid for other industries, especially network industries undergoing a liberalisation process.

1.3 Structure of the thesis

To understand differences in internationalisation strategies from a territorial-institutional perspective and to analyse its driving forces, it seems necessary to begin this thesis by defining some key concepts, in particular "internationalisation," "institutions," "territoriality" and "(sub-) sector" (see section: 2.1). Additionally Chapter 2, "Theoretical frame of reference," presents the shortcomings of conventional theories in contributing to a realistic understanding of internationalisation strategies. Furthermore, this chapter gives a more realistic view of internationalisation processes according to evolutionary economic thinking by taking into account a wider context-sensitivity and dynamism. Chapter 2 also makes reference to existing theory in its discussion of reasonable assumptions for understanding differences in international corporate strategy development from an institutional and territorial perspective. The chapter concludes with a presentation of the central theses.

In chapter 3, "Description of case study and operationalisation," a short description of the technological and business specifications of former incumbents in mobile communications is given as well as an outline of the research problem, i.e., the differences in internationalisation strategies of TeliaSonera Mobile and Swisscom Mobile are described in detail. Furthermore, empirical evidence is given that the research problem may not be solved by the simple premises of conventional internationalization theories. Moreover, an analytic model based on evolutionary economic assumptions is operationalised according to the specifications of the mobile industry, i.e., central indicators are identified.

Chapter 4, "Methodology," focuses on describing the research methodology (qualitative) applied during the research process and explains the research process itself, e.g., how and why certain decisions with regard to the research methodology, the case studies and the process were made.

Chapter 5, "Research results," examines differences in the internationalisation processes of former monopoly players from an evolutionary economic perspective. The central proposal is that corporate strategies have evolved dynamically over time (technology) and differently across locations (national institutional "place and path dependencies", e.g., the co-evolution of the company with its institutional enviornment). Thus the aim of this chapter is to present the central national-institutional drivers that contributed to the divergent internationalisation strategies of Swisscom Mobile and TeliaSonera Mobile over time and in space. To this end, first an outline of the common industry specific trends in internationalisation that resulted out of formal and informal institutions within the international technological, market, regulatory and corporate governance systems is presented. Additionally, the general industry specific trend is compared to developments within the two countries (Switzerland and Sweden). Thus the influence of national institutions on divergent corporate internationalisation in both countries within the market, technological, regulatory and corporate governance systems is compared over three main phases: the time period before liberalisation, "the 1-2G pre-liberalisation period" (approx. 1970-1995); the time period after liberalisation, the so-called "2G boom period" (approx. 1995-2001); and finally the "3G multimedia period" (approx. from 2001-2008).

Finally, the main objective of chapter 6, "Discussion and conclusion," is to respond to the central theses of this research and to provide an outline for understanding the role of national institutions in the divergence of corporate internationalisation among national core companies with similar starting conditions. In doing so, the main findings of the Swiss and Swedish cases are presented and discussed according to the central questions and theses. Beyond this there is a short discussion of the extent to which these results might contribute to a realistic understanding of internationalisation strategies in companies in the same industry segment in general. Additionally, an

outlook on possible future research in international management is presented. In sum, the structure of the thesis is illustrated in figure 1 below.

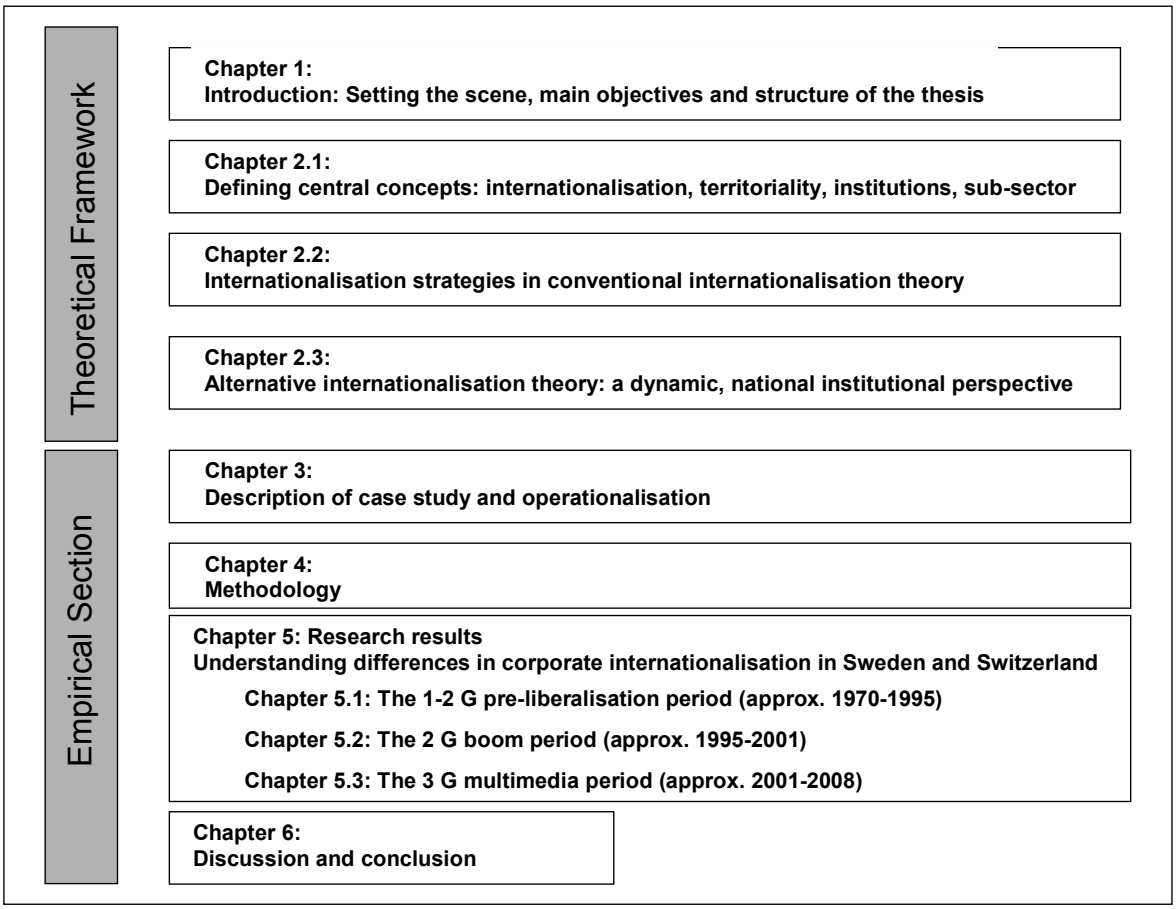


Figure 1 Structure of the thesis (Source: Author)

2 Theoretical frame of reference

2.1 On internationalisation, institutions, territoriality and (sub-) sectors

First of all, the central term internationalisation strategy must be defined. Since this thesis concerns internationalisation processes, this implies a logic of change, too. So we must look closer at how company strategies, in this case internationalisation strategies, evolve and change. Additionally, the concept of the process surroundings in which internationalisation strategies emerge and change (e.g., the concept of institutions and territoriality) must be defined in detail. The purpose of this section, then, is to identify the role of institutions and territoriality in the internationalisation processes. Additionally the term (sub-) sector is defined for a further specification of the term "industry segment". In this case also the term "national core industry" or "national champion" is specified.

Internationalisation strategy

The concept of corporate **strategy** has its origins in the field of strategic management and business management studies. Although a multitude of theoretical and empirical work on the strategic behaviour of firms has been pursued, discussion over defining the concept "company strategy" is by no means over (compare Hatten/Schendel 1975; Anderson/Paine 1978). Up until today, no adequate accepted definition exists, so that there is a variety of diverging interpretations in business management literature, mostly reflecting the specific orientation and preferences of individual authors (Mintzberg/Ahlstrand/Lampel 2002: 3; see also Pettigrew 2006: 5 and de Paula 2006). Therefore, among other things, one must keep in mind the axiomatic assumptions[7] and scientific perspectives of the authors.

The **internationalisation** of the economy is an issue that concerns many other disciplines. On the macro level, for example, this includes economics studies (foreign trade research), political science and economic geography. On the micro level, it is an issue for business management or management-oriented sub-disciplines, in particular international management, strategic research, management research or organisational research (Kutschker/Schmid 2005: 4). But even the fields of sociology, psychology and anthropology are concerned with internationalisation processes on the micro level of actors (managers, decision-makers, enterprises). Particularly in the discipline of economic geography and economic studies, attention is directed toward overall economic conditions, especially toward institutions that influence company activities. In business management studies, on the other hand, the concern is more with individual/private economic internationalisation, or on enterprises as actors. Individual and overall economic approaches are usually kept separate.

Although up till now no generally accepted expression for the term "internationalisation strategy" exists (Kutschker/Schmid 2005: 236pp.), most authors basically understand it as a change in the international business activities of firms. A famous definition among the many in business and conventional internationalisation literature was given by Dunning (1974: 13): *"Firms which own and control income-generating assets in more than one country can be defined as Multinational*

[7] Axiomatic assumptions may include the purpose and nature of human transactions in economic systems, i.e. to maximize or satisfize the outcome of transactions in economic systems. It may also include explaining strategic change and strategic decisions based on causality (based on prior events) or finality (based on future expectations). The nature of humans in terms of rationality (rational vs. bounded rationality) and self interest (egocentrism vs. all centrism) are further axiomatic assumptions. In addition, the nature of economic systems in terms of the relationship between the system and its context (context free vs. context dependent) as well as its development (static vs. dynamic as well as voluntaristic vs. deterministic) are important assumptions. Finally, the nature of economic transactions and the interaction between humans and economic systems, e.g. with regard to information (perfect information vs. asymmetric information) and cost (no cost vs. transaction cost) are implicit and important assumptions (de Paula 2006: 18).

Corporation (MNC)." Different motivations for internationalisation range from market seeking, resource seeking, and strategic-asset seeking to efficiency seeking (Bathelt/Glückler 2002: 274p.; see also chapter: 2.2.2). An organisation's motivations are realised in direct investments, alliance projects, joint ventures, export and licensing (Picot/Reichwald/Wigand 2004: 49-55). The concept of internationalisation spans companies that are active in at least one other country, to firms that have already unified whole functional areas trans-nationally. The definition of internationalisation thus comprises the total international value creation chain (creation, production, service) of a firm, not only the organisational form of direct exports or overseas branches. In agreement with Kutschker/Schmid (2005: 238), using a too narrow definition of the term internationalisation is rejected in this thesis, for it would be of little avail in a comprehensive consideration of such a complex and many-layered phenomenon. For the sake of a working definition, an international firm will be hereafter understood as a firm which practices its business activities in a trans-national framework (see also: Dicken 1998: 177).

To understand internationalisation strategies more precisely, a process view of strategy development and change is needed. A review of the literature on "change" reveals at least three main categories: describing (e.g., different patterns of change), understanding (e.g., indicators that drive strategic change) and explaining (e.g., factors that cause change). These main categories differ with regard to the ambition and purpose of the researcher as well with regard to his a priori basic assumptions. Presented here are two main but different perceptions of change:

- *The positivistic (analytical) view*: Describing and explaining the process of change means that the drivers of change are implicitly or explicitly assumed. Consequently, the literature concerned with describing patterns of change is closely intertwined with literature that seeks to understand or explain change. The mode of change refers to change sequences that are either constructed and emergent or prescribed a priori by either deterministic or probabilistic laws (e.g., cause and effect relationships, mathematical formulae). The unit of change, on the other hand, refers to change sequences that involve the development of a single organisational entity, or those that involve interaction between two or more entities (de Paula 2006: 93pp.).
- *The probabilistic (systemic) view*: Understanding change means understanding what is driving change and how the change process may be managed, both by motivating (e.g., through policy, power and negotiations) and by communicating change internally and externally. In addition, it means finding the drivers of change. Through a relationship of finality, several indicators may provide the same outcome (i.e. equi-finality), or one indicator may provide several different outcomes (i.e. multi-finality). From a process perspective and in analogy with a decision tree and its "branches," any action builds upon the past and yet departs from it. Indeed, any action opens up several associated possibilities almost in the form of a complex decision tree. With such a tree, any part can be traced to an earlier path but cannot be predetermined by it. Thus the change process is viewed as a complex analytical, political and cultural process of challenging and changing the core beliefs, structure and strategy of a firm (de Paula 2006: 93pp.):

Within the probabilistic-systemic perspective process, content and context are intimately intertwined as processes are constrained by structures but also shape structures (Pettigrew 1987). This view is the basis of the analytical model as well and shall be contrasted with the positivistic notion of determined change that dominates conventional internationalisation theory, where any kind of change may be predictable. Consequently, corporate strategy and industry structure/dynamics should be reciprocally interrelated, i.e. corporate strategy affects industry structure/dynamics, and industry structure/dynamics affect corporate strategy (i.e., the co-evolution of companies and institutional environments). The focus here will be on the process environment. In particular, the following section will expand upon an institutional-territorial approach. First, however, the concept of institution and the meaning of institutions for national core industries in their territorial anchoring must first be clarified.

Institutions, territoriality and (sub)-sector

An old and a new **institution**al economics have been distinguished in the economic literature during the last 100 years. The major difference between the two lies in the fact that the old institutionalism *"developed theoretically and methodologically in opposition to the neo-classical tradition in economics, while the new institutionalism emerges from within this tradition"* (Hodgson 1998: 170). Like sociologists, institutional economists argue that institutions are *"founded or constituted in or by human interactions and exchanges"* (Sjörstrand 1995: 21 cited after Ruigrok 2006: 335). Furthermore, the old institutionalists mainly focus on the constituent actors of an institution and its origin. The old institutionalism focuses on conflicting values, power issues and symbolism (mission statements). It analyses the development of habits, routines and legitimacy in response to an organisation's embeddedness. In comparison, a central notion of the new institutionalism in management is that of isomorphism: the phenomenon of organisations becoming increasingly similar due to (external) institutional pressures, norms and expectations. Whereas the strength of the old institutionalism is its internal analysis of institutions, the new institutionalism explains how environments provide organisations with similar experiences and expectations which lead to similar patterns of interpretation. It thus helps account for the stability of organisational arrangements and the similarity of firms' strategic behaviour (Ruigrok 2006: 336). Today, there are attempts to integrate the old and the new institutionalism because *"(...) it is in the intersection of two forces that explanations of change and stability can be found"* (Ruigrok 2006: 336). What follows is an attempt to undertake this integrative definition of institutions, for it best explains a process and its differences, i.e. stability and change, as well as strategic convergence and divergence. Thus within this thesis the term institutions is defined according to a systems perspective:

> "Economic institutions have been defined as "systems" of enforced norms, routines, conventions and traditions in which individual economic activity is embedded" (Groenewegen, et. al. 1995: 6 cited after Ruigrok 2006: 335).

Understanding the industrial context enables the generalization of this thesis to go beyond the systems under analysis, i.e. beyond the internationalisation subject in mobile communications, and to refer to strategic development and change in general.

The old internationalists in particular regard actors and organisations as socially constructed: "*The socially constructed characteristics of both persons and collective actors, such as firms, vary over time and place*" (Scott 1995: 43). Thus in Western countries, for example, competitive individualism is institutionalised in market structure. In Asian counties, on the other hand, market structures are more strongly organised through networks. *"Relations among persons or firms that the West views as collusion, the East sees as normal, inevitable, and beneficial"* (Scott 1995: 44). This points to the importance of **territorially** definable institutions and their influence on economic activities, an area particularly addressed by the field of economic geography (Bathelt/Glückler 2002). Additionally, among regulatory institutions, the nation state is considered the most powerful enforcer of rules (North 1990: 36). However, discussion of economic and social globalisation has brought increased attention to formal and informal regional and international institutions in shaping corporate strategies. Examples for international institutions are technological standards and international regulation, which arose out of industry specific institutional systems.

Referring to the analysis of international institutions the systems perspective is characterised through a sectoral or **sub-sector**al perspective according to Malerba (2002; 2004 see also Edquist 2004: 183). The term sub-sector in this thesis is congruent to the term industry segment. As a closer definition of the term industry segment in itself does not exist in the literature, the definition of the

term (sub)-sector is further outlined in this thesis. The term sector is defined as "*(...) set of activities that are unified by some related product group for a given or emerging demand and that share some basic knowledge"* (Malerba 2004: 9). The OECD for example identifies six core sectors in Europe (chemicals, telecommunications, software etc.) which generate the most innovations in the economy. They also define secondary sectors like services which only absorb new technologies and support their diffusion. The different sectors do have different characteristics (knowledgebase, form of innovation; actor sets; form of interaction and institutions). There are sample sectors that are shaped very much by R&D and tacit knowledge (e.g., pharmaceuticals) and other sectors which are user-producer driven and more shaped by economies of scale and technical knowledge (e.g., telecommunications) (Malerba 2004: 10 pp.). If single companies within this core industries are very important for a country`s GDP or/and have a high market share in a given industry sector or sub-sector these companies are also called **"national champions"** (Ruigrok/van Tulder 1995). National champions are also mostly the largest (by employment) companies in a country and with their (market) power they dominate a sector or sub-sector (Ruigrok/van Tulder 1995). However the sector itself may also today consist of different technological paradigms. Thus the sector itself according to this logic maybe devided into sectoral subsystems, e.g. industry segments based on a specific technological knowledge or common market challanges (e.g., similar demand structure and products and services) (Malerba 2004: 17). According to Edquist for example mobile communications is a sectoral subsystem of the sectoral system of telecommunications (Edquist 2004: 183). The specifications of the technological regimes and the knowledge bases in the sub-sector provide a powerful restriction on the patterns of firm's routines and strategies. This affects also the basic agents beliefs, visions and cognitive representations about the own system (Malerba 2004: 20pp.; see also Nelson/Winter 1982). Also time is very important in this respect as most companies in the same sub-sector face challenges at similar periods of time (Nelson/Winter 1982: 56).

Many pieces have been laid in the gigantic jig-saw (de Paula 2006) of explaining the relationship between corporate strategy and institutional dynamics. This thesis focuses on how internationalisation processes of national core companies in the same industry segment are influenced by national institutions. In addition, it examines how changes in the institutional environment affect corporate internationalisation strategy. To answer these and other similar questions, again it is not uncommon for researchers and practitioners to apply an entirely analytical and positivistic perspective. Thus, it is important to understand the synergies between the components in order to understand the performance of the overall system (Churchman 2002). The aim and ambition of the systems perspective stands in stark contrast to the analytical/positivistic perspective. The analytical perspective aims at finding the cause-effect relationship between independent and dependent variables for explanatory purposes. The systems perspective, however, aims at finding the relationship of finality between components/indicators in order to increase our understanding of the phenomenon in question. This means accepting that many different components/indicators (e.g., institutional influences) can provide the very same effect (e.g., corporate strategy), i.e. equi-finality, or the idea that one component/indicator can actually provide a variety of different alternative effects, i.e. multi-finality. What matters here is the collectiveness of components/indicators rather than specific variables. A relationship of finality is valid provided one is able to show that the components/indicators in question are able to have a certain effect on a certain system, and that at a certain time, or given time and space, the components/indicators provide an understanding of the system or subsystem (Arbnor and Bjerke, 1994 cited after de Paula 2006).

This thesis seeks to show that the positivistic approaches are particularly unable to answer the question of divergent internationalisation strategies of national core companies in the same industry segment. Thus it confronts positivistic mainstream thinking with a more systemic evolutionary theoretic thinking[8].

2.2 Conventional internationalisation theory

2.2.1 Strategy processes in conventional business and management literature

Up until the 1950s, business planning was almost exclusively a matter of finance planning. The beginnings of a scientific approach to business strategy have been consistently traced back to the 1960s by such classicists as Chandler (1962), Ansoff (1965) and Andrews (1965). It was instigated by the increasing complexity of the business environment that accompanied the competition for growth. The company-internal, efficiency-oriented approaches which had till then exclusively dominated were no longer regarded as adequate for successful business management. At this point, a paradigm shift to a market-oriented business environment was necessary, for it was perceived by firms as a pool of new opportunities and expansion possibilities due to constant economic growth. Subsequently, norm strategies for competitiveness and international expansion and diversification were developed, followed by, above all, cooperative company activities in the 1980s (Sjurtis 2000: 40). The concept of strategy from this time period has its roots in the areas of strategic management (management literature) and in organisation studies. But the term is not unanimously defined in the field of business management studies. Most standard textbooks also contain a definition, usually appearing in the introduction, along these lines: Strategy is equivalent to *"top management planning to achieve results which correspond to the mission and needs of the organisation"* (Wright et al. 1992: 3 cited after: Mintzberg/Ahlstrand/Lampel 2003: 22). Also Porter (1996: 68) is often cited in this context: *"Strategy means that one uses other measures than previously used to achieve a unique and valuable position."* He argues that competitive strategy is a combination of the ends (goals) for which the company is striving and the means (policies) by which it is seeking to get there. He also combines the notion of norm strategies, which derive from market variables and internal company factors that can lead a company to economic success (Porter 1998: 3). Often connected to this is the image of a "homo oeconomicus," a thoroughly informed, rational thinking human being who sees profit-seeking as his sole business maxim. Consequently, at the centre of this approach are the concepts of efficiency, cost-effectiveness, market share and profit as variables of entrepreneurial strategy decisions (Eckhardt/Köhler/Pries 1999: 20). The goal of these studies is to provide positivistic clarification and to demonstrate cause-effect relationships. Mintzberg/Ahlstrand/Lampel (2002; 2003) analysed all the major schools in strategic management in their famous work: "Strategy Safari." This is also congruent with Andrew Pettigrews latest work (2006) on strategic management: "Strategic management. The Strength and Limitations of a Field". According to Mintzberg/Ahlstrand/Lampel (2002), the differentiation between strategy schools - especially the design school as a conception process, the planning school as a formal process and the positioning school as an analytical process - may be considered part of mainstream business and management literature. These three schools clearly dominate the literature on corporate strategy-making in general and have influenced internationalisation approaches in particular (Mintzberg/Ahlstrand/Lampel 2002: 34). The following introduces the most often-cited current strategy concepts of conventional business and management literature in general (the design school, the planning school and the positioning school)

[8] As the goal of this thesis is mainly to contribute to a deeper "understanding" of institutions in the internationalisation process, it does not claim to be able to comprehensively "explain" internationalisation.

(Mintzberg/Ahlstrand/Lampel 2002). Then the most well known approaches on the topic of internationalisation are outlined. The choice of approaches was based mainly on the famous text- and schoolbook of Kutschker/Schmid (2005) on "International Management", as well as the frequency of citations of the approaches in related literature (see also Glückler 2006). It will be shown that these internationalisation approaches follow the basic assumptions of the dominant strategy schools.

The oldest school, the **design school** of business studies, asserts that there is only "one best way" of making strategy decisions, derived by top management from the specific strengths and weaknesses of a company as well as the opportunities and risks of the entrepreneurial world (SWOT-analysis). Hinterhuber (1989: 28 cited after: Meffert/Bruhn 2000: 125) thus describes strategic planning as a process through which long term goals are fixed and to whose achievement the necessary resources, means and procedures are assigned. This process is based on a systematic situation analysis of a company, or a compilation of external opportunities and risks, as well as internal strengths and weaknesses. Thus the central task of strategic management is seen as the construction, care and exploitation of potential profits, and thereby the long-term assurance of the firm's existence in its dynamic surroundings. Company strategies therefore address the question of which performance areas the firm should be active in. The goal is to position itself successfully and sustainably in the market (Meffert/Bruhn 2000: 125). A strategic success position (SSP) is a condition the company establishes through building up its most important and dominant abilities, allowing it to achieve long-term, above average results in comparison with its competition. SSPs feature the following characteristics (Picot/ReichwaldWigand 2004: 11):

- not readily copyable by the competition
- significant with respect to the future market
- important for the long-term success of the firm

According to business studies today, the goal of strategic management is above all the generation of competitive strategies directed toward a rise in customer loyalty and shareholder value.

Critique of the strategic development process as described by the design school is that top management alone, i.e. the fully informed actor (homo oeconomicus), is the decisive actor. The unrealistic assumption is that the decision-maker carries out the collective decisions in effect without loss. Static assumptions speak against this model, as the company environments are very dynamic today. Particularly interactions with the regulatory environment and power (for example of financial investors) as well as the importance of internal decision arenas and interest groups go ignored in this reductionist view of strategy development. On the internationalisation level, the work of Hymer/Cohen/Dennis (1979) and Kindleberger (1969) on monopolistic advantages is groundbreaking. Dunning's (1993) eclectic paradigm, in the sense of a checklist of strategic success factors, can also be placed in the design school tradition (see also next section).

The **planning school** view, developed in critique of the design school and regards strategy development as a formal, internal process. The planning school begins with the different actors in the strategic planning process. Like in design school approaches, however, the company directors, or top management, are relevant to decision making, and external factors are only insufficiently taken into account (Mintzerberg/Ahlstrand/Lampel 2003: 40). The strategy process according to the planning school is further based on the following premises:

- Strategies arise out of a collective (according to structural and operational organisation), conscious process of formal planning. They are divided up into separate steps that each can be set out in checklists (planning tools) and carried out via concrete techniques.

- The responsibility for this process in general lies with company management. In practice, operational responsibility belongs to staff experts in the planning department.
- The strategies arising from this process are formally formulated and must be adhered to, so that they can be implemented diversely in detailed consideration of company goals, budgets, programs and business plans.

As a whole, this planning school of thought is also based on a strongly formalised entrepreneurial process that is determined by company structure (operational planning, structural planning). The planning tools are formed by fully informed actors, and the strategy decisions are made by rational actors. In particular, the stages model of internationalisation from Johanson/Vahlne (1977) has its origins in the strategic planning school tradition (see next chapter: 2.2.2).

Due to enormous internationalisation in broad areas of the economy, mainstream business economics in the 1980s saw a boom in external planners and corporate advisors who created, generic "best/good practice" strategies for specific branches according to the **positioning school**, mostly on the basis of only a few market and company internal variables. Porter's competition strategies, as well as the Boston consulting Group- or McKinsey-Matrix, apply here as central concepts, complemented by Porter's definition of strategy. Combined with this thinking is the notion of norm strategies, which derive from market variables and internal company factors and can lead a company to economic success (Porter 1998: 3). This leads to an enormous body of literature on how to best face a business situation. This stream of approaches still dominates management and business literature today (Mintzberg/Ahlstrand/Lampel 2002: 80). The basis of these models is the assumption of atomistic, profit maximising actors. Norm strategies that give top management a guideline for company success are the aim of these approaches. Here again only top management acts as decision-maker and creator of company strategy. Other influencing factors, such as wider social-interest groups, company history and reconciliation of interests, as well as social involvement in the country of origin and cultural contexts, are taken into account only rudimentarily or partially, and under very starkly deterministic and static approaches (see Dunning`s eclectic paradigm page: 15).

The positioning school approach is mostly a-historical and a-spatial. This "best practice" school of thought, however, strongly influenced internationalisation approaches due to its easy transferability to different branches and industries. Knickerbocker's (1973) oligopolistic parallel behaviour approach belongs to the "best practice" approaches in the field of international competition strategies, as do, in a wider sense, Dunning's (1993) eclectic paradigm and the dynamic approach of the Uppsala school of Johanson/Vahlne (1977) (see next chapter: 2.2.2).

Now that mainstream business economics' general, classical schools of thought on strategy development have been presented, conventional internationalisation theories stemming from these approaches will be expanded on. The choice of the following theoretical approaches is based on their frequent citation and their presence in standard works and textbooks, like the one by Kutschker/Schmid (2002, 2005) in the field of international management.

2.2.2 Major approaches in conventional internationalisation theory

"The theory of trans-national corporations seeks to explain the existence and growth of transnational corporations" (Dunning 1993: 1). As addressed in chapter 2.1, internationalisation offers a means of meeting the challenges faced by companies today. The basic question a firm faces is why it should internationalise its business activities in the first place. Kim and Hwang (1992) see the reason above all as the synergy effects brought by cost reduction and the concentration of resource and innovation,

as well as the increased growth resulting from new foreign markets opening up. These strategic objectives are the primary motives for internationalisation. In addition, Meffert/Bruhn (2000: 461) see the causes and motives as follows:

- Additional market opportunities
- Insurance of company growth (e.g., also through financial investments)
- Utilisation of existing capacities
- Creation of an international brand
- Internationalisation of large and regular customers
- Diffusion of general business risks

Dunning (1993; see also: Bathelt/Glückler 2002: 274p.) further elaborates on the following four motives:

- *Market Seeking*: Companies pursue internationalisation steps to open up and secure foreign markets.
- *Resource Seeking*: A further objective of internationalisation activities consists in developing localised resources in order to improve and ensure competitiveness in production. This can involve material as well as immaterial resources (such as specialised knowledge).
- *Efficiency-Seeking*: Beyond the development of resources and sales markets, international activities can also aid the goal of increasing efficiency in existing production organisation. This is seen in the lowering of transport costs and trade barriers, which allows re-location in other countries and thus significantly contributes to the cost-efficient formation and deepening of existing production-labour divisions.
- *Strategic-asset-seeking*: Finally, multinational companies also conduct internationalisation strategies to defend and ensure specific local and competitive advantages, or even to intentionally destroy a competitor's advantageous position. The goal of these types of strategies above all is to achieve strategic competitive security against rivals and less to improve existing operations or develop new resources (Bathelt/Glückler 2002: 274p.)

These strategy options represent objectives that in reality can appear in modified or combined manners. In any case, internationalisation is not restricted to individual companies. New forms of border-breaking networks (horizontal and vertical strategic alliances, cooperations, joint ventures and subcontracting, financial investments) have arisen among firms and are growing in importance (Bathelt/Glückler 2002: 277). The resultant organisation forms will be addressed in subsequent sections (see pages: 15-21). Other internationalisation motives will be elaborated on in the presentation of theories.

To be able to understand why internationalisation strategies among national core companies in the same sector are so different, one has to understand how internationalisation strategies evolve and change in general. Among the many concepts that explain internationalisation strategies, three have gained wide acceptance and are often cited in mainstream business and management literature: the eclectic paradigm as an approach to the theory of the multinational enterprise (Dunning 1993), the oligopolistic theory (Knickerbockers 1973) and the Uppsala School approach (Johanson/Vahlne 1977).

The eclectic paradigm by Dunning (1993)

The eclectic paradigm is mainly associated with the work of Dunning (1977, 1979, 1980, 1988 see: Kutschker/Schmid 2005: 454). *"In seeking to define internationalisation (...), John Dunning set forth an approach (...) that claimed to comprehensively explain internationalisation"* (Kutschker/Schmid 2005: 452). He integrates different internationalisation approaches from the 1970s up to the present, mainly that of monopolistic advantages (Hymer/Cohen/Dennis 1979), several internalisation approaches (Williamson/Winter 1993 and Coase 1988) as well as location theories (see: Porter's

diamond 1998; Macharzina/Oesterle 1995 etc.), into his "OLI Model" (Kutschker/Schmid 2005: 454). The whole concept eclectically involves a conglomeration of approaches:

> "The concrete form of international operation that a foreign firm takes in a particular target market is the result of a combination of three advantages. First, a firm must have specific ownership advantages (O-advantages) that compensate for the general liability of foreignness as well as competitive position of rival domestic firms in the target market. Second, location or L-advantages of the target market have to be identified or evaluated with respect to firm strategy (Dunning 1977). Third, it has to be assessed whether the O-advantages can best be realised through internalisation (I-advantages) or through external cooperative or market transactions. Given the imperfections of good and factor markets, positive transportation costs, heterogenity of demand and increasing returns to scale, internationalisation is an alternative organisational strategy to reduce transaction costs (Coase, 1937)" (Glückler 2006: 371).

Ownership advantages are derived from Hymer/Cohen/Dennis's (1979) and Kindleberger's (1969) theory of monopolistic advantages. Here, the success of internationally active companies in a foreign market is based on the specific advantages these companies can retain in competition with locally based firms. Companies new to a market must first possess certain qualifications and advantages in comparison to the local companies in order to assert themselves in the foreign market. Advantages can be acquired in all the service functions of the total value creation chain. The existence of an imperfect market is an important condition for the long-term effectiveness of a corresponding competition advantage. If all markets were perfect (labour, technology, capital, etc), then all companies, even purely local ones, could produce any good for the same cost (Dicken 2003). Various types of advantages can be considered as monopolistic advantages. These advantages must be transferable but at the same time inaccessible to the competition. They help to overcome the market entry barriers and the formation of new ones against local competitors. In the labour market, for example, such a monopolistic advantage would be difficult-to-reproduce management know-how. Explanatory variables for the internationalisation decisions of companies based on monopolistic advantage theory include (Hymer/Cohen/Dennis, 1979: 34 and Kindleberger, 1969: 50):

- Size and image, standing and entry in the capital market
- Economies of scale (internal and external size advantages)
- More effective organisation of the value creation chain
- Economies of scale (advantages through vertical integration)

When political barriers limit market entry, licenses and joint ventures present a sensible alternative to direct investment threatened by discrimination (Dicken 2003). Besides this, Jason and Caves (1982) identify superior knowledge potential as a decisive competitive advantage. The transfer of technical and/or management know-how can in most cases be pursued without higher costs and applied in the framework of direct investment, without danger of access by competition. According to Caves (1982), direct investment in industry takes place when a high degree of product differentiation dominates. Product differentiation requires company-specific know-how and allows the firm to turn its knowledge potential to competitive advantage. Caves offers two motives for vertical direct investment. For one, the market power of suppliers can be weakened by oligopolistic markets, and therefore planning-reliability can be improved. On the other hand, protection from new competition can be built up through the reverse integration of market entry barriers. This theory can be applied to real assets branches as well as to the service industry (Caves 1982). Thus Dunning's OLI- model consists of the following elements (see next page):

Ownership advantage: Dunning distinguishes three categories of ownership advantages:

- the company's existence in opposition to other market participants (size, position, association and synergy advantages, access to resources)
- internationality: improved access to resources, and geographic risk diversification
- technological leads, patents and management resources

Internalisation advantage

- The advantages of internalising the intended foreign business activities (i.e., better organisational implementation of internationalisation) outweigh those of externalising (awarding licenses, franchising, commissioned production).

Locational advantage

- The existence of location advantages for cost-efficient production abroad weighed against the chances and risks of alternative locations (e.g., factor costs, transport and communication costs, infrastructure requirements, psychological distance) (Dunning 1993: 3pp.).

Within each category there are many variables which Dunning deduced and further expanded over time from empirical work on this topic. According to Dunning therefore, internationalisation occurs only when a company possesses ownership advantages. Ownership advantages are the "conditio sine qua non" of internationalisation that compensate for the so-called starting disadvantage of foreign companies, or the "cost of foreignness." Even the ideal organisation form can be defined according to Dunning's model. Thus direct investment is always transacted when a company exhibits all three advantage categories (OLI advantages), i.e. when in addition to ownership advantages, internalisation and foreign location advantages exist as well. On the other hand, if a company possesses only ownership advantages, then contractual resource assignment, or licensing, is the preferable option. Direct investment should come about only if foreign location advantages exist as well (Kutschker/Schmid 2005: 455). Hence, differences in current internationalisation strategies or performances could be explained by a company's specific monopolistic advantages, such as domestic market size, image, financial strengths or better organisation of the value chain (e.g., via preferential access to resources, knowledge). Dunning (1993: 3) mainly mentions economies of scale (for example, the customer base) and scope (for example, technological know-how) as important O-advantages that generate internationalisationnationalisation potential. Internalisation advantages, or organisation form, such as subsidising of direct investment, or a joint venture under a firm's own controlling interest, can also be advantageous and lead to internationalisation success. Furthermore, location advantages, or the existence of positional advantages in a host country (market volume, regulatory conditions) are significant variables of successful internationalisation and of differences in company internationalisation. This is very close to Porter's understanding of strategy as a "position" that derives from internal company and market specific variables (Mintzberg/Ahlstrand/Lampel 2002: 45).

Thus for Dunning the internationalisation process is a purely rational one. The company, at the centre of his approach, first checks whether it even has any ownership advantages. As a second step, the possible value of these ownership advantages is examined. The third step involves choosing the best organisational options (export, direct investment, etc.). In this respect Dunning (1993) adheres to the positivist tradition, which asserts that a company strives rationally toward the goal of maximizing profits. Behind this is also the assumption that, if managers adjust their decisions systematically to Dunning's model, they will be successful with it (Kutschker/Schmid 2005: 455).

Critique of the eclectic theory is above all directed at the imprecise parameters of the concept and its lack of empirical evidence as an explanatory approach. This is due to the fact that first-step evaluation of ownership advantages can never be resolved independently from an evaluation of location and internationalisation advantages (Kutschker/Schmid 2005: 455). Dunning's approach is

presented mostly in the form of comprehensive tables, which list a number of possible influence factors and explanatory variables for internationalisation with scant verbal comment. Hence the eclectic theory implies a "homo oeconomicus" figure that clearly neglects behavioural science aspects, such as individual learning processes. In view of the clear cultural differences of corporate governance systems alone, this approach should not be adopted without reflection. Additionally the eclectic theory does not take the dynamics of internationalisation processes into account. This approach involves highly abstracted, theoretical aspects of internationalisation without considering a company's concrete behavioral or procedural measures in a key foreign market or over a period of time (Paterna 1996: 43). Besides this, it fails to explain why firms in one country have different strategies of market bahvior. Its relevance for service industry companies is also limited. In fact, Dunning is aware that the individual advantage categories can be altered, but this recognition alone doesn't allow the paradigm to become a dynamic one (Kutschker/Schmid 2005: 457). Dunning assumes that firms operating in a similar business situation pursue similar strategies and thus he ignores the fact that companies react to different environmental influences. Although the theoretical approach used by Dunning was developed and verified within an overriding frame of reference, the applicability of his catalogue of criteria to the analysis of real problems proves limited. It is criticised for presenting solely a catalogue of influence factors and not a conclusive business theory.

Dunning's achievement, however, is to have enlarged the limited explanatory power of three partial analytical approaches (internalisation theory, or transaction cost-theory; the theory of monopolist advantages; the population-ecology approach) by systematically linking them to a new theory. It is also to his credit that his approach is as descriptive as it is normative, i.e., he doesn't only describe behaviour in practice. For lack of alternatives, Dunning's approach is frequently accepted as the "royal way" and serves as a theoretical basis for discussion of the internationalisation theme in conventional management and business literature (Paterna 1996: 43 also see: Kutschker/Schmid 2005: 457).

Dunning's approach also brings us to a slightly better understanding of differences in internationalisation strategies of "national champions" in the same industry segment, especially when the home market environment and company size is similar. The matter of national institutional differences rests solely on the market system of the home country of the internationalised companies, with all its key quantitative data (home market volume, economies of scale) as well as the company size (economies of scale, financial strength, technological knowledge). In the case of similar technological and service-specific knowledge bases and challenges, as well as similar firm size and market conditions, as it is often the case with competitors of comparable size, operating in the same industry segment, the approach provides only insufficient explanation for differences in internationalisation strategies and performances.

Aside from purely statical approaches in conventional business and management literature, there are also dynamic stage models. Two of the most cited (see: Kutschker/Schmid 2005 and Glückler 2006) will be introduced next.

The oligopolistic approach by Knickerbocker (1973)

The theory of oligopolistic parallel behaviour, which is often cited in connection with internationalisation, turns our attention to the fact that a company's direct investment is influenced through industry structures in their original countries, target countries, third countries as well as through worldwide industry structures (Kutschker/Schmid 2005: 411). The oligopolistic parallel-activity approach assumes a disturbance in the oligopolistic balance which leads to specific

investments abroad. In addition, Knickerbocker (1973) suggests that a company in an oligopolistic situation makes "cross investments" or adopts "follow the leader strategies" in reaction to its competitive environment. This approach is static, too. Caves (1982), Hymer/Cohen/Dennis (1979) and Kindleberger (1969) already confirmed that companies operating internationally are also quite strongly active in oligopolistic markets. An oligopolistic supply structure means that a few suppliers whose products are interchangeable amongst themselves have many demanders. One assumes that in an oligopoly the actions of one market participant always have effects on the market behaviour of the other oligopolists. If one company alters its strategy, it must count on reactions from the remaining suppliers. If direct investment is initiated in foreign markets, two typical reactions can be distinguished (Knickerbocker 1973: 23):

- A company will follow its competition abroad in order to participate in presumed advantages ("follow-the-leader" strategy). This theory suggests that in the situation of a national oligopoly, the first company to make an international move can achieve internationalisation advantages that might be dangerous for the other competitors. This means the first investor can achieve an advantage in specific oligopolistic markets that can hinder its followers' market entry. However, the theory also allows that the follower can invest abroad and re-establish an oligopolistic balance.
- The penetration of a company's markets by foreign competitors is counteracted with corresponding cross-investments in the rival's home market ("cross-investment" strategy). For example, a British company invests in Switzerland and in reaction, a Swiss company will invest in Great Britain to restore the international oligopolitstic equilibrium. This example illustrates the "cross investment" logic. Knickerbocker has successfully tested his approach in 170 manufacturing companies in the US (Knickerbocker 1973).

In both cases, the company reacts to a disturbance in the oligopolistic balance. This equilibrium describes a situation in which market participants forego aggressive behaviour because they fear the negative effects of their rival's reactions on their own performance. Knickerbocker (1973) researched the follow-the-leader investment motive. His studies are based on observing the investment behaviour of 187 US firms. The results show that US direct investment was mainly initiated by companies from oligopolistically structured markets. They also show that half of all the direct investment took place within a period of three years and about 75 percent within seven years. Both results back the hypothesis of oligopolistic parallel behaviour. Further generalisable hypotheses in the area of oligopolistic reactions can include:

- The degree of concentration in an industry has an intensifying affect on the oligopolistic reaction. Just as significant is the stability within the industry.
- The bigger the insecurity within an industry, the more threatened the rivals feel by aggressive internationalisation strategies. The response can be a high amount of newly founded foreign subsidiaries.
- The narrower the product lines of an affected company are, the greater its need is to react to the competitor's investment policy. In contrast, a wide international product palette lessens vulnerability and increases a firm's strategic options (Knickerbocker, 1973: 30pp.).

Both strategic reactions involve the break-up of national oligopolies and the creation of international ones through direct investment. The driving force in both cases is the defensive motive of defending the existing market standing. An offensive improvement of market standing is not covered by the theory of oligopolistic reaction (Kutschker/Schmid 2005: 413). Whether it serves to explain the creation and spread of multinational companies is beyond doubt. However, the timely parallel investments which Knickerbocker (1973) depends on as evidence for his theories' foundation, can also be caused by other factors (such as monopolistic advantages). Changes in factor prices, reversals in domestic demand and the erection of political trade barriers are further grounds for firms to move independently of one another and commit investments abroad (Paterna 1996 pp. 34-35). The so-called follower effect doesn't describe a direct oligopolistic reaction either, but can only be regarded as a

simple process by which the leader drives the follower to imitate it. All in all, this theory applies only to clearly oligopolistically structured markets. Hard oligopolistic motives, then, still remain to be demonstrated (Kutschker/Schmid 2005: 414).

It can be concluded that also Knickerbocker`s "olgopolistic approach" serves only partially to explain internationalisation processes in general. It is especailly insufficient for explaining differences in internationalisation strategies among national core companies in the same industry segment. The role of institutions in the internationalisation process in particular is completely left out. But this approach can be relied on to explain strategic international alliances and has validity for real-assets as well as service-industry companies.

The Uppsala Approach by Johanson/Vahlne (1977)

The last dynamic approach to be presented here is one that is as popular in international management as Dunning's eclectic paradigm: the explanatory approach of the Uppsala school. The thinking of the Uppsala school is above all associated with the name Jan Johanson, who in large part created the approach in co-authorship with other northern researchers (see: Johanson/Vahlne 1977; 1990). Johanson/Vahlne (1977) suggest that a company internationalises its activities through a process of gradual resource commitment to a particular host country (Johanson/Vahlne 1977, 1990). Two types of mechanisms act in a self-reinforcing way: market knowledge and market commitment. They interact with what Johnson and Vahlne (1977) call change aspects, e.g. commitment decisions and current activities in the host country. In short, the Uppsala model implicitly associates a gradual trajectory with self-reinforcing mechanisms that are connected to the acquisition of experiential knowledge about specific foreign markets (Araujo/Rezende 2003: 723p.). It suggests that internationalisation decisions follow incremental paths and assumes an ideal establishment chain. The establishment chain corresponds to the gradual increase in resource commitment to a particular foreign market, going from low commitment modes of operation (e.g., exporting) to high commitment (e.g., direct investment; M&A activity) (see also: Bartlett/Ghoshal 1989).

The Uppsala school's internationalisation-process model is based on empirical research focused on the behaviour of Swedish firms in the initiation and expansion of their international business activities. A tendency toward incremental enlargement of foreign operations was observed, typically following a sequential pattern of irregular export activities transacted through agents, then through overseas sales companies, up to the establishment of production companies abroad. To explain the empirical results, Johannson/Vahlne (1977) developed a closed process model that describes internationalisation as a process of incremental adaptation to a company's changing conditions and environment. The static-model elements of market knowledge and commitment influence a firm's decisions in regard to resource appropriation for foreign business activity and concrete operations.

Existing foreign activities and decisions about resources continually affect the static level as dynamic elements (Johannson/Vahlne 1977: 26). Thus a company feels its way into the foreign market step-by-step, although the adaptation form it chooses to fit into the market depends on the accompanying economic risks. Internationalisation, then, constitutes a sequential process of increasing resource commitments in which regenerated learning effects can also be observed. The development process begins with the export phase and proceeds to alliances and close cooperation, to sales and production branches as the last step. Any further differentiation that occurs in various phases of institutional market adaptation results from the greater incertitude of higher information costs as well as a lack of expert foreign-operations knowledge. A company's internationalisation pattern follows an establishment chain, or an organisationally ever-expanding commitment to certain known markets

(from export to direct investment see: figure 2). Companies thus first take a chance only in markets they know and trust (psychologically close markets) before they attempt more distant ones.

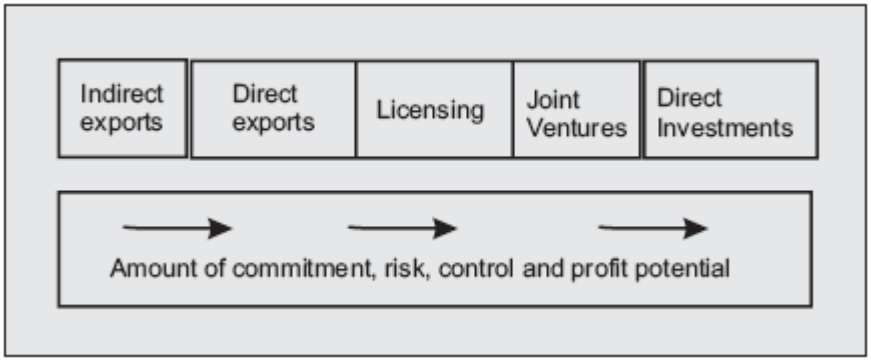


Figure 2 Modes of entry to international markets (Source: Johanson/Vahlne 1977)

Therefore, internationalisation proceeds concentrically from the home country. The concentric circles grow larger and more distant only with increasing internationality. The psychological distance comprises language, education, development level of the country, management behaviour and cultural differences. The decision to commit to a given foreign market is based on these considerations over time, as certain management resources become tied-in. Knowledge of the foreign market, which can be considered a positive experience, further accelerates internationalisation. Each step toward internationalisation increases involvement and knowledge standards. This unleashes new internationalisation steps and represents increased development through learning effects (Kutschker/Schmid 2005: 462).

Critique of the Uppsala school is directed at the high degree of determinism and unilateralism that lie at the centre of the concepts of "establishment chain" and "psychological-distance" chain. In reality, the process of internationalisation does not always proceed so gradually. It can sometimes occur in quite revolutionary fashion (Kutschker/Schmid 2005: 464).

The Uppsala approach attributes a too great role to the time factor and to the associated experience of increased learning and knowledge. Domestic institutions as well as informal institutions receive too little consideration (Kutschker/Schmid 2005: 464). Similar positions cannot really explain differences in internationalisation only on the basis of company-internal variables, such as the internationalisation experience. Thus, the model ignores a company's freedom to make strategic decisions for or against certain market entries or adaptations. Especially if companies started their international activities during the same time period, as it is the case with some "national champions" like former state monopolies, this approach seems to have little explanatory power to fully understand divergent corporate internationalisation.

2.2.3 The contribution of conventional internationalisation theory to an understanding of internationalisation strategies of "national champions"

To be able to understand why internationalisation strategies are so different among "national champions" in the same industry segment one must understand how internationalisation strategies evolve in general. That was the purpose of reviewing conventional internationalisation theories. Despite obvious differences (e.g. static vs. dynamic), there are some similarities between all these mainstream approaches. Conventional internationalisation theory explains the selection of a target market and choice of an organisational form of entry exclusively on the basis of internal conditions

within a company and on the basis of a few general home- and host-market variables (Glückler 2006: 372; Kutschker/Schmid 2005: 465pp.). Thus through this set of variables, the partial approaches of business and management studies can give a first impression of the factors influencing international strategic decision making (see: home market advantages, Dunning 1993; international oligopolistic strategies, Knickerbocker 1973; internationalisation experience, Johanson/Vahlne 1977). However there are also important points of critique:

- The unrealistic assumption of a "rational maximising, atomistic decision-maker": Former monopoly companies in particular maintain important relationships with regulatory bodies. The managers of these companies may not only implement internationalisation strategies according to a profit maximising logic, for political interests may still play a role. Thus national corporate governance cultures, the interests of shareholders and the personal visions and interests of the managers play an important role in strategic decision making, too (Ahorni 1966).
- A micro perspective which only examines the situation of the company in its market environment totally neglects its macro institutional setting. The regulatory home market environment in particular, as well as international technological developments, are very important for national core industries (Eckhard/Köhler/Pries 1999: 15).
- Culture is another key concept for informal institutions and is mostly neglected in mainstream internationalisation theories. Even companies in the same country can have different business cultures which demand different visions and business strategies (Nonaka/Toyama 2005: 424).
- Most internationalisation models are based on a post-cold-war manufacturing-industry logic (Jones 2003). In the service sector, company reputation and marketing as well as human resources are very important (Perlitz 2000: 356) because of the immateriality of the "product." The result is that complex service industries in particular tend to internationalise in markets that have similar consumer habits as in their home country. This aspect is not elaborated on in detail in mainstream internationalisation literature (Meffert/Bruhn 2000: 457).
- Most mainstream approaches are not dynamic and only give partial explanations (Kutschker/Schmid 2005: 465). Furthermore the few dynamic approaches are too deterministic and based on too few variables, which are mainly: market size and value, company size (measured by number of employees and financial strength), technological know-how and international experience. Knickerbocker (1973) adds oligopolistic rivalry as internationalisation motive too. However in many national core sectors international oligopolistic structures do not exist (yet).
- Additionally, internationalisation approaches highly neglect different branch and sector specifications. Internationalisation in the field of pharmaceuticals, for example, may follow completely different motives from those of telecommunications (Kutschker/Schmid 2005: 469).
- International divestments are also unexplained by conventional internationalisation approaches.

This critique is only the tip of the iceberg and by far not complete (for a complete detailed critique of conventional internationalisation theories see Kutschker/Schmid 2005: pp. 465-474). But it shows that conventional internationalisation theories aimed at industry-wide norm strategies do not satisfactorily explain the complex internationalisation phenomenon. Additionally, according to these concepts companies which share similar starting conditions in their internationalisation, like technological knowledge bases, internationalisation experience, financial resources and market and product challenges, should have similar internationalisation strategies and performances. However as Ruigrok and van Tulder (1995) and also Hofstede (1993) found out in their analysis of over 100 "national champions" in the same industry segments this is not true (Ruigrok/van Tulder 1995: 60):

> "There are obvious limitations to generalising restructuring and internationalisation concepts from one industry or country to another" (Ruigrok/van Tulder 1995: 6).

This indicates the explanatory limitations of the conventional internationalisation approaches in general and when it comes to understanding divergent corporate internationalisation of companies internationalising out of similar starting conditions, as it is the case with many "national champions"

in the same industry segment, in particular (Kutschker/Schmid 2005: 467). In sum the main points of critique can be reduced to the concepts of context-sensitivity and dynamism, as non-market company-external institutions, power and changing relationships among central actors are widely neglected in conventional internationalisation theory. However, it must be proven in the empirical section of this thesis through demonstration that conventional internationalisation theory cannot contribute to a full understanding of differences in the internationalisation strategies of the mobile communication firms Swisscom Mobile and TeliaSonera Mobile.

2.3 An evolutionary economic view of national institutions in the internationalisation process

In the previous chapter, the unrealistic assumptions of mainstream approaches from business economics and management literature were particularly criticised for contributing little to a realistic understanding of different internationalisation strategies among national core companies in the same industry segment. Outside of the mainstream, however, theories in strategy research have developed which address the dynamics of strategy processes. The alternative, partial interdisciplinary concepts which have emerged, however, are not yet widely elaborated in the international management literature. They include the entrepreneurial school's visionary process, the cognitive school's mental process, the learning school's emergent process, the power school's process of negotiation, the cultural school's social process, the environmental school's reactive process and the configuration school's process of transformation (de Paula 2006: 19 see also: Mintzberg/Ahlstrand/Lampell 2002; 2003). Some of these studies solely share the assumption that the entire phenomenon of economic internationalisation, however, is only understandable through its actors. Other approaches solely focus on the broader economic context (Kutschker/Schmid 2005: 5). There are only a few interdisciplinary studies that succeed in optimally combining both perspectives. As a result, there is currently a demand in strategic management for a systems perspective of strategic development and change:

> "Strategy process research attempts to address the very difficult question of how strategies are formed, implemented and changed. (…) What constitutes an effective strategy is addressed in the work of "strategy content" researchers. (…) Content research describes attractive destinations, but without explaining how to get there. The getting there, the journey, is the task of strategy process researchers. (…) Rarely are these studies contextually and historically situated. Meaningful process research requires rich linkages through time and across levels (…) This requires a more holistic approach to strategy process research" (Chakvarty/White 2006: 183).

This reveals the current interest in alternative strategy-process research, which is still quite marginalised. Pettigrew (2006) in particular, in his anthology "Strategy and Management," calls for company-oriented strategy research to pay stronger attention to contextual, dynamic, interdisciplinary and creative work. Kogut (2006: 270pp.), in his literature review on "International Management and Strategy," also highlights dynamic- and context-based studies as the future of international strategy research. In the following section, an integrative theory framework will be presented, based on evolutionary economics' strategy understanding, which integrates interdisciplinary approaches with an all-inclusive and specific territorial-institutional view of internationalisation, in order to address the central question of this thesis - why national core firms with similar starting conditions in their internationalisation show such different internationalisation strategies and performances.

2.3.1 Strategy processes from the view of evolutionary economics

The evolutionary economic movement is rooted in the tradition of the Austrian school according to Friedrich A. Hayek ("Competition as discovery process") and Joseph A. Schumpeter ("Competition as a process of creative destruction"), and the insights of evolutionary biologists such as Darwin and Lamarck, as well as the classical economics teachings of Thomas R. Malthus and David Ricardo. Many of the concepts and thought patterns stemming from evolutionary economy are based on the contributions of American institutionalists. Around 1900, three US institutionalists were especially influential: Thorstein Veblen (1899), John Commons (1924) and Westley Mitchell. They criticised the simplistic assumptions of mainstream economics at the time for not taking into account dynamic change within institutions during decision-making processes. In contrast to neoclassic and mainstream economics, which rests purely on physical paradigms and assumes the existence of economic market balance, evolutionary economics reconstructs economic processes as analogous to biological evolution. With the publication of "An Evolutionary Theory of Economic Change" by Richard R. Nelson and Sidney G. Winter in 1982, the concept of evolutionary economics was established in the economic sciences (Peter 2004: 25-34).

Evolutionary economists have made the following contributions toward understanding the strategy development process: In recent years, increasing attention has been given to the notion that companies primarily compete on the basis of their competences or capabilities (Prahalad/Hamel 1990; Teece 2000). The company is viewed as a bundle of relatively static and transferable resources which are transformed into capabilities through dynamic and interactive, company-specific processes, where individual skills, organisation and technology are woven together (Nelson/Winter 1982; Sundaram/Black 1992: 733). An important part of these capabilities are strategic routines (Boschma/Frenken 2006: 19). Strategic routines are central to the concept of economic evolution according to Nelson/Winter (1982) and Dosi, et. al. (1988):

> "(…) they (routines) are the product of processes that involve profit-oriented learning and selection. Metaphorically, the routines employed by a firm at any time can be regarded as the best it "knows and can do"" (Nelson 2005: 95).

Nelson and Winter distinguish three types of routine`s. One of them is the everyday routine, or operative behaviour of the company, which mostly involves general procedures and incremental changes (Nelson/Winter 1982: 400p.). Decision routines, on the other hand, are of a more radical nature and are required when a firm faces new situations. The third type of strategy routine concerns the behaviour patterns of a company's strategic orientation and mostly brings about radical organisational changes. Thus in the tradition of evolutionary economics, internationalisation strategies can be interpreted as radical strategic routines as well as incremental strategic routines if they are rooted in long-term internationalisation epochs (Kutschker/Schmid 2005: 1086). From the point of view of evolutionary economics, the main goal behind all strategy routines is securing the viability of the company. Altogether, the routines define the genetic code of an organisation (Bathelt/Glückler 2002 p.197 cited after: Hannan/Freeman 1993).

Evolutionary theorists developed their own premises out of criticism for practically all the simplistic, theoretical model assumptions of neoclassicism (methodological individualism, homo oeconomicus, balance, optimalisation and mathematical limits analysis) and of the reductionist views that led to the development of universal norm strategies. When evolutionary economics uses the term "actor," it draws upon Foster's (2004 135pp.) concept of "homo creativus", as opposed to maintream economics' "homo oeconomicus":

> "Economics is a theory of choice. But how do we make choices? Economists say we use the rationality assumption. What we do is evolve and make choices on the face of very incomplete and imperfect information, usually with imperfect feedback on the actions that have been undertaken" (North 1992: 3).

The widespread, unspoken assumption of economic science is that actors can correctly identify the causes of their difficulties, and that they know the costs and advantages of alternative decisions and how to handle them accordingly. In contrast, homo creativus is a unit of consciousness that observes a company, mentally organizes it and develops appropriate business models for it. As opposed to other creatures, the homo creativus can hand down to other actors the learned knowledge and personal abilities he uses to actively structure his environment. He is thus capable of learning (Hausmann 1996: 78). Essential to understanding the perceptual, learning-capable homo creativus is his alleged rationality. The starting point for this principle is Simon's concept of "bounded rationality": *"(...) actors are intentionally rational, but only limitedly so"* (Scott 1995: 51). When the term "bounded rationality" is applied to actors, it means there is no exclusion of irrational activity. The actor is also embedded in a historical time period - his past experiences can definitively influence his current activities. Furthermore, in his efforts to creatively adapt to a changing environment, he finds himself confronted by the phenomenon of slackness as well as by power structures. The unit of consciousness involved can exist on different aggregate levels and, therefore, a homo creativus can also represent an entire company or organisation. According to Nonaka and Toyama (2002: 1001), the company can be viewed as an organic configuration of various interaction spaces where people interact with one another based on the knowledge they have and the meaning they create. Informal or formal institutions, such as corporate culture and organisational routines, specific to the company can either promote or hinder organisational and strategic knowledge creation. A knowledge vision gives the company an ideal state of being. Top-management shares such an ideal mostly when radical strategic decisions, like internationalisation strategies are made (Nonaka/Toyama 2002). In neoclassical theories, differences between companies are viewed as market imperfections that should disappear with competition, unless blocked by barriers, high cost or limited management capabilities (Nonaka/Toyama 2005: 420). According to evolutionary economic thinking, differences between companies can also be based on a manager's character and personality, dreams, visions and ideas which materialise in different business strategies. The company's culture (Kutscher/Schmid 2005: 764), which includes the manager's visions, especially that of the CEO, is central to strategy making processes (Aharoni 1966; 1971, 1993):

> "A "good" car probably means something different to Toyota than it does to Honda, and their ways of making a good car are also different from each other" (Nonaka/Toyama 2005: 420).

This means that in order to explain company strategies, one also has to analyse the subjective elements and interests of the top management circle, the company's value system and business culture, as well as the commitment of the employees (Nonaka/Toyama 2005). The management board's power relations with important stakeholders and shareholders, informal contacts, etc., also play an important role in the decision-making process. Informal contacts with other top managers in related or competing business segments are a very important relational capital that shapes the perception of top managers and influences their decision-making. This advances the concept of methodological individualism from the homo oeconomicus' world into a contextual perspective typical of evolutionary economics. Nelson (2005) especially emphasises the industry-segment specifications of context and change when analysing different firm strategies (Nelson 2005: 78):

> "Of course what firms do, and the technologies they employ and develop, are influenced to a considerable extent by the environments they are in" (Nelson 2005: 32). "The selection environment greatly differs from industry to industry" (ebd: 97).

The selection environment is a critical point in evolutionary economic research (Nelson/Winter 1982: 265). Routines, like internationalisation strategies, are first of all influenced by selection environments (e.g., institutional environments) at the micro level of company decision-makers, as well as by national and international institutions in the specific industrial complex of the company (Ruigrok/van Tulder 1995). In evolutionary economic thinking, there are no atomistic rational actors, but activities on the micro-level of top management boards and committees, influenced by individual network relations und structured by formal (e.g., corporate governance rules, organisational units) and informal (e.g., company culture/vision/power) institutions (Scott 1995: 2). In economic geography as well, contextuality and path dependencies are central to research in the field of internationalisation processes today (Hess/Yeung 2006; Dicken 2003; Dicken/Hassler 2000; Henderson et. al. 2002). Ruigrok/van Tulder (1995) in particular, as well as Hess/Coe (2006), point out that former "national champions" are still strongly embedded in national industrial complexes which also influence their internationalisation strategies.

Strategy development processes within an evolutionary economic theoretical framework are tied into historical contexts, characterised here by the institutional environment analysed in time. Furthermore, actors working under exogenous parameters can achieve only satisfactory, not optimal, solutions. They do not maximise their strategies, but pursue any solution that allows some subjectively determined pay-off or satisfying result (principle of "satisficing" not "maximising") (Hausmann 1996: 78). To solve upcoming problems, actors first seek solutions in their tried-and-true knowledge base or in their fields of reference. Consequently, bounded rationality is the basis for an actor-oriented, theoretical approach e.g., within development-path experience, by trial and error in new situations, scanning or rival-imitation (Nelson and Winter 1982). The other difference from conventional strategy process theories is that in evolutionary economics, organisational and strategic change does not progress in linear fashion; the evolution instead is reflected in a multitude of possible development paths that cannot be ascertained a priori (Bathelt/Glückler 2002: 196). Therefore, from the evolutionary economic perspective, there is no absolute best solution, but an abundance of possible goal-achieving paths. This approach thus stands in opposition to the positivistic conventional theories of business economics (Nelson/Winter 1982).

The following section more closely addresses the significance of institutions and time in corporate strategy development from the evolutionary-economics point of view.

Place dependencies: the significance of national institutional environments in understanding differences in corporate strategies

The role of institutions in the strategy making process

"Place dependencies" signify the geographical context in which actors are embedded (Martin/Sunley 2006: 415 and Cox 1996: 164). As Cox (1996) argues the role of place and local context is of key importance in shaping company strategies. In this thesis the focus lies especially on national institutional contexts based on the strongly sociology-influenced "old institutionalism" (for a definition of the characteristics of the "old and new institutionalism" see: chapter 2.1). Baum/Oliver (1992) as well as Nelson/Winter (1982) argue that formal and informal institutions influence a company's chances of regulatory and market actors' acceptance, and hence its survivability, or survival-strategy formation. As such, differences in strategy development arise from involvement in different institutional selection fields and development paths. Thus also cognitive and political legitimacy are important in the selection process, because the fitness of an organisation depends not only on its adaptation to appropriate technological paradigms, but also on conforming to socially accepted norms, rules and conventions (Bathelt/Glückler 2002: 197). From this perspective, the company-as-actor is considered to be a group of individuals pursuing a common goal. In this pursuit, institutions are very influential in defining the parameters for strategy decisions. However, what exactly is meant by "institution"?

The goal of institutions is to reduce the insecurity of human interaction (e.g., informational asymmetries) in a complex world especially in a very technologically dynamic one. To lower risky information deficits, a company implements formal (structural) institutions like specific tools of analysis and company organisation to structure internal and external information and take decisions accordingly: North (1992) also identifies institutions as societal rules, or as human-devised limits on human interaction (North 1992: 3): "*Institutional rules were necessary to define the limits within which individuals and firms could pursue their objectives"* (Commons 1924). *"(...) [institutions] provide incentives and disincentives for people to behave in certain ways"* (North 1992: 1). Institutions are also described by Veblen (1899) as: *"...settled habits of thought common to the generality of man"* or by Scott (1995) as: *"...rules of conduct"* (Scott 1995: 3). Thus through informal institutions, a simple trust can be built by which, in turn, important knowledge can be more easily transferred. Hence institutions limit and define the options of individuals through:

- Formal limitations (rules, laws)
- Informal limitations (norms, values, customs)

Scott (1995) further distinguishes cognitive, normative and regulative institutions: *"Institutions consist of cognitive, normative, and regulative structures and activities that provide stability and meaning to social behaviour. Institutions are transported by various carriers – cultures, structures, and routines – and they operate at multiple levels of jurisdiction"* (Scott 1995: 33). Regulative institutions include rules and laws, normative institutions consist of values and norms, and cognitive institutions refer to culturally influenced, unconscious behavior. The state in particular is seen as the most powerful rule enforcer of all regulative institutions:

> "Because ultimately a third party must always involve the state as a source of coercion, a theory of institutions also inevitably involves an analysis of the political structure of a society and the degree to which that political structure provides a framework of effective enforcement" (North 1990: 36p.).

Institutions constitute the rules of the game in the economic world that influence players and/or organisations, e.g., firms trying to achieve their objectives. Institutions can be technical standards, access tariffs or rules and laws in a special industry segment (Edquist/Johnson 1997: 46). There may also be other institutional segments, as noted by Hollingsworth (2000: 601), who differentiates institutions (societal rules and habits, conventions, norms) from institutional arrangements (markets, states, networks, hierarchies, societies), institutional sectors (financial, educational, legal), organisations (organisational norms, control structures, etc.) and outputs and performances (products, decisions, strategies). Additionally, Coriat and Weinstein (2004: 327p.) establish four categories of economic institutions, namely: markets and money; the legal and political framework of the state; contracts and cultural beliefs; and social norms.

To simplify things, in this thesis the term "institutional systems" will be used to refer to the market, the technological, the regulatory or corporate-governance system. Within these systems, a differentiation will be made only between formal and informal institutions. Formal refers to codified institutions (rules, laws, etc.), while informal comprises non-codified belief systems (culture, norms, etc.). Thereby a hierarchy between formal and informal institutions will be implicitly assumed. Informal belief systems are mostly the basis of formal institutions. All in all, institutions are also characterized through persistence over time. Consequently, institutional change is always a long-term process (North 1992).

Institutions also differ from the term organisations (e.g., firms etc.): *"Organisations may be defined as formal structures with an explicit purpose, which are consciously created"* (Edquist 2004: 158). Organisations may also be referred to as actors, players or agents. The relations between institutions and the company as an organisation, and between institutions and organisations are a central focus of what follows. Institutions are often created by organisations. At the same time, existing institutions influence organisations as well as the relations between them. Thus the relations between institutions and organisations are mutual. Institutions are formed and changed by the actions of (some) organisations (Edquist 2004: 157pp.). In this thesis, a clear distinction will be made between organisations (players and actors), including the relations between them, and institutions (the rules of the game) in order to be able to discuss the relations between them as well.

The institutional framework legitimises the actors' activities. The power of authority, such as in the government, for example, is an expression of this legitimacy because it derives from the social norms and values, (say, democratic) of western society. North (1992) therefore emphasises that the power factor influences the formation of certain basic institutional conditions and can stand up to certain institutional realities with its own strategies. Power can exert itself as charismatic, bureaucratic or even through traditional values. The possessor of power- and legitimacy-functions can vary over time. While the state has long held the power of monopoly enterprises, today this has been transferred to customers or to capital providers. In reality, many authorities represent different, sometimes even conflicting interests. Company decision makers thus must take these interests into account. Institutional stability arises out of relationship networks and remains in place as long as it serves the interests of the most powerful actors involved: *"Institutional work is undertaken by powerful actors with material or ideal interests in the persistence of the institution (...) Where such interests are not present and influential, deinstitutionalisation occurs"* (Scott 1995: 49).

Thus company strategies arise from specific institutional contexts, in this case identified as the network context of sectoral, or sub-sectoral stakeholder groups (e.g., clients, competitors, regulators) (Scott 1995: 51).

Institutions, territoriality and strategic divergence

The institutional framework also affects the actors' interests. Institutional factors determine, for example, whether actors such as firms should pursue their interests to achieve profits. Institutionalists observe actors and also organisations as socially constructed: *"The socially constructed characteristics of both persons and collective actors, such as firms, vary over time and place"* (Scott 1995: 43). This leads to a discussion of institutions and their territorial placement. Due to the results of economic globalisation, hyperglobalists foresee a hegemony of large corporations and an end to the nation state, which will supposedly be made obsolete through unlimited global markets and the worldwide production, business and finance networks of powerful, globally active companies. This virtually implies a world without boundaries and firms without locations (Ohmae 1994). Companies from the same branch segments would all see themselves confronted by more or less the same challenges. This would also speak for similar reactions in terms of internationalisation strategies (Elkins 1995: 28-29). The argument here is that similar institutional environments can lead to similar strategy development, while divergent institutional environments can make differences in strategy development more understandable. The actions of all agents are shaped by institutions (rules, regulations and belief systems). In particular, international institutions from the same sectoral or sub-sectoral segment can lead to converging strategy decisions:

> "(…) firms facing similar technologies, searching around similar knowledge bases, undertaking similar production activities and "embedded" in the same institutional setting share some common behavioural and organisational traits and develop a similar range of learning patterns, behaviour (strategies) and organisational forms" (Malerba 2004: 12).

For example, a specific technological regime in an industry segment defines the nature of the problem that firms have to solve in their activities. It also shapes the incentives for and constraints on particular behaviours and organisations, and even effects the basic processes of variety generation and selection and therefore the dynamics and evolution of firms (Nelson/Winter 1982; Malerba/Orsenigo 1996). Technology and technologically related knowledge centres the analysis on the issue of sectoral boundaries, which change over time through the specific interaction of different actors within and outside the sectoral system. This is also called co-evolution, which takes place between actors, and actors and their institutional environment. A sectoral system, according to Malerba (2004), has three main building blocks - knowledge and technology; actors and networks; and institutions:

> "A sector is a set of activities that are unified by some related product group for a given or emerging demand and that share some basic knowledge. (…) A sectoral system of innovation (and production) is composed of a set of agents carrying out market and non-market interactions for the creation, production and sale of sectoral products. Sectoral systems have a knowledge base, technologies and (potential or existing) demand. The agents are individuals and organisations at various levels of aggregation, with specific learning processes, competencies, organisational structure, beliefs, objectives and behaviours. They interact (and) (…) their interaction is shaped by institutions. A sectoral system undergoes processes of change and transformation through co-evolution of its various elements" (Malerba 2004: 9p.).

According to Malerba, the main advantage of using a sectoral system perspective is the fact that it allows a better understanding of the structure and boundaries of the sector; the agents and their interaction; the learning and innovation processes specific to a sector; the sectoral transformations; and the factors causing a differential performance among firms and countries in a sector (Marlerba 2004: 10). Sectoral studies highlight the importance of international institutions for firm strategies, e.g. international technological standards or regulation. Additionally a certain degree of convergence

toward a stronger international (finance-) market orientation and national governments' abandonment of explicit national industry politics are emphasized by these sectoral studies.

In contradiction to this stands the literature that highlights the perspective of national institutions in influencing company strategies. As shown by the literature on national innovation and production systems (Freeman 1992; Lundvall 1992), governments also still play an important role as catalysts of innovation and its spread in the economy. This research orientation has been established at the beginning of the 1980s, and is an attempt to base differences in the competitiveness of nations on the national institution set, as well as on cooperative relations between firms and nation state organisations (other firms, institutions, etc.) (Lundvall 1992). The term NIS (National Innovation Systems) was introduced by B.-A. Lundvall, who in 1988 determined actor-relationships (user-producer-links) to be its essential elements. Lundvall analytically separates the production and innovation processes, but also characterises them as "mutually interdependent." He emphasises common language and geographical proximity as important factors for an NIS. National governments have a central position that manifests itself in the form of direct intervention, technical standards and other regulations (Lundvall 1988: 360). Supporting institutions, in the form of universities, are identified as shelters for basic research. Indeed, to Lundvall the influence of basic research on the production system seems less relevant than the knowledge transfer between producers and operators (Lundvall 1988: 364). From different perspectives, Freeman (1989) on the macro-economic side, and Lundvall (1992), Rosenberg and Nelson (1994) on the micro-economic side, focus in part on the same national institutions, but weight them differently. For both approaches the nation state still allocates essential basic conditions (regulation, educational policies, etc.) for competitive purposes in times of regulatory and economic globalisation; the different exponents of NIS agree on the importance of national institutions for company strategies (see: Lundvall 1992 and Freeman 1987). Thus, the pattern of a country's historical specialisation in a sector may be greatly affected by its institutional characteristics and vice versa (Malerba 2004: 26). The traditional presence of leading sectors and firms in different countries may help explain the institutional differences between the countries (Malerba 2004: 25pp.) and divergent company strategies/performances as well. There is a co-evolution of the national and sectoral systems which goes in both directions and is dominated by certain agents in one or both systems. Mainly the actors with the greatest powers of reputation and allocation dominate the systems and changes within institutions in either one or both systems.

Institutions and interactions which set parameters for company decisions can present either potentials or obstacles to company strategies. The institutional framework co-determines the development path taken through the acquisition of knowledge and skills. This direction is the decisive factor in the long-term evolution of the involved companies (North 1992: 93). Thus different corporate strategies among national core companies from different countries, may also be explained by different national institutional surroundings or "place dependencies" (Cox 1996). The above discussion offered first insights into a dynamic view, which will be more precisely elaborated in the following section.

Path-dependencies: the role of co-evolution of companies with national institutional environements in understanding differences in corporate strategies

Aside from defining institutional "place dependencies," the meaning "time" - so-called "path dependencies" - must also be taken into consideration.

> "Path dependence recognises historical contingency in that at any given juncture, events can follow a multiplicity of paths leading to different outcomes. It also recognises the role of strategic action in influencing the course of events and in shaping the creation of new paths. Finally, path dependence recognises that there are discernable structures acting as "carriers of history" that afford different sets of opportunities and constraints in shaping the direction and pace of change (North 1990)" (Araujo/Reszende 2003: 722).

There are differences in path dependency. Path dependency can be divided into paths in space and time according to Hakansson and Lundgren (1997: 119-137).

Paths in time: trial and error, (company internal) learning and imitation

Every company, independently of its national context, has an individual development path. Former internationalisation experiences can influence future decisions (Johanson/Vahlne 1977). This does not lead to the type of ideal internationalisation path mentioned in conventional internationalisation theory, but to different internationalisation sequences that depend on learning effects, the experience of the current top managers, relational capital with former collaboration partners and former relationships with important stake- and shareholders on the national as well as the international level. A precondition for the development of strategic routines in economic evolution is experiential knowledge and learning, which is embedded in path-dependent structures (Nelson/Winter 1982).

An evolutionary perspective of organisational and strategic transformation arises from the concept of variation. "variation" refers to changes in the pools of routines which result from strategy innovation or imitation. Strategy variations are triggered by changes in the market and non-market environment of the company. The environment of a company's population is shaped by the business cycle and by demand development as well as by basic political and socio-institutional conditions. Companies which have the best fitness level due to their routines gain advantage over the others. In this concept of selection, firms which are more poorly fitted to their environments are inferior and ultimately drop out of the market. Since the fitness of organisations is also dependent on the accepted norms, rules and conventions of a society, cognitive and political legitimacy are as important to selection as economic efficiency (Bathelt/Glückler 2002: 197; also see Nelson/Winter 1982: 400p.). According to Nelson and Winter (1982), strategy routines can arise in companies in the following possible ways: When actors are familiar with a situation, which is mostly the case, they act repetitively and according to accustomed patterns. If a situation is new, then the available information is always incomplete. In this insecure situation a company must feel its way through viable solutions ("trial and error"), which eventually become implemented as new routines. The results of the search process are dependent on two factors - the knowledge pool already accumulated by a company, and their activities in quest of solutions. At this point the company develops search strategies determined by the field being searched, the manner of investigating and the chosen rules for making a decision. The search activities are evaluated and their execution is determined based on these decision-making rules. For market-oriented companies, profit-bringing solutions are at the forefront of the search. The company thus investigates those areas it already knows and is familiar with. One refers here to a neighbourhood search or imitation, which leads to a natural path of economic-technological development (Nelson/Winter 1982: 247).

In essence, therefore, new strategy routines result from learning processes that occur during search activities. This presumes the actors have learning ability and corresponding learning potential, and departs from a purely statistical observation in favour of a historical-dynamic one. Hence, actors in evolutionary economics first of all have an ability to save and interpret information. Secondly, they can acquire new abilities and in turn implement them as routines. From this we can define learning processes as permanent improvements in actors' abilities, through which they develop, test and ultimately adapt various routines. Thus through a trial and error process, actors feel their way toward temporarily viable solutions, resulting in new strategies. This learning process counts as successful, if all the relevant selection fields, i.e., market as well as state and the internal corporate governance structures, accept the solutions (Dosi/Orsenigo 1988: 27). Thus is the institutional environement of the decision makers that shapes their decisions and because of their characteristics (i.e., institutions are not easy to change) stabilise strategic paths. However, historical vagaries can also lead to path disruption.

In contrast to individual actors, however, organisations go through a collective opinion-building and decision-making process in which the diversity of individual interests often results in consensual, less-than-optimal adaptations. Insecurity about the best means-and-ends relationship implies unexpected and unforeseen business outcomes ex ante - that is, no certainty over the best possible adaptation is afforded in advance. Adaptive decisions in circumstances of insecurity can even appear arbitrary from the outside. The adjustment and negotiation processes in a company, as well as the time-consuming implementation of adaptation objectives, result in structural inertness in the organization. The timing (leader, follower) of adaptations to altered basic conditions thus becomes a decisive factor in competitiveness (Bathelt/Glückler 2002: 197). In choosing the right decision in relation to the search, actors must formulate their own alternatives and ultimately choose from them.

To sum up, the term "paths in time" refers to the individualised development paths of companies or individuals in the company which can change constantly and which is mainly based on learning effects and experience (Hakansson/Lundgren 1997: 119-137). Path persistence is thus the result of positive learning effects and a persisting institutional structure within the mentioned systems both company internal and company external. Path disruption thus may occur through negative learning effects, or a changing institutional environement (e.g., changing value system within the company). According to evolutionary economic assumptions the actors do not try to maximise but instead try to get a satisfactory solution. What is satisfactory depends on the visions of each single person and its institutional environement (e.g., company culture). Because different actors mostly have different institutional selection environments available to them, it is not improbable that they would develop and realise varying solutions to the same problem (Nelson/Winter 1982: 262). This could explain divergent strategy development from a company internal perspective.

The following section addresses institutional selection environments and their significance to differences in strategy development processes. It must be mentioned here that these company-internal processes never occur in a vacuum, but are embedded internally as well as externally in institutional environments. The importance of national institutions on strategy development and change will be more closely examined later on (see page: 36).

Paths in space: the co-evolution of company strategies and (company external) institutional paths

> "Place- and path dependence are transparently related. Particular places are characterised by particular types of path dependence and agents are not just locked into a particular development path but also in their particular place where their (path dependent) powers can be exercised, This follows from the sort of externalities and social infrastructures characteristic of particular areas" (Cox 1996: 164 see also Martin/Sunley 2006: 415).

In contrast to "paths in time", the term "paths in space" (Hakansson/Lundgren 1997: 119-137) refers to the structural elements of the selection environment and its institutions, which need a longer time to change. This brings up the notion of the co-evolution of a company's activities and change in the institutional environment (Schneidewind 1998; Boschma/Frenken 2006). It is not only the selection environment that impacts a company's strategies, but a bipolar process of mutual influence where power relations in the industrial complex are very important. As mentioned above, the company's relationship with the market and non-market selection environment is marked by institutions. Because co-evolutive processes can affect the institutional selection environment, the company's reputative and allocative power is important and influences these processes (Schneidewind 1998: 260). The institutional selection environment is the framework in which managers operate. Managers are constantly trying to change this framework according to their own interests, or to the companies' interests. For example, lobbying or PR efforts can contribute to the change of formal or informal market institutions, like consumer habits or tariff structures. How this co-evolution plays out can be illustrated by the thinking of Deeg (2001a; 2001b), Pierson (2001a und 2000b) and Schneidewind (1998). The first thing to be clarified is the process of how strategic paths change. This will be illustrated in the example of institutional path alteration. Thereby, not only will institutional path change be explained, but also change in company strategies as reaction to it. To understand the formation and effects of institutions, the institutionalisation process itself must be considered first (Peter 2004: 14):

> "It can be established here that individuals react to new situations and developments (Ai) at a specific point in time (to); they plan what seems to them the most advantageous mode of action for a given situation based on existing knowledge, norms and values (wto). Wto is comparably the informal institutional structure (also called Belief System) that channels a new product, a new strategy (I) as a possible solution. If strategy I proves sensible, or if participating individuals make it credible, the form spreads and is put into place by other individuals in t1. In the process over time, the form can become an institution. It is then used more or less automatically for situation Ai as a customary practice, and thus becomes I Ai. If, however, new developments or situations appear in time period t2 (Aj), a new institutional field wt1, developed for 1 Ai, will be also be handled by means of Ai in t2, although an adjustment to the new development around j would be necessary. If, for example, Aj were a new technological product, it would have trouble establishing itself in the course of t2 and t3 because of the ruling structure li Ai. In fact, the individuals who benefit from the institutional structure in li Ai will try to impede the solution. However, institutions can also emerge out of developments that have nothing to do with the existing interest structure. New institutional modes of behaviour develop which in due course reinforce themselves into formal and informal institutions. As such an array of institutional forms can co-exist though partly in competition with each other (quality standards, etc.), in effect capable of eliminating or influencing one another. Through this competition and with the emergence of further actions, the institutional structure transforms itself permanently, though hardly noticeably overall. For each individual new "An," on the other hand, the change can mean a breakthrough" (Peter 2004: 14).

Now that the institutionalisation process has been illustrated, the co-evolutive process of institutional path alteration will be described. Deeg's (2001b) starting point for describing institutional path alteration is Pierson's (2000b) observation that *"change continues, but it is bounded change"* (Pierson 2001a: 265). With this idea of bounded change he links up the concept of path switchovers (Deeg

2001a: 2). This means that the new path already develops during the lifetime of the old one. With this explanation, Deeg (2001b) retains Pierson's idea of increasing returns, for the gradual implementation of a new path is likewise based on this feedback process - thus a co-existence of old and new institutional paths and their increasing returns is possible. Deeg (2001b) sees the emergence of path-changing increasing returns as cultivated by the actors. This can occur in formal regulative institutions, as for example in the form of political mobilisation and coalition-building through power and ideas, or ideologies (Deeg 2001a: 10; Deeg 2001b: 13). The "conscious cultivation" of path-changing increasing returns is carried out up until a "tipping point"[9] occurs, after which the positive feedback analogous to Pierson's path dependency continues on its own and pays off for the actors (Deeg 2001a: 35). In order to determine the tipping point in the slow switchover process - that is, the transition from path alteration to path change, or from the old to the new path - Deeg (2001b) next completes Pierson's (2000b) path definition with a "working definition," which defines the path by means of its typical operational or path-logic (Kaiser 2001: 258):

> "An institutional path exhibits an identifiable 'logic', i.e. a distinct pattern of constraints and incentives (institutions) that generates typical strategies, routine approaches to problems and shared decision rules that produce predictable patterns of behaviour by actors" (Deeg 2001b: 14).

Although Deeg does not elaborate on these thoughts, it is to be presumed that before its breakthrough the cultivated new path produces a kind of minority logic which can, for example, feed on institutional contradictions; in the end the path logic is simply one of the "majority logics" coming out of "majority institutions." Thus older and newer paths, according to Deeg, can qualitatively differ, whether institutional changes lead to new stimulation and limitation patterns and a change in path logic (in the form of typical strategies, routines and decision-making rules), or to a breakthrough of a "minority logic":

> "Adaptations of formal and informal institutions which together lead to the creation of a new logic constitute off-path institutional change, i.e., change to a new path" (Deeg 2001b: 14.).

Path logic thus functions as the scale-tipper. For Deeg, changes in path logic can only be caused by alterations in the area of "higher-order institutions" (mostly formal regulative, market or technological institutions). As the above quote shows, a change in formal as well as informal institutions must take place for a path change to occur. With a transformation in the institutional environment, a company's strategic response to new challenges also changes.

Now that the mechanism of institutional path alteration has been addressed, attention can be turned to the role of firms as structural-political actors that actively form their own institutional environments. Schneidewind (1998) asserts that the company environment is neither a tactically formable phenomenon (resource dependence; exchange approaches) nor purely exogenously given. According to institutional approaches in particular, organisations are not separable from their environments. The environment affects the organisation and the organisation reciprocally affects the environment. In the institutional approaches, the symbolic cultural context stands in the forefront as a key structure. Organisations actively attempt to decouple material contexts (e.g., demands produced by market constellations) and symbolic contexts in order to increase room for manoeuvre (Schneidewind 1998: 106). The network position (i.e., the firm's embedding in its inter-organisational environment) is an expression of a company's accumulated previous decisions as well as a determining factor for its future strategic options. The network construction is therefore essential as an investment process, and the network position is central for access to resources. The internal adaptation of an organisation to its

[9] The term "tipping point" is used in this thesis according to Strobel (2004). It charcterises the point of path disruption.

external environment is much less necessary to strategic positioning than the development of a relationship to context. There are material surface structures (formal institutions) as well as immaterial, symbolic deep structures (informal institutions) (Schneidewind 1998: 108). Institutional change can only be explained by interaction and power. Only through these means, for which actors use interpretive schemata, norms and resources, can structure be reproduced. This interpretation is central to the present thesis. The distinction between the signification, legitimation and ruling dimensions of structure makes it clear that social structures cannot be reduced to one dimension:

- Norms: Codified or non-codified rules
- Allocative resources: Power over material, production means, etc. These resources determine the economic options that are open to a company, e.g., can PR or lobbying work be undertaken at what cost.
- Authoritative resources: Power over people via management rules, psychological means, etc.; public reputation and image.

This allows companies and economic organisations to "play with the rules." As such they attempt to establish altered interpretations of existing norms or even a direct change of norms by calling upon resources they control (job positions, tax payments, research and development). Here again, no path is the same as another and no network position is like another. This also speaks for an individual development of company strategies and development paths.

For former monopoly companies the regulatory environment is a very important institutional environment. Political legitimacy is the criteria of success in a company's relationship with the regulatory sphere. Furthermore ethics make up an internalised guidance system that cannot be forcibly imposed but can only show its effects implicitly in consumer or election actions. The criterion for success in relation to the public is moral authority (Schneidewind 1998: 92). Considering the moral guidance system, Schneidewinds's analysis (1998) is not limited to the market and political systems' surface structures. It emphasises that ethics, among other things, serves "*the stabilisation and integration of the social system, in that it limits the conduct of its members and thus makes behaviour predictable"* (Schneidewind 1998: 94-96). Three company transformation strategies, amongst others, can be distinguished:

- Change in the rules of competition (price, competitive strategies)
- Political transformation (through for example lobying)
- Companies' participation in public discourse in order to lay the ground work for political and market changes.

The goals remain mostly market-economic, that is, to have more market options. Additionally this co-evolutive perspective can also be combined with a territorial perspective. Divergent national-institutional settings also have an effect on companies' search strategies. For example in some countries natural resources affect innovation dynamics and technological development (Boyer/Drache 1996: 147). The timing of the emergence of superior national institutions is also particularly significant for company strategies. Variations in strategies among companies of different nationalities can also be explained by national institutional, first mover advantages. These are policy fields that decisively shape the conditions of success or failure for a company in the "New Economy." National institutions may have major affects on sectoral systems, such as the patent system, property rights and antitrust regulations. The effects of national institutions may differ from sub-sector to sub-sector. However, the same institutions may take on different features in different national systems, and that may again affect the strategy of companies in different national sectoral environments and may explain divergent strategic performances. From time to time, national as well as international regimes may have a stronger influence on firm strategies, according to Deeg`s majority and minority logic

(2001b). This depends on the technological and sectoral specifications as well as on the firm trajectory.

What does this mean for our analysis of institutions in the strategy development process? We will not be concerned with individual institutions, but with a networked structure composed of institutional elements, which has an effect on the emergence of and change in firm strategies, or in our case on internationalisation strategies. The task thus arises to describe the institutional structure and try to deduce the central drivers of company activities, in this case internationalisation strategies. Because company strategies in turn influence the existing structure and contribute to the development of new patterns - i.e., are part of the institutionalisation process - dynamic change effects are to be presumed and described.

To sum it up in evolutionary economics, the "place and path dependencies" of economic decision making are used to explain differences in strategic firm behaviour in general. That means the specific characteristics of institutions (long-term, not easy to change, company internal and external selection environment) together with learning effects among the topmanagement stabilise corporate strategic paths. As a result strategic path disruption can occur if the external (or internal) institutional environement of the company changes significantly. Institutions mark the playing ground on which strategic activities take place. And thus a favourable external institutional environement (e.g., national regulation) may give a company strategic potential (even strategic fist mover advantages), an unfavourable institutional enviornement may be a hindrance to persue certain company strategies (see: Kutschker/Schmid 2005). National institutional surroundings in this sense may contribute to a broader understanding of differences in firm internationalisation.

However, this also depends on the perception of the decision makers in the company and their basic value system (e.g., visions, personal aims). As was already outlined in the sections before that this must not always follow rational considerations according to business logic (see: satisficing principle). That is why an additional investigation of the most powerful decision makers (e.g., CEO) is necessary to understand company strategies. What also became clear in this section is that by no means companies only react passively to their institutional environement but try to influence it actively.

In the following section the role of national institutions in internationalisation strategies is elaborated on to understand divergent internationalisation strategies among national core companies in the same industry segment.

2.3.2 National institutions in the internationalisation process

We have now described how company strategies develop and change in general and the roles that institutions play from an evolutionary economic perspective. Thus according to evolutionary premises, the internationalisation process can be understood as a process that:

- is continual, incremental and evolutionary
- involves a change from continued and discontinued phases (radical path breaks) through company internal learning processes and institutional settings (e.g., corporate culture, power structures)
- is strongly influenced by the co-evolution of a company with institutional selection environments. The embedding of a company in national institutional selection environments is thus a main source of differences in internationalisation behaviour among companies in the same sector.

Differences in companies' strategy development can be understood on the basis of their varying levels of integration in institutional contexts and their different development paths ("place and path dependencies"). Kutschker/Schmid (2005) differentiate between international strategic episodes

(projects of about 1-3 years) and epochs (several projects form a strategic epoch, e.g., several market entries in Asia form a strategic epoch). However in evolutionary economics the authors claim:

> "Although the term has been in circulation for decades, we are just beginning to understand the nature of strategic routines" (Pentland/Feldman 2005: 794).

Even more so, on the topic of internationalisation strategies, an analytical framework has not been elaborated in evolutionary economics until now. To understand more deeply the internationalisation process itself, it seems viable to take the empirical findings of business studies and interdisciplinary work on internationalisation strategies in economic geography and combine it with the evolutionary assumptions of path dependence in institutional contextuality.

Based on the above-presented evolutionary-economic theory, in the following, an analytical framework for better understanding differences in internationalisationnationalisation activities among "national champions" and their national driving forces will be developed. This section will mainly focus on the literature on national industrial complexes by Ruigrok and van Tulder (1995), as well as on the National Innovation Systems literature by Freeman (1992) and Lundvall (1992); regarding corporate governance structures, the focus is on literature from the field of critical management approaches (Ahorni 1971; Nonaka/Toyama 2002; 2005; Kutschker/Schmid 2002; 2005). These findings will then be condensed into central theses in a final chapter on theory (see page: 53). Thus the next chapters will pursue the question of what are the relevant national institutions for internationalisation processes and how they operate.

National place dependencies and their influence on corporate internationalisation

From a macro-economic perspective, numerous analyses point at, on the one hand, worldwide growth in foreign trade and a high degree of direct investment, and, on the other hand, at a strong concentration of this growth on just a few countries, i.e., the OECD and the triad countries. The US, Japan and Germany alone control 30% of world exports and imports. Some two-thirds of EU-members` foreign-trade is conducted within the EU itself. Up to 70% of Germany's exports are transacted with EU partners (Kutschker/Schmid 2005: 167). The situation is similar on the issue of direct investment. Most of it flows to the triad countries and a few so-called emerging markets, such as China. Germany's investments are above all concentrated in neighbouring countries and in the US (Kutschker/Schmid 2005: 167p.). The "triadised" world seals itself off, leaving behind the sub-Saharan regions, the Andes regions and large parts of Latin America and central Asia (Menzel 1998: 67-69; see also: Hellmer 1999: 28p.). In this outlook, successful regions and their central actors act in complementary ways within the globalised economy. They build nodes, or centers, in global networks (Hellmer 1999: 27):

> "Regions (...) have restructured themselves to compete in the global economy, and they have established networks of cooperation between regional institutions and between region-based companies. Thus regions and localities do not disappear, but become integrated in international networks" (Castells 1998: 381).

Differences in internationalisation among "national champions" in the same industry segment are also observable from an individual-economic perspective. Many car manufacturers, for example, pursue no global strategy but instead limit themselves to specific regions, which vary depending on the company's country of origin (Kutschker/Schmid 2005: 171). Even globalisation sceptics dismiss this as myth and note by way of historical comparison the limited international expansion of economic relations in the 90ies (Bathelt/Glückler 2002: 267). The studies of Ruigrok and van Tulders (1995) also demonstrate that the largest monetary earnings of multinational companies flow back to the

countries of origin, and that the idea of an open global market with no institutional or geographical limits is pure illusion. Thus the myth dies, that the world economy is a quasi global production system of de-territorialised resources and substitutable localities (Bathelt/Glückler 2002: 273). In reality globalisation has not yet progressed so far, and national institutional settings (e.g., the national regulation systems) still have a marked influence on companies. The location and national origin of a company still play a central role in determining differences in strategic development paths. It also appears that nation states still influence companies located in their territories, for they shape the central institutional arrangements and therefore influence strategic company decisions (Bathelt/Glückler 2002: 274).

> "Of the largest one hundred core firms in the world, not one is truly "global," "footloose" or "borderless." There is, however, a hierarchy in the internationalisation of functional areas of management: around forty firms generate at least half of their sales abroad; with very few exceptions, executive boards and management styles remain solidly national in their outlook; with even fewer exceptions, R&D remains firmly under domestic control; and most companies appear to think of a globalisation of corporate finances as too uncertain" (Ruigrok/van Tulder 1995: 159).

Ruigrok/van Tulder (1995, 1999: 54) dismiss the illusion of "footloose" or "borderless" world economics (Ohmae 1994) even more rigorously than the proponents of evolutionary economics. They see the company as bound within an industry complex that is very strongly influenced by national settings and interest communities. Ruigrok and van Tulder thus describe how companies are influenced by this involvement in the industrial complex, where regulative national institutions play an important role, and by the dynamic negotiation process between actors in the industrial complex. Hence national actors take up a special position (Ruigrok/van Tulder, 1999: 54; 1995: 64).

> "A company's home-base engenders a wide range of path-dependencies and forms of embeddedness. In turn these will influence its internationalisation strategies, or more precisely, circumscribe these strategies (…)" (Ruigrok/van Tulder 1999: 54).

This then presents an important clue to better understanding differences in internationalisation strategies among national core companies in the same industry segment. Ruigrok and van Tulder (1999) have studied key firms in specific branches and have looked at the institutions and networks that influence the internationalisation strategies of these companies. For them, companies are bound in relationships to members of the so-called industrial complex (which can be considered national or international); these are composed of six different types of actors, or stakeholders (Ruigrok/van Tulder 1999: 55):

- Suppliers (dependent on the degree of vertical integration)
- Customers
- Competitors and cooperation partners
- Governments/the state
- The influence of financers (on the corporate governance of the companies)
- Employees and their representatives (labour unions)

In this thesis, the relationship of the company to important stake- and shareholders is condensed into four institutional systems, including the national market system, for which institutions are viewed in connection with the basic conditions of market exchange (e.g., products, prices). The regulation system controls the limits under which the market can encroach upon the state.

The technological system is drawn from the NIS (Lundvall 1992; Freeman1992) and SIS literature (Malerba 2004) and investigates technology-promoting institutions, such as user-producer relations or the national education system (see page: 42). The corporate governance system concerns the strategy discovery process in a company and its national characteristics[10]. Interaction within this industrial complex (network), however, can only be understood in terms of the power relations within the network. What is new about this approach is that both authors admit that negotiation positions and power balances in industrial complexes can change over time (Ruigrok/van Tulder 1995: 68). The network identity (reputation) of the company is derived from the negotiation position.

As with Schneidewind (1998), allocative and reputative resources are particularly instrumental in determining network position here. It can further be presumed that the existing network relationships can have effects on further internationalisation processes and that the existing company network offers a more specific selection field, with its various economic actors. The following discussion will include a detailed analysis of national institutions in all four systems as well as an exploration of their possible effects on internationalisation activity. It is assumed here that international institutional settings and paths open up similar manoeuvring options for companies in the same industry segment. In addition national institutional settings can help to understand divergent internationalisation strategies of national core companies. In the following section, the importance of national institutions in the four systems is examined. In doing so institutions that in general are still markedly anchored domestically and those that are more strongly international will be presented[11].

National institutions in the market system

Firms are the key actors within the sectoral market system. They are involved in the innovation, production and sale of products and in the generation, adaptation and use of new technologies. The market presents an exchange system that is regulated through competition and pricing. The goal of all market activities is the allocation of limited resources and the satisfaction of consumer needs. The market includes actors as suppliers, competitors and users.

In most sectors the role of users is extremely important for company strategies (Lundvall 1992). On the one hand, there is the opinion that customers` wishes are ever-converging due to the globalisation phenomenon (Ritzer 1995). The increasing convergence of demands is above all explained by the equalisation of income structures, higher training and education levels, prestige and status factors as well as technological progress and higher physical mobility (Kutschker/Schmid 2005: 190). This also has effects on the supply side, in that the standardisation of products and services is made easier. Thus economies of scale are made possible and internationalisation can progress easily. Despite convergent tendencies by international market institutions, strong domestic influences on company internationalisation are still present today. This is especially true for service companies (which are not taken into account by conventional business studies and therefore the following sections will elaborate more on service industries), which stand out among production-oriented firms for the following characteristics:

Customer interaction in goods and services by far demands a stronger consideration of country-specific conditions, which in international service companies implies a tendency to adapt marketing-policy instruments to local conditions. The advantages of standardisation as well as the

[10] The labour market will not be mentioned as a separate system in this thesis and is included in the technological system (education) and corporate governance system (human resources).

[11] Some of these other factors vary according to sector or sub-sector, but all in all it is the variously shaped institutional structures of capitalist nation states that determine, each in their own specific ways, the form and speed of a company's strategic development paths (Dosi, et. al. 1988: 1148).

realisation of network- and economies-of-scale effects are thus possible only to a limited degree. In any case, the necessity for local adaptation strongly depends on the type of service offered, on the motives for internationalisation, on the activity being considered and on cultural distance to the host country. Hence some services, like financial services, can be offered relatively easily and without large adaptation procedures. The same goes for services that are offered in culturally similar countries (Perlitz 2000: 358). This indicates the importance of informal institutions, or so called belief systems, on the customer side. Strongly anchored at the national level are domestic or regional-cultural characteristics that affect customer demand. To simplify, mainly national cultural differences will be highlighted here.

Formal market institutions, like products and pricing, are created directly out of these culture-dependent characteristics. The type and quality of national customers (e.g., messured by socio-demographic attributes) lead to specific market know-how, which can be carried over into markets with similar customer structure. The type and quality of customers also determines the product palette. Products themselves in turn can constitute formal institutions in the relationship to customers and rivals. A demanding customer base with high buying power in the home market can contribute to the existence of niche products that will also come into demand abroad. The customer base thus can shed light on the markets to which companies will orient themselves. The more demanding, multinational large customers and system-customers there are in a home market, the more foreign firms will offer their own services to these clients. Attention is concentrated on the countries where these customers are active. This can change over the course of time, also resulting also in changed internationalisation strategies. The company can actively try to develop this customer base further by submitting attractive offers that involve international contracts with renowned cooperation partners (Cisco, Microsoft). The firm can also actively try to form new sets of actors in its own markets, also using attractive offers gained through cooperation with renowned international firms in its branch. A successful formal contract relationship with the customer can be also measured by quantitative variables, such as buying power, customer numbers, market share, market growth, etc. (the number of successfully concluded formal transactions with customers). Informal institutions, such as customer wishes, can be identified in product- (or service-) creation and acceptance.

Low market shares or small domestic markets, for example, can lead to internationalisation pressure. At any given time thus company-customer relationship is shaped by informal institutions (believes about customer needs, wishes, etc.) which is in turn expressed in formal institutions, such as pricing, products and customer service, or the communication policy of the company. The potential for internationalisation then arises from these specific national institutions.

The communications policy (marketing, PR, advertising) of a company is a formal measure designed to actively influence relations between the customer and the firm. Specific, formal information (such as prices) and informal messages (values) are transferred which the companies think reflect the wishes and belief systems (values, culture) of the customers. This produces a set of formal and informal institutions which can explain a firm's internationalisation from the point of view of the customer relationship.

Informal institutions and a national culture can influence a supplier's products. This is especially true for service industry companies which internationalise more easily in markets that have similar client bases (Perlitz 2000: 358).

The immateriality of services means that the provision of services is neither easy to describe nor to evaluate. This has far-reaching consequences for both the suppliers and the consumers. While on the supply side the question is how the service specifications should be communicated, on the demand side the question is one of quality assessment, because the provision of services cannot be directly checked before purchase. Because of this difficulty of quality evaluation, communications policy takes on special significance in the service branches. Services, however, are not only hard to evaluate but also difficult to demonstrate. Service providers' communication policy, therefore, must be oriented toward building an intense relationship of trust with the consumers (Perlitz 2000: 359). Thus the management of communication policy is a key success factor for international service-industry firms. However one must consider national and cultural distinctions in the application of individual instruments. Already the use of colours and symbols can have different connotations in varying cultural contexts. The same holds true for the formation of "word-of-mouth" and "past-purchase" communication that is especially pertinent to the service-industry field (Perlitz 2000: 360). The increased acceptance is in turn expressed in changed consumer activity, or in new customer demands. Attitudes toward previously controversial innovations can especially be changed by the relatively simple means of consumer enlightenment (media, sponsoring, key actors).

Thus potential new markets can be opened from which potential internationalisation opportunities (new forms of cooperation, trademarks) can arise. Hence new conditions and internationalisation potentials arise, for if these home market activities are successful, then the pressure for internationalisation subsides, or new internationalisation potential in markets with similar customer structure can ensue. In addition, the customer base or public can be actively changed by the advent of technical innovation and infrastructure. Thus new lifestyle patterns can arise that present new opportunities for foreign activity. Additionally in the market system also the relationship to competitors has to be analysed when it comes to understanding internationalisation potential out of a national context.

According to Porter (1998), the institutions relevant to competitor relations, are above all pricing and costs, but also product quality. In service provision, quality norms and customer service are most important. But reputation is also an important differentiating characteristic among competitors. Quality standards and price standards are thus mostly negotiated among national rivals and are only in rare cases internationally negotiated. In particular, commercial associations also hold discussion forums to create formal and informal national market standards (Schneidewind 1998: 217). Thus specific service provisions can be more expensive in one country than another due to the informal pricing standards of the competition. Consumers only have the bargaining power to determine purchasing volume, but only in so far as a specific offer exists. If, however, the competitors have settled on a high price level, consumers have no more direct choice and must accept this national and regional price- and quality standard, or else involve themselves in formal organisations (e.g., consumer associations) to do something against it. Here then competition arises at the national level, and can lead to more or less pressure to internationalise depending on the allocative and reputative resources of the competitors:

- Size and image, standing and entry to capital
- Economies of scale (internal and external size advantages)
- Effective cost cutting due to rationalisation measures
- Effective organisation of the value creation chain
- External economies of scope (advantages of vertical integration)

Companies with such advantages have the most reputative and allocative advantages, which allows them to actively influence national branch standards, even if they are not leaders in the specific sectors. Jason and Caves in addition identify superior knowledge potential as a decisive competitive advantage (Caves 1982). The company possesses specific material or non-material competencies or resources (such as goods, land, production facilities, technologies, patents and know-how) which positively affect the development and production of a competitive product and ultimately lead to long-term competitive advantage (especially size and market power), given correct implementation (Dunning 1993: 13). This can be especially effective with a correctly timed market entry (leader, first mover). In addition, according to Knickerbocker (1973), follow-the-leader motives and imitation can also be observed in late entrants. In this regard, lead companies often set branch standards at the national level which become international industry conventions. In general, the following describes national institutions in the systemic relations model that are considered as potential internationalisation catalysts or hindrances:

- The type and quality of competitors determines a company's internationalisation potential. If, for example, there are many rivals in the domestic market, there is relatively large incentive for internationalisation due to the pressure of limited domestic-market share. In addition, internationalisation potential can also be influenced by sub-sectoral standards (type and quality of product, services and pricing). A company can actively help shape perceptions of product and service quality or of customer value in the home market, for example, by investing in research and development for new products and services. In this way the business understanding within a sector or sub-sector, which controls the relationship of a company to its competitors, can change.

- A company can actively influence the business understanding over sub-sectoral standards (e.g., pricing, innovation) through branch associations and in cooperation and communication with competitors from its own domestic market. It can especially use marketing campaigns to purposefully try and shape a positive customer image (eco-marketing/quality) and to set itself above its rivals. But this requires re-defining the business understanding and the internationalisation potential with it.

- The higher the pressure to compete, the more there is reason to differentiate. This can be achieved particularly by means of international cooperation partners. In time these can change, resulting in changed internationalisation decisions.

- The relationships to rivals and customers in turn determine how much the company takes part in the formation of formal national institutions. If, for example, there is much rivalry among competitors, the company will attempt to affect the law-making process in its favour as much as possible through lobbying (using the influence of trade associations). If there are few possibilities to resolve the conflict on the national level, the company will try and carry it onto an international level (cooperation with powerful partners, etc.).

- Inter-industrial association decisions in particular can lead to an establishment of standards in specific areas and thus result in either internationalisation potential or hindrance. Companies with large allocative (finance means) and reputative (image, reputation, relations) resources have a better chance of asserting their own interests with industry representatives and the public in the negotiation process.

- Informal network relationships with the management of industry representatives and media actors play an especially important role in achieving company interests. All in all, the higher the pressure to compete in its own market, the more a company will orient itself abroad. This can change over time, with resulting changes in internationalisation decisions.

Although the influence of the market has already been described in mainstream management literature, these explanations mostly lack the above mentioned dynamic component as well as the direct conception of the influence of informal national institutions on internationalisation strategies.

National institutions in the technological system

While the technological system forms a gateway between market and regulative systems, it will be treated separately here because of its importance to company internationalisation. Technology is decisive in a company's choice of strategy- and search-routines (Edquist 2004). The technological

paradigm defines the search mode and relevant knowledge pools, which in part are of a public nature, and in part are also private goods. The technological paradigm bestows economic advantages, reproduces and stabilises itself institutionally over time and thus constitutes, among other things, a specific technological trajectory (development path) which also influences company activities.

Larger technological subsystems today, however, are often bound geographically in specific trans-national, formal, regulative contexts within the US-Europe-Asia trade block. For this reason technological regimes dominate and, together with the finance-dominated regime, strongly influence companies' strategic behaviour as an international institution. In their origins, however, they are very strongly connected to specific social and socio-economic structures on the national level (Dosi, et. al. 1988).

An enormous body of literature on technologies and technological change has clearly shown the extent to which sectors and sub-sectors differ in their basic technologies and how these technologies affect the nature, boundaries and organisations of sectors (see: Rosenberg/Nelson 1994). That literature has also shown that in one sectoral system more than one technology may be relevant. Within the same sectoral system, however, the profile of technological diversification among large firms is quite similar (Malerba 2004: 18). The type of competition and the network among the actors clearly define technological change. The sources of technological opportunities differ among sectors. The specificities of the technological regimes and the knowledge bases provide a powerful restriction on the patterns of firm routines and strategies. This also affects the agents' basic beliefs, visions and cognitive representations about their own system and how to act in it (Malerba 2004: 20pp.). This is one element which influences common industry behaviour in the form of common internationalisation practices, for example. In particular, the creation of value chains or networks is very important and very technology-driven. The orientation into sectoral lead markets may be one example of internationalisation potential resulting from technological institutions (Hess/Coe 2006). Suppliers of components and subsystems are similarly important (Lundvall 1992). Suppliers are characterised by specific capability attributes as well.

According to the NIS approach (see pages: 29p., 82p.), the knowledge incorporated in the basis of national human capital in particular can also give certain countries an advantage and therefore allow them to more easily internationalise (qualified human capital, etc.). A company can in turn try to change education standards by implementing its own advanced training measures or initiating political lobbying. Employee organisation in labour unions is also integral to internationalisation potential. If national labour union power is very strong, internationalisation projects like outsourcing, which can be dismantled by workers at the national level, are harder to implement in large measures. Because service provision in many cases is evaluated by consumers according to material factors, the external appearances of sales personnel, buildings and office spaces take on particular significance. In general, this means that the more uniform the outer appearance is and the stronger this image corresponds to the intended goals of the service company and the cultural customs of the country, the more positive the effect in regards to quality evaluation by the customers is (Perlitz 2000: 360). The same holds true for top management's appearance in company associations and in their relationships with political actors and with customers. The company that maintains national-cultural norms assumedly has a greater chance of success.

The confrontation of companies with similar technological institutions signifies a convergence of internationalisation strategies. However, in a globalised world, there are still national influence factors that appear in a technological system and can lead to the development of specific national internationalisation potentials. Thus divergent national-institutional settings also influence company search strategies. On the supply side, technological gaps can account for absolute and comparative national advantages, and in turn lead to evolutionary national specialisation patterns. The gaps arise in

different product- and process-innovations as well as in institutional asymmetries in basic labour-market formation and country infrastructure. On the demand side, on the other hand, asymmetries in consumer behaviour regarding price and income elasticity are more important factors in explaining the connection between specialisation and degrees of macro-economic success. While in some countries natural resources shape innovation dynamics and technological development, in countries without large degrees of technology political decisions have brought about focus on certain technological developments (Boyer/Drache 1996: 147). In the following, national user-producer interaction and the labour market will be considered by way of example.

To sum up in the area of National Innovation Systems (NIS) literature, the relationship of a company to national suppliers or to other cooperation partners (user-producer links) can lead to ideas or innovations that in turn lead to internationalisation potential. Lundvall (1992) considers common language and geographic proximity important factors for national cooperation in a national innovation strategy. National governments here occupy a central position that manifests itself in the form of direct interventions, technical standards and other regulations (Lundvall 1988: 360). Furthermore, supporting institutions such as universities are instrumental as shelters for basic research. Indeed to Lundvall, the influence of basic research on the production system is less important than knowledge transfers between producers and users (Lundvall 1988: 364). This can also lead to internationalisation potential in the form of technological first-mover advantages, arising out of a superior national institutional environment. The negotiating power of national suppliers determines their quality and reputation, deciding whether they internationalise in an area or not. Internationalisation is directly entered into on the basis of the cost advantages in supplier markets, for the value creation chain is fragmenting and internationalising more strongly all the time. Here we can refer to Dunning's location advantages, in the form of low production costs or knowledge advantages (1993). Internationalisation will occur in countries along the value creation chain, which allows cheap and good production of self-owned goods. The organisation of the supplier relationship is very industry- and technology-specific. In particular, markets with national lead suppliers are also interesting for the rest of the industry.

National institutions in the regulation system

Some authors refer to the globalisation of policy and formal institutions (rules, etc.) as leading to a situation whereby nation states must relinquish an increasing part of their sovereignty. Some nations are increasingly less able to control many structures and processes alone and are even less able to direct them (Beck 1998). This also leads to a globalisation of laws. Just when economics and politics become increasingly complex, the globalisation of laws becomes a decisive issue, for the national legal framework no longer suffices to regulate issues that extend beyond borders (Kutschker/Schmid 2005: 162p.). Within this interplay of policy, law and economics the question always arises of how to set global standards that can channel and regulate the activities of individuals, organisations and states. After the fall of communist and socialist systems and the ensuing collapse of their planned economic systems, mainstream adherents of capitalist institutions worldwide did a victory dance. From an overall economic perspective, it is usually pointed out that in the long run there will not be different variations of capitalist economic systems, but only a more or less uniform version. It is often assumed that the Anglo-Saxon model of capitalism, the so-called "pure capitalism" of German origins or the network capitalism of Asia are superior. For many there is a connected expectation that the market as an institution will gain importance not just within the economic system, but also increasingly in all areas of life (e.g., regulatory system as well). This development is referred to in discussion as the economisation and unification of society (Kutschker/Schmid 2005: 171). In this manner the global

market moves strongly into the forefront, revealing why companies in the same branch would pursue similar strategies. Internationalisation strategies inherently, then, are solely influenced by the actions of international rivals and other market participants. This would explain convergent selection environments in the regulatory system and convergent company strategies according to the logic of institutionalists.

It has become clear that the power of finance-dominating, global firms has greatly increased. Thus in the last few years, even decades, numerous efforts to promote the international exchange of goods and services have been made. The efforts of GATT and its successor organisation at the WTO responded to this. Despite all of this, however, divergent national, regulative tendencies are still to be observed especially in the case of "national champions":

> "Over the 1980s, governments continued to play an important role in the creation of a domestic institutional and regulatory meso environment of restructuring" (Ruigrok/van Tulder, 1995, p. 100). "However great the global reach of its operations, the national firm does belong psychologically and sociologically to its home base. In the last resort, its directors will always heed the wishes and commands of their government" (Dicken 2003 234).

As described in the previous chapter on national innovative systems, national governments still exert influence on company strategies, mostly through formal laws. This is especially true for companies doing business in former core national industries, like telecommunications or the energy branch. Ruigrok/van Tulder (1995, 1999) identify the relevant indicators here as well: the influence of government actors on economics can account for comparatively extreme ideological positions internationally. In this regard the US and Great Britain appear as rather weak states, while Japan and France show stronger state interference in the economic sphere. This typology, however, does not apply to all branches. Even in the US there are strongly state-controlled branches, such as the military sector:

> "The relationship between governments and firms obviously depends on the industry and on the concept of control adhered to by the core firm of an industrial complex in its home country" (Ruigrok/van Tulder 1995: 105).

After World War II, it was also the case that many sectors were nationalised (such as, for example, telecommunications) to allow greater state control over businesses. Ruigrok/van Tulder (1995) assert here that a narrow symbiotic relationship can still exist between these companies and governments, which carries both advantages and disadvantages. But the further a company has internationalised, the more independent it is from state influence:

> "Finally, a major effect of state ownership is that it increases the state's relative bargaining position to other firms in the same industry, in particular to foreign companies wishing to enter the country" (Ruigrok/van Tulder 1995: 109).

Related to this are government-initiated regulation measures or regulations in specialised areas. In the case of "national champions," anti-trust measures were enacted against competitor alliances, so that a country's own champion could continue to remain competitive. Thus we see how former monopoly firms are still influenced by state interests (see also: cartel authorities). In particular, core industries apparently could never really be "footloose," for too many different interests (political, social, economic) are at stake in these companies (Ruigrok/van Tulder 1995:199).

Specifically, the relationship between governments and companies is further determined by the education system, the tax system, investment in infrastructure and by so-called special-interest politics in the respective sectors, as well as regulation measures, technology and development policies (research development, funding) and foreign trade (Ruigrok/van Tulder 1995: 107). All these regulatory institutional aspects can influence company strategies.

In this regard, attention must always turn back to technology policy in the knowledge-based core industries. In the 1970s and 1980s, this policy was mainly determined by the state and by local and regional actors. The level of concentrated research and development expenses shows that in the US, as well as later in Japan and Europe, an enormous amount of technology development took place in core firms. This principle later ensued in the EU as well. Since the 1980s, certain mechanisms of technology policy were simply shifted to the EU level, with the intention to make governments more independent of companies. In 1983, the EU's ESPRIT (European Strategic Programme for Research and Development in Information Technology) and RACE (Research and Development in Advanced Communications Technology) were founded. With this development, it was significant that twelve of the biggest EU firms could participate in 70% of projects (Ruigrok/van Tulder, 1995: 107). Furthermore, the policies of nation states, as well as their bargaining power in trade policy and in world trade, influence the activities of their core firms. The interests that lie behind a country's positioning in world events are not purely economic. Strategies fluctuate between protectionism and free-trade and alliance in other trade blocks (e.g., the EU). Particularly the trade policy and foreign policy of the home country can strongly affect a company's internationalisation strategies (e.g., Germany's historically good relations with the East block, much trade in the region) (Ruigrok/van Tulder 1995: 210). All together, therefore, different industrial complexes strongly marked by the influence of their home country's national-institutional factors have developed over time.

> "Virtually all of the world's largest core firms have experienced a decisive influence from government policies and/or trade barriers on their strategy and competitive position. History matters! There never has been a "level playing field" in international competition, and it is doubtful whether there ever will be one" (Ruigrok/van Tulder 1995: 221).

The following implications for internationalisation strategies thus arise:

- Companies especially orient themselves towards countries where a good relationship already exists, historically and politically, with their own government.
- The higher the state's involvement in a company, the lower the strategic management's decision-making freedom in foreign matters.
- The higher the state's involvement in a company, the lower the likelihood of risk-taking, and therefore the more the emphasis on long-term profit goals.
- The regulation regime determines the intensity of competition in its own market and therefore indirectly influences the necessity of a company to internationalise.
- Companies can actively shape their institutional environments through the learning effects of dealing with authorities in their own countries, and thus can create a new decision environment for internationalisation strategies. This occurs in particular via special interest organisations and coalitions which have access to expert knowledge and thus can bring their own interests into the policy process. This influence in turn is exerted through allocative and authoritative resources. Large companies and those which have a positive public image can especially achieve their interests using different means of pressure, which are then reflected in changed formal institutions, resulting in new internationalisation potential (jobs, infrastructure, taxes, media).
- The informal relationships between managers and political actors play a special role in accomplishing self-interests.

- The power position and spheres of interest of the national industrial complex can change in time. Through successful involvement abroad a company can achieve more negotiation power domestically, which in turn can have further impact on their foreign activities.

A company's influence at the policy level can thus take different forms in the areas of policy definition, agenda setting in policy formation and implementation. Policy is determined strongly according to norms and interpretation schemata among respective sets of actors. Allocative and authoritative lobbying resources are also important here (e.g., expert knowledge, influence on people, good relations with influential persons, financial means, ability to mobilise the public, good public image). A high degree of organisation in the branch associations can especially increase influence. Authoritative resources are particularly evident in top managers' prestige and charisma. These can considerably raise managements' chances of achieving self-interests and altering interpretation schemata. Industry expert opinion furthermore leads to change in sets of norms. In this regard, companies seldom act alone, but through activity in interest organisations, etc. (Schneidewind 1998: 248pp.). Companies can also help achieve policy through their own resources. This process is an attempt to influence public stakeholders as well, who are not separately presented here. Mass media no longer influences opinion today, but agenda-setting dictates which issues are the order of the day. Whether something is only partially discussed in public depends on the degree of allocative and authoritative resources allotted to it. In agenda-setting, it is important to have interest groups with expert knowledge, such as research groups and associations that can influence public opinion on a given issue. The charismatic and appealing image of a company representative is very important here. Problems are re-defined and re-evaluated through targeted PR work. Thus interpretation schemata can slowly change and present either internationalisation potential or obstacles.

National institutions in the corporate governance system

As pointed out in the previous section, a company is embedded in dynamic relationships to important stake- and shareholders who are influenced by formal and informal institutions. This static "relational capital" can be transferred into dynamic capabilities, interpreted and operationalised by top managers via radical and incremental business strategies, such as internationalisation strategies (Nonaka/Toyama 2005; Scott 1995: 43). In the case of national core industries, and especially (former) monopoly companies, these are often still shaped by national institutions (mainly informal belief systems, influenced by national cultures) which materialise in the company's corporate governance or organisational structure and philosophy. Ruigrok/van Tulder (1995) analysed the "internationalisation of functional areas of management", e.g., the corporate governance structures, of 100 national core firms and found out that there was only a limited number of international presence in the topmanagement as well as supervisory boards (Ruigrok/van Tulder 1995: 156pp.). Thus, national institutional elements can still be observed in the corporate culture and management of former monopoly firms in particular:

> "(...) within any national situation there will be distinctive corporate cultures, arising from the firm's own specific corporate history, which predispose it to behave statically in particular ways. The basic point is that TNCs are produced through an intricate process of embedding in which the cognitive, cultural, social, political and economic characteristics of the national home base play a dominant part" (Dicken 2003: 234).

Dicken (2003: 227pp.) in addition notes serious national differences in the formal creation of corporate governance systems which can be traced back mainly to national differences in culture. These divergences in national-institutional setting reflect back on the company as well:

> "There appears to be little blurring or convergence at the cores of firms based in Germany, Japan, or the USA (...) Durable national institutions and distinctive ideological traditions still seem to shape and channel crucial corporate decisions" (Dicken 2003: 227).

Thus according to Dicken (2003), serious differences in corporate governance exist between, say, the US, Germany and Japan. In the US, for example, there are volatile capital markets with short-term perspectives and strong finance- and profit-driven strategies. In Germany companies have high operational autonomy; long-term perspectives and low-risk conservative strategies dominate instead. Leveraged equity in Germany is kept mostly by finance institutions, such as banks, and regional finance actors also play a central role. This is also expressed in a company's supervisory boards, for these are very bank-dominated. In Japan company strategies are traditionally determined by a complex network of relationships with national actors (firms, banks, etc.). Here as well, strategies are based on long term perspectives.

As an open social system, a company's establishment of corporate goals is not done by management alone but in an interactive, corporate-governance decision-making process between shareholders and managers. In this regard, shareholder value must be taken into account, which places a priority on the maximising of company value for the shareholders as a company objective. From this it follows that value drivers are regarded as subordinate objectives, whose formation promotes value-oriented corporate governance. Pressure from international capital markets stands out as the cause of this shareholder-value orientation. In corporate practice, it has been observed that a system of objectives depends not only on finance-economics figures, but on customer perspectives, company-internal perspectives, innovations and employee perspectives as well. Such a democratic and multidimensional system of objectives is represented in a "balanced-scorecard" of corporate governance (Vater/Hildenbrand 2004).

Nevertheless, some authors posit that corporate governance design is increasingly drawing nearer to the shareholder-driven Anglo-Saxon model. Corporate ownership relations are in this respect very important and can influence a company's course of business. External actors can use the negotiations of financial actors as instruments to exert control over a company.

Distinction should be made here between the family business, the joint stock company, the financial holding company and the finance group. Credit relations, shared property or a seat on a supervisory board or even a board of directors, with resulting influence on corporate governance, offer potential negotiating positions. If, for example, a firm's management board is partially made up of finance agents, this can lead to internationalisation pressure in order to improve profit rates, even if the company owners themselves would rather not undertake the risk. Large companies in particular are mostly stock listed. These companies lose a part of their control to shareholders. The board of directors, supervisory board and management board here have a high degree of influence on company decision-making. In the situation of a high credit loan, a finance group can be represented on a company's supervisory board by a bank and thus can monitor the company's actions, or even slip a finance manager onto the firm's management board. Investment bankers in particular exert enormous influence this way. The more independent a company can be from finance interests, the more its own management can decide matters for itself. (Ruigrok/van Tulder 1995: 94). In shared ownership, the question arises of whether a company is to be monitored by its manager or by its shareholders. The answer lies in the bargaining power and proprietary shares of the shareholders, and the bargaining power of the management team, which varies from company to company. The only chance common stockholders have to intervene is the general meeting, though here only large stockholders possess any real bargaining power. The internationalisation of the shareholder on the one hand can lead to "short-

termism," or a focus on short-term corporate outcomes, but on the other, can reduce dependence on national investors.

Institutional pension and investment funds in particular hold a large block of shares nowadays (Zeller 2004). Experience shows that it is precisely these finance agents that continually assert their negotiating power when a firm falls into a crisis situation, trying to effectively take part in determining company strategy. At the beginning of the 1990s, some of the big pension funds in the US discussed planning more active investment strategies. This was called "relationship investment" and involved buying shares from companies with poor performances, negotiating a seat on their boards and thus actively exerting control over corporate strategy formulation (Ruigrok/van Tulder 1995: 97p.).

On the other hand, a firm's activities in a market strongly depend on the management's composition. In this respect, country-specific variations and features can exist. In Japanese firms, for example, up to 90% of employees work full-time, and their salary payments are based on seniority, not measured against the market and stock values of the company, with the result that short-term profits receive much less emphasis. The situation in the US, however, is different. Here, a greater amount of outside directors appear on large company boards. Particularly managers from banking backgrounds retain informal contact with their former employers, thus giving banks an indirect influence. When corporate profits rise, these managers receive bonuses in addition to their high salaries. Their yearly incomes directly depend on the stock prices of the company. This is why short-term decisions dominate these management boards. Scott (1979) refers to this not as management control, but as control through interests, for the most part purely short-term economic interests (Ruigrok/van Tulder 1995: 99). In former monopoly firms in particular, where the state still holds a large portion of shares, management can be chosen according to the interests of the ruling government party. There are roughly two types of managers described in the literature: finance agents, or so-called cost cutters and rationalisers, and those with real, industrial vision.

In sum the development of such radical strategy decisions as internationalisation occurs mainly at the level of top management and corporate governance, in their overall conceptualisation of the company. Differences in companies operating in the same industry segment internationalisation strategies can thus be ascribed to different institutions in corporate governance systems. In addition to this, the character and knowledge of the CEO and the management board are also important and are increasingly becoming an issue in the international arena, since top managers are no longer restricted to a national sector. However, top management, as well as financial analysts and investors, heavily shapes the perception and vision of their respective industries and influences the development of whole sectors. Chan Olmsted/Jamison (2002) as well as Stienstra, et. al. (2004) note some industry-segment-specific "herd behaviour" and internationalisation "hypes and alliance cycles" that occurred at the beginning of the 1990s and may have only followed a financial logic. These financial hype scenarios and international industry trends are not contradictory to evolutionary economic thinking; evolutionary economic modelling asserts that under circumstances of great insecurity or temporal pressure, decision makers imitate lead companies' business strategies or follow an industry "trend" (Nelson/Winter 1982: 400). On the other hand, these scenarios may also simply show the influence of powerful actors in a company's selection environment, who structure its perception of "good strategy." This becomes obvious as important stake- and shareholders, such as the financial community grows more internationalised and powerful.

National path dependencies and their influence on corporate internationalisation

Change is a distinctive feature of sectoral as well as national industrial systems. It means transformation and evolution. All elements of an industrial as well as sectoral system are connected, which means that a change over time results in a co-evolutionary process of its various elements. Co-evolutionary processes also differ among (sub-) sectors. In the literature, therefore, history-friendly models emerged regarding the evolution of technology in a sector (Malerba 2002). The models refer to the dynamics of national institutional paths, which are highly specific for a special sectoral technological paradigm and influence company strategies in a certain way (Malerba 2004: 32). The models examine the changes that major national market and non-market institutions make in company strategies within a special time period and technological paradigm. The following assumptions in regard to internationalisation, which again are mainly based on Kutscher/Schmid's work (2005) on international evolution, will be inferred here:

According to empirical studies, many companies begin their internationalisation activities rather by chance and without planning. Catalysts of the first attempts to internationalise are usually informal, personal contacts at conventions or enquiries from abroad. Successful foreign relations then grow deeper. The impression emerges of a continuous, incremental process in which chance and increasing experience play a significant role. The less attention and importance such chance activities receive from top management, the more directionless and unplanned the reaction is. For many companies, their own national networks can directly precipitate internationalisation potential in the beginning, which amounts to a trial and error situation. This means that national institutions most influence corporate internationalisation paths right at the beginning. Superior national institutions can contribute to first mover potential in internationalisation as well. Contacts with international or national cooperation partners partly already exist along the continuing course of internationalisation paths. There is a so-called international relationship capital which can fuel a continuation of international business once a positive business experience was made. Previous cooperation, however, can present obstacles to internationalisation as well as potential from positive learning effects. Thus a cooperation partner will only reluctantly internationalise into the market of a cooperation partner. This is why limits are placed on internationalisation through already existing cooperation agreements or joint ventures. Internationalisation episodes and epochs in particular have enormous, formative effect on a company's environment as well. This in turn leads to new internationalisation potential.

At the micro-level of top management, the positive learning effects of internationalisation have ongoing cumulative influence and reinforce individual internationalisation paths (positive increasing returns lead to path reinforcement = lock-in). Simply put, positive learning effects correspond to the basic assumptions of the Uppsala model of Johanson/Vahlne (1977), which declares that an ever-rising commitment to internationalisation activities follows positive learning effects. This occurs the other way around as well.

Another important component of incremental internationalisation is the growth of foreign subsidiaries. These depend on their integration (embeddedness) in national or local networks in the new market environment. Especially important here is a positive integration within the new national industrial complex as well as an understanding for the formal and informal institutions in the environment. Only by tying into this network can affiliates gain entry to important local resources, such as tacit knowledge about formal and informal business practices, which, depending on the sector, can be very important for the success of an affiliate (Kutschker/Schmid 2005: 1108pp.). This amounts to gradual learning effects in the form of incremental evolution.

By way of comparison, companies apparently can also change their internationality. Fusions such as the one between Daimler Benz and Chrysler, acquisitions such as the take-over of Bankers

Trust by Deutsche Bank, or the cooperation alliances between Lufthansa, United Airlines and other airline companies are real international "gestalt switches" that can no longer be considered attributes of ongoing internationalisation.

Evolutionary economics posits that company strategies change radically when the company's environment changes. When there are radical environmental changes, such as new technological paradigms and a succession of institutional paradigms, new strategies are needed. These are in turn formed through trial and error or by imitation, or through strong adaptation to the needs of important, powerful stakeholders (e.g., the finance market). Thus, among other effects, trend and hype scenarios that don't always necessarily follow industry logic can build up. International conventions then lead to a strong convergence of internationalisation strategies (Kutschker/Schmid 2005: 1108pp.). Additionally companies whose institutional environments have early on oriented themselves to new institutional paradigms are best able to cope with radical technological changes. Because of this advantage of timing, first mover advantages/disadvantages and increasing returns arise based on increased learning effects/experiences with the new set of institutions. Here, too, there are definite, advantageous national sets of institutions, both formal and informal, that are responsible for this leader function, or for a company being able to cut off laggards as an international first mover (e.g, technology or regulation policy).

Furthermore, lead companies can also co-determine international conventions and institutional majority logic in a sector, which later are imitated by other firms (followers). This process consists of continuous, co-evolutive relations between strategy and structure, although it cannot be said that structure follows strategy or vice versa. There are simply phases when a company copes better with new institutional settings or can actively influence the formation of these settings and, in turn, times when they rather passively adjust to new situations. Timing in these cases is very important. Reactions in oligopolistic markets reveal this as well. A competitor's long-term advantage in a host country or even in its own domestic market can only be prevented by iniating rapid consequences.

As is described by Strobel (2004), continuity and change can also exist at the same time in different institutional settings. Mostly, though, a tipping point emerges, caused by new institutional paradigms that lead to radical institutional, and usually a series of strategic, path changes. These can then be traced back either to national or international paradigm shifts, whereas the form of the new path can in turn be undercut, for example, by a national minority logic. This is also the reason why no one internationalisation path resembles another, even when companies face similar business challenges (Kutschker/WSchmid 2005: 1097pp.).

When incremental and episodal internationalisation (projects of about 1 to 3 years) is empirically observed relatively often, the phenomenon of internationalisation epochs (characterised by several internationalisation episodes in one geographical or operational area) appears more seldom. This corresponds to most retrospective interpretations, which provide an impression of long-term, systematic development. This is revealed by the order and geographic distribution of entries into national markets or by the order and choice of acquisitions. Radical strategy shifts include internationalisation episodes and epochs which influence the meso network and its institutions more so than incremental process changes. For example, in the formation of international joint ventures, strategic alliances or acquisitions, internationalisation episodes change internal and external networks more radically. Eventually new supplier relationships are formed and old ones are dropped. This leads to a totally new institutional process environment. Internationalisation episodes and epochs are not routine activities and continuously draw from a company's human resources as well. The resource base of the entire firm is therefore strained. Episodes as well as epochs and their related allocation decisions are corporate-political decisions that are essential even in core industry firms for protection through politically powerful actors (power promoters) (Kutschker/Schmid 2005: 1108pp.).

Within the internationalisation epochs, based on companies' relative degrees of internationalisation and the individual national internationalisation potential of their environments, Kutschtker/Schmid (2005) place firms into categories of "explorer" (investment in the market), "robber" (investment in advance), "lame duck" (withdrawal or cooperation) and "comfort firms" (fast investments).

- *Robbers:* internationalise faster than the rest of their branch and have a higher available internationalisation potential, which is partially due to national institutional advantages. Faster internationalisation is deployed particularly to prevent a competitor from catching up (in oligopolistic markets), or simply to achieve a head start in building necessary infrastructure (Kutschker/Schmid 2005: 1172).
- *Explorers*: have internationalised to a large extent in the past and thereby have eroded their internationalisation potential so much that only a very selective progress is still possible. Further internationalisation is thus targeted more toward consolidation than forced expansion. Their distance from the lame ducks and comfort firms in the branch is used to establish a dominant domestic-market position and to develop and defend their position in the service channels.
- *Lame ducks and comfort firms*: have either slept away their branch's internationalisation or lack the needed internationalisation potential themselves or in their field of business. A disadvantageous national-institutional environment, especially for former core industries, can be held responsible here. By concentrating on fast-growing products or regional segments, however, comfort companies with high internationalisation potential can still catch up.
- *Lame ducks* are the slowest to internationalise in a branch segment. Their insufficient potential results either from costly internationalisation episodes, dwindled economies of scale, or lack of resources or other advantages on the part of companies in the host country that nips internationalisation efforts in the bud. For lame ducks, the internationalisation train has already taken off. They can temporarily pull back to markets with high entry barriers or plan their future in connection with robbers or comfort companies (Kutschker/Schmid 2005: 1173).

Internationalisation strategies can be distinguished in respect to their temporal efficiency and the degree of controllability secured by property rights. The founding of affiliates is a relatively slow instrument for market coverage, and should only be implemented when there is extraordinary competitive advantage to be gained. In contrast, acquisitions and joint ventures can be implemented more quickly when complementary capabilities are available, in so far as there is a corresponding management capacity. Strategic alliances can also be set in motion extremely quickly. All in all, explorers develop affiliates, raise market entry barriers and selectively internationalise further. For robbers, the task is the complete grounding of new affiliates, and all acquisition options should be percieved. For comfort firms, the option of acquisitions or joint ventures remains, and lame ducks either withdraw or merge with competitors (Kutschker/Schmid 2005: 1174).

What is important is that evolutionary economics emphasizes lead-player strategies as a variation of strategy development, and this can be applied to internationalisation strategies as well. However, the simple imitation of industry-segment-specific "best practices" is no real lasting alternative, as numerous studies from other "best-practice" fields (cluster, etc.) have proven (Ruigrok/van Tulder (1995). Today, so-called opinion leaders, such as international finance or investment communities or consultants, are responsible for certain follow-the-leader effects. This can lead to industry-specific hype scenarios, such as investment in specific technologies and countries (see UMTS hype) (Zeller 2004).

For simplicity's sake, only first movers (include robbers and explorers) and laggards (include lame ducks and comfort firms) will be addressed in this thesis. In this regard, two particularly important aspects arise in relation to the national environment.

One is the first-mover potential of internationalisation based on historically proven, superior national institutional environments; the other is the imitation of succesful strategy options, which leads to convergence in a sector and so-called hype scenarios or sectoral "best/good-practices." Different company performances and strategies can also be traced back to firms' concurrence with specific national and international institutions. According to Strobel (2004), national as well as international majority and minority logics can at any given time develop into institutional paths, just as specific tipping points can bring about path disruption, which have influences on corporate strategies as well. Thus an institutional path influenced by a national institutional majority logic can make divergent internationalisaiton strategies among national core companies in the same industry segment understandable. This holds is also true if a tipping point to a majority logic of international institutions occurred in later phases, if in earlier stages of corporate internationalisation superior national institutions led to a significant first mover advantages in internationalisation.

2.3.3 Conclusion and central theses

The initial objective of this thesis was to understand differences in internationalisation strategies among national core companies in the same industry segment. Conventional business theories would argue that companies with similar basic features (e.g., the market size and value, company size, technological know-how and internationalisation experience; an oligopolistic market structure) would share the same internationalisation strategy. However this is not always true, as Ruigrok and van Tulder (1995), Glückler (2006) and Kutschker/Schmid (2005) have shown in their empirical studies. The rather small explanatory power of conventional internationalisation theory results in critique of the conventional internationalisation approaches in general which may be especially subsumed up to a lacking context and time sensitivity. Thus the first metathesis regarding the theoretical framework of this analysis is:

> Metathesis theory 1: Conventional internationalisation theory does not properly contribute to an understanding of differences in internationalisation strategies and performances among national core companies in the same industry segment.

Evolutionary economics and interdisciplinary studies related to the field of the "old institutionalism", however, indicate that observing the dynamics of institutional selection environments and the integration of companies in different institutional environments can lead to a better understanding of differences in corporate strategies. Nevertheless, these approaches have so far only remained on the fringe of international strategy process research. A deeper analysis of evolutionary economic assumptions led us to the second thesis on the theoretical meta-level:

> Metathesis theory 2: An approach based on evolutionary economic assumptions, where differences in company strategies are traced back to institutional selection environments, highlighting the influence of "space" and "time" on company strategies, may contribute to a further understanding of different internationalisation strategies and company performances among "national champions" in the same industry segment.

Out of this thesis further subtheses may be derived: When companies begin to internationalise, they are embedded in different national institutional environments, which influence the corporate strategy making process. Thus the first thesis drawn from theoretical Metathesis 2 refers to "space":

Thesis 2.1 “Space”: Divergent internationalisation strategies among companies in the same industry segment may result from their embeddedness in different national institutional environments.

There are national market and non-market institutions which influence company strategies (Nelson/Winter 1982: 262 pp.). According to Ruigrok and van Tulder (1995), the most important formal national market institutions are pricing, products, standards and formal collaboration contracts or purchasing agreements on the vertical and horizontal levels. The most important underlying informal institutions or belief systems are consumer habits, consumer cultures, informal business standards (ways of doing business), company image and reputation. Additionally, the most important formal, national, non-market institutions are state regulations and policies, especially corporate governance regulations. The most important non-market, informal institutions are national cultures and belief systems, as well as national company and management cultures and philosophies. The national environments may enable or hinder new strategic routines, such as internationalisation strategies. Thus thesis 2.1 may be operationalised further and split up into the following categories:

Thesis 2.1.1 “Space”/National Institutions: The national institutions that most influence internationalisation strategies among national core companies in the same industry segment are markets, regulations and the corporate governance structure. This may contribute to a further understanding of divergent internationalisation strategies among these companies.

Thesis 2.1.2 “Space”/International Institutions: The most influential international institutions are embedded within international financial and technological systems. Examining international institutions may contribute to an understanding of convergence in international company behaviour, and may thus also explain industry-segment-specific “hype scenarios” in the field of corporate internationalisation.

Of course, internationalisation strategies may not be completely explained by national institutional surroundings alone. In a continuously globalising world, international institutions become increasingly important, especially for internationalisation decisions. The most important international institutional drivers of company strategies differ from industry segment to industry segment. However, technological standards are quite internationalised for the most part. What is very important to all sectors on the international level today is the influence of the global financial community (Zeller 2004) on corporate governance, as well as international technological standards (Edquist 2004).

With every new technological paradigm new insecurities emerge for companies. Firms then attempt solutions either through a search-and-learn process (trial and error) or by quick imitation of a market-and-technology-specific “best practice” (e.g., of a lead player). In this regard, companies with strong allocative and authoritative resources have the advantage of bringing their interests and agenda for industry segment specific development to the international level and setting industry specific “best practices” as well (leader function). Or they can set up binding standards or regulations which re-define internationalisation manoeuvring-room for the whole (sub-) sector. In certain lead markets, each new technological paradigm is accompanied by research and development, distribution or production. The further an industry consolidates internationally, the stronger the oligopolistic reaction (cross investments, etc. see: Knickerbocker 1973). The entire value creation chain from supplier to customer increasingly internationalises, although the supplier value creation chain displays much stronger territorial globalisation (production in low-wage countries, etc.) than customers do (mostly limited to triads see: Hess/Coe 2006). But even this process is industry segment specific. Customer

groups are becoming more global as well. This leads to a convergence of internationalisation strategies among companies because the market expands quasi-globally due to multinational corporations. This in turn leads to international standards being set between countries and companies within a similar industry segment. In addition, so-called industrial complexes (Ruigrok/van Tulder 1995) emerge onto supra-national levels, which nevertheless don't have to be as completely globalised as technological paradigms. So-called institutional subsystems (Malerba 2004; Edquist 2004) can develop which, for example, are territorially limited to Europe, Asia or the US (Steinbock 2003) Within these subsystems there are certain formal and informal regulative and market institutions which reduce the insecurity between the involved actors and strongly influence internationalisation activities as well. On the other hand, similar internationalisation strategies can stem from the influence of global finance markets and investment communities (Zeller 2004). The official expert circle of finance analysts called upon by investors in a industry segment is usually straightforward, and every detail of their advice carries enormous weight. The speculative expectations of these experts are highly valued by finance investors, and there is pressure to follow the advice of "branch experts" in order to achieve the highest return on investments. Investors have gained enormous influence through their allocative resources, even in companies where a few top branch advisors and analysts hold sway with their reputative resources alone (Zeller 2004). The expected value and advice of the investment community, which represent international informal belief systems, can thus lead to international economic "hype scenarios". These have mostly disastrous effects on the success of international projects, since institutional investors' interests are usually purely material and short-term by nature (to quickly earn the highest possible return on investment), and therefore they conflict with long-term industrial interests. Thus, because of the influence of investors in the company's corporate governance, internationalisation plans are sometimes purely speculative and follow no particular industry logic. The reaction might be an industry "herd behaviour" (Braun 1988: 160-161), such as the imitation of lead companies' strategies (Nelson/Winter 1982; Boschma/Frenken 2006), due to the pressure of financial investors and important shareholders. Furthermore, studies on strategic alliance cycles as well as on M&A cycles (Zademach 2006) refer to this situation. Another industrial reaction can include industry-specific, dominant strategic designs, like internationalisation into "lead markets" or to "lead suppliers" (Beise 1999 2006), in response to new technological paradigms and important stake- and shareholder globalisations along the value network (Hess/Coe 2006). This internationalisation of sector- or sub-sector-specific institutions, as basic conditions for company operations, can explain convergent internationalisation activities (Malerba 2004). The following subthesis will particularly address institutional drivers of differences in these activities.

In the dynamic view, besides national context, timing is also very important. This refers to the path dependent learning effects that accompany internationalisation as well as the company's co-evolution with national institutional environments. The company may influence its selection environment according to its allocative and reputative powers (Schneidewind 1998). Thus on the national level, learning effects from national institutional surroundings are very important, as are co-evolutive processes. A strategic development path is thus also a process of adaptation to specific national-institutional conditions (Bathelt/Glückler 2002: 246). Hence important learning processes, influenced by the national-institutional setting, also take place in large companies, resulting in company-specific and, to a certain extent, country-specific competencies and so-called national first-mover advantages. These competencies are then reflected in the strategic development of the company. Thus through national-institutional settings and the pure influence of the home market, among other things, cumulative strategic development paths are created which change only gradually and, as a rule, differ from those of other countries (Bathelt/Glückler 2002: 247). Companies in a favourable national selection environment in particular might have successful internationalisation

projects if they can establish a first mover position using those national-institutional advantages - in other words, if they successfully manage to convert their endogenous, national-institutional advantages into sustainable strategic ones. On the other hand, a lack of national internationalisation potential caused by inferior national institutional surroundings might explain a latecomer position, imitation behaviour, or the unsuccessful internationalisation performance of a company. Thus time and a dynamic view of the co-evolution of a company with its institutional home country environment are very important components that shape strategic decision making.

Thesis 2.2 “Time”: The time aspect is very important too, since the co-evolution of a company with its national institutional environment, as well as internal path-dependent learning effects, may be further components to understanding differences in internationalisation strategies among “national champions” in the same industry segment.

Thesis 2.2.1 “Time”/National Institutions: A superior national institutional structure during the starting phase of internationalisation may result in international first mover advantages.

Thesis 2.2.2 “Time”/International Institutions: An inferior national institutional structure may result in an imitator position, e.g. as international laggard which only imitates international industry-segment-specific trends.

Thesis 2.2.2.1 “Time”/International Institutions: The expectations of the international financial investment community in particular have increasing influence today and shape internationalisation strategies through industry-wide “hype scenarios” and “best/good practices.“

What remains now is the question of the weight of national and international institutional forces behind internationalisation decisions. Here again, Strobel’s (2004) body of thought on institutional path change can be applied. Today, the general trend is toward increased influence from international institutions in finance world and the field of market competition. In part, supra-national regulation regimes have also developed. These, however, are very industry-segment-specific. This thesis states that there is still a majority logic of national-institutional influence factors in national core industries that is only slowly being softened by international influence. The following will pose the theory that the tipping points which lead to radical strategy shifts and path disruption, i.e. to new internationalisation epochs, are more strongly influenced today by international actors. Embeddedness in the national environment is thus still a key determinant of strategy formation for former national core companies.

Thesis 2.2.3 “Time”/tipping points in territorial-institutional influence: In a dynamic view, there can be a majority logic of national or international institutional influences as well as tipping points which indicate a path change. The more a company internationalises, the smaller is the influence of national institutions on corporate internationalisation decisions.

This hypothetically answers the central question of differences in internationalisation strategies among national core firms from the same industry segment against a background of evolutionary-economic theoretical structure, mainly from a territorial institutional perspective. Divergent internationalisation strategies and performances can be inferred mainly from divergent national institutions and their

historical consideration (co-evolution and learning). Convergent strategies and so-called industry-segment-specific trends, on the other hand, can be traced to the integration of companies into similar international institutions. Altogether both influences create the company's individual internationalisation path. At the beginning of internationalisation, the influence of national institutions is foremost, but this becomes decreasingly the case, however, with successful first movers and is eventually displaced by the influence of international institutions. Because of their less effective imitation strategies, followers are not able to achieve successful internationalisation performances and therefore are more strongly dependent on national institutions. Thus the central question for understanding differences in internationalisation activities among "national champions" in the same industry segment is first answered theoretically from national institutional and evolutionary perspectives. Whether this theoretical model also bears up under empirical scrutiny, particularly in the case examples of TeliaSonera Mobile in Sweden and Swisscom Mobile in Switzerland, will be discussed in the empirical part of the thesis (see: chapter 5 and 6).

3 Description of case study and operationalisation

3.1 Description of phenomenon under investigation: divergent internationalisation strategies of mobile service providers in Sweden and Switzerland

Since the object of this investigation - different internationalisation strategies among mobile-communication service providers - is very complex, it will first be necessary to explain some of the basic technological and market features of the companies and of the technology itself. Edquist (2004: 183) states that when an empirical study on a sector or sub-sector is to be carried out, it is absolutely necessary to clearly identify the boundaries of the sectoral system under scrutiny. An industrial sector or sub-sector thereby is defined as a: *"(...) set of activities that are unified by some related product group for a given or emerging demand and that share some basic knowledge*" (Malerba 2004: 9). As Malerba (2004) states, the boundaries of a sector are broadly defined by a common technology and knowledge base (see chapter: 2.1). Since the provision of service in mobile communication depends heavily on the technological knowledge base, this basic defining principle is also used in this thesis to delineate the industrial segment, or the mobile communication sub-sector. Therefore, the technological paradigm change provides the time frame of this research starting from the analog technology era in mobile communication at the end of the 1970s (1G), to the digital era (2G) beginning in the early 1990s, all the way to the current multimedia era (3G) beginning around 2001. The fundamental challenges for the former monopoly companies in this area will be more closely examined, and the reason for applying internationalisation as a strategy will be shown. Finally, we look at the major differences in internationalisation strategies of the actors in Sweden and Switzerland.

3.1.1 Introductory remarks about the industry segment: defining mobile communications from 1G to 3G

Telecommunication is defined simply as communicating at a distance, as the word implies. The term telecommunications usually refers to the underlying technology or, as defined by ITU (2000), *"any transmission, emission or reception of signs, signals, writing, images and sounds or intelligence of any nature by wire, radio, optical or other electromagnetic systems"*. The most common form of telecommunication is telephony, which refers to speech communication, associated with the functions of the public switched telephone network (PSTN). This means the use of telephone numbers in order to obtain a temporary connection over this public network. Data communication is here defined as non-voice two-way communication (Lindmark, et. al. 2004: 31). The telecommunications sector is composed of actors embarking on economic activity related to telecommunication systems. Telecommunications systems are composed of nodes (switches, routers, etc.), links (cables, radio links, etc.) and terminals (telephones, data terminals, etc.) connected to the network. At the heart of the telecommunications sector lie the organizations that develop, produce, sell, distribute and provide services over (and content for) networks, as well as standardize and regulate these systems. Common industry denotations for such organizations include infrastructure and terminal suppliers, operators, retailers, subscribers and end-users, standard bodies, regulators, etc. (Lindmark, et. al. 2004: 5). Only in the last 20 years have such radical innovations as the Telefax, the mobile phone and the internet been introduced (Beise 1999: 110). There are two pervasive growth trends in telecommunications: (1) the increasing mobility enabled by cellular radio communications and (2) the increasing share of data communications induced by developments in computing (Lindmark, et al. 2004: 5).

This thesis mainly focuses on the mobile communication segment. But as mobile and fixed-data communication increasingly converge due to the Internet, boundaries blur and fixed communication becomes more important within the mobile sectoral sub-system, too.

Mobile communication on its own can be more precisely distinguished from telecommunication in general: *"Radio communication can be defined as telecommunications by means of radio waves, or "a method of communicating over a distance by modulating and radiating electromagnetic waves"* (Lindmark, et al. 2004: 31). Mobile communication usually refers to telecommunications where the customer access, i.e. the first communication link, uses radio transmission, thus making the user "mobile" while communicating and not restricted by a fixed communications station (Lindmark, et. al. 2004: 31). The technological elements of a telecommunication transmission system can be divided into three categories: transmission equipment for the transport of information, dial-switching equipment for the physical and logical connection of different users, and terminal equipment for access to the network (Paterna 1996: 59).

The transmission technology has the task of transmitting information consisting of language, data, text or pictures among two or more places by electrical, electromagnetic or optical means. In mobile communication, the atmosphere is used for this purpose. Factors influencing disturbance-free transmission would be the level of technology, the availability of transmission paths, the demands of the type of information to be transmitted and the reliability of the technology. Comparable to the number of lanes on a freeway, the chosen medium of transmission determines the quantity of information per time unit that can be maximally transmitted in the system. The broader the available frequency, the higher the quantity of bits that can travel the distance. The band-width of a net is indicated analogically in hertz, digitally in bits per second (Paterna 1996: 59).

In classical radio communication (e.g., police, cab or CB-communication) people usually communicate directly with each other without network infrastructure. In contrast, a honeycomb-like grid is needed for mobile communication. The area to be covered is divided into cells, with a base station and radio antenna at the centre of each cell serving as a switch point between cell phone and higher-level control centre. From the base station the signal is transmitted by cable network or radio-link system to another base station until it reaches the receiver. This principle even applies when two cell-phone users are standing directly next to each other. If one of the callers moves from one cell to another, the phone connection will be transferred from one base station to the next, without the mobile user noticing (Swisscom Mobile 2004: 23). Cell phone coverage spans only a few kilometres. To receive, decode and transmit the relatively weak signals, a dense network of base stations with antennas is needed. Every mobile phone basis station covers a certain area, called a radio cell. Before the information finally reaches the receiver, it must be transmitted from the base stations to a switching centre. Normally each base station in a cell gets assigned several carriers (senders; see: figure 3) (Swisscom Mobile 2004: 25).

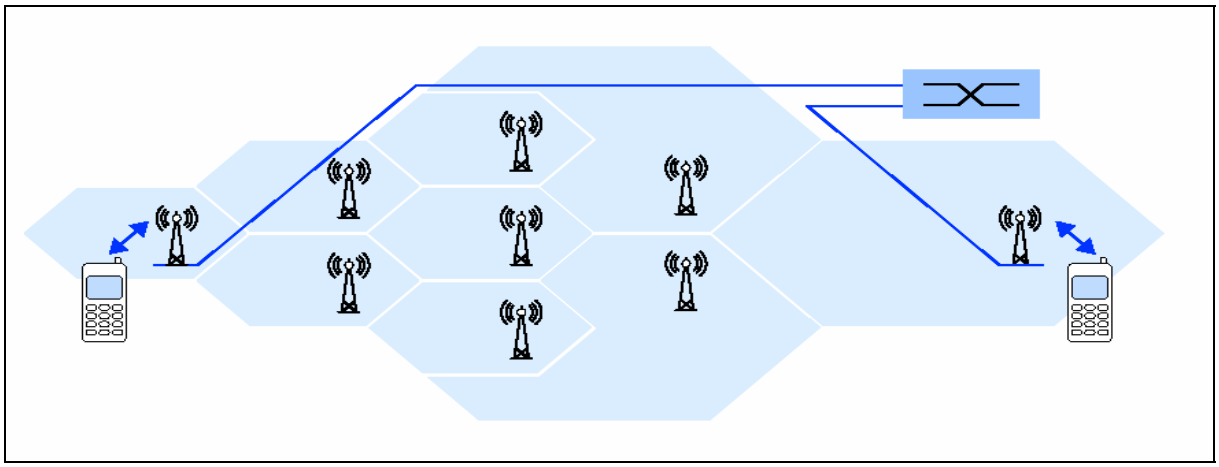


Figure 3 Transmission model in mobile communication (Source: Swisscom Mobile 2004: 25)

The principle of mobile communication is based on the principle of radio transmission. Conversations, pictures and sounds can be transmitted by way of wireless electromagnetic waves. Information is transmitted over carriers. By allowing the transferred information to manipulate a carrier in some way (e.g., by turning light waves on and off, or altering the frequency or amplitude of radio waves, etc.) the information can be detected by a receiving exchange or terminal. This manipulation of the carrier is called modulation (for which there are several techniques, e.g. shifting the amplitude, frequency or phase of signals). If the carrier wave is modulated into discrete signals, the system is usually labelled "digital," while if modulated continuously and variably it is labelled "analog" (Lindmark, et al. 2004: 33). In analog language transmission, sonic waves from the sender are modulated into electromagnetic sonic waves, sent through the transmitting media and demodulated at the receiver end into more sophisticated acoustic signals (Paterna 1996: 54). The first generation of mobile transmission in analog technology was produced in the 1940s. A second generation (2G) of cellular systems, this time digital, was launched in the early 1990s, and 3G was launched at the beginning of the new millennium (Lindmark, et al. 2004: 242). The use of microelectronics made possible the digitalisation of speech waves. The difference between this and the analog technique is that a digital converter measures the electrical oscillation and transforms the course of the sonic waves into binary numeric values. The transmitted flow of bits contains the information. Fo example GSM is a purely digital mobile transmission standard. Information is not directly analogically modulated and transmitted, but first turned into a sequence of zeros and ones (digitalisation). Therefore it is possible to compress the signal and codify it accordingly, so that it is less susceptible to disruption (Swisscom Mobile 2004: 24). Digitalisation also led to a considerable improvement in transmission quality. Transmitted signals must be purified in intervals, or amplified, in order to compensate for the frictional loss caused by transmission. In analog systems, not only are the actual contents of transmission amplified, but also their flaws, e.g., transmission noise superimposing speech. Digital transmission, on the other hand, allows a reconstruction of the original sounds that goes beyond pure amplification (Paterna 1996: 54).

To properly separate radio, TV and mobile communication, the regulatory authority in charge assigns each application and all wireless systems specific areas of frequency. Frequency is calculated based on the number of vibrations of an electromagnetic wave within a second. It is expressed in hertz (Hz) or megahertz (MHz). For example, for the current second mobile communication generation GSM (Global Standard for Mobile Communications), two wave bands are available in Switzerland and in Germany: 900 MHz and 1800 MHz (Swisscom Mobile 2004: 24). GSM is nowadays the usual international standard for digital mobile communication. The system is widely distributed and based on the transmission of language. Most GSM networks were started at the beginning of the 1990s

(Swisscom Mobile 2004: 29). In the US, Qualcomm was able to push through their own developed CDMA (Code Division Multiple Access) area as the most cost-efficient standard. In general, competitors were able to establish different standards, but no technology was capable of achieving global monopolistic advantages in the entire technological segment (Steinbock 2003: 215). Through the 2G technology and international standards, the mobile phone became fit for the mass market und also allowed "roaming"; this refers to the option of phoning abroad with your personal mobile phone. The principle is simple: A mobile phone from Switzerland or Germany logs abroad automatically into a partner network. Immediately information about the location of the phone will be transmitted to the control centre where it is registered. As soon as there is a calling signal, the control centre sends it to the right region of the corresponding country. To provide roaming, it is necessary to use the same wave bands. In Europe this is secured by the use of the GSM standard, but it is different in the United States. In order to use GSM there, producers decided years ago to add another wave band (1900 MHz) to the mobile. Other countries, such as those in South America, decided to opt for a wave band of 850 MHz. Therefore, so called tri-band, or lately also quad-band, phones were developed, which have come into use in the US. These mobile phones can communicate with 850-, 900-, 1800- and 1900-MHz networks (Swisscom Mobile 2004: 28p.).

In addition to digitalisation, the use of micro electronics in transmission and connection equipment allowed numerous innovations on all levels of telecommunication systems. This can be considered as a quantum leap in the development of new communication functions, which was especially important for the third technological paradigm in the multimedia generation after 2001 (3G). The transmission of data such as moving pictures poses much higher demands on the network than the simple quest for textual information. Generally, there are specific demands on the type of the connection needed, on the quality of transmission and on degree of interactivity afforded by the equipment. Therefore, not only do the transmission and network technique play a role, but also the processing power of the end devices, since this determines the possibility of data reduction (Paterna 1996: 55p.).

Yet GSM technology's transmission rate of maximal 9.6 kbit/s does not suffice for the mobile exchange of larger quantities of data. However, new technologies in the field of data compression nowadays allow an increase of transmission capacity in the digital network. Simply put, when information is "compressed", its spatial demand in the transmission medium is reduced, whereas the transmitted quantity per-time-unit is raised. With data compression, the variety of services offered can be increased, also in traditional networks, without having to replace the transmitting media (Paterna 1996: 55p.). Today's mobile communication uses a very sophisticated decompression technique, which allows more efficient language and higher data transmission than a few years earlier. GSM is being replaced with ever newer and more powerful data transmission techniques, e.g. HSCSD (High Speed Circuit Switched Data) or GPRS (General Packet Radio Service). HSCSD is a high performance data transmission standard for GSM-nets: Larger quantities of data can be transmitted with adequate speed, and downloads from the internet are possible up to four times quicker than with GSM technology. GPRS allows an even faster transmission of data on the GSM net: net resources are only used when data is really sent or received. Thanks to GPRS, the data transmission rate on the traditional GSM net can be increased to 30 - 40 kbit/s and thus is even quicker than HSCSD. The follow-up technology of GPRS is EDGE (Enhanced Data rates for GSM Evolution). This technology, which was introduced in 2005, will bring another speed improvement (150 kbits/s to 180 kbit/s) (Swisscom Mobile 2004: 29-32). Multimedia services are posing specific challenges for transmission and net technologies, since the data rate to be transmitted is much higher in comparison to the standard services. The necessary performance varies depending on the application. Therefore, besides GSM-based services, a broad range of transmission sequences like UMTS (Universal Mobile

Telecommunications System) is also needed (especially for moving pictures) (Paterna 1996: 70). UMTS represents the more powerful, so-called third mobile transmission generation. In comparison to GSM, the second generation in mobile transmission, UMTS allows the rapid transmission of larger data quantities (384 kbit/s) and therefore new applications, like video streaming and video conferencing. With 5 MHz, the frequency range per transmission, or receiving unit of UTMS, is 25 times broader than that of GSM, with only 200 kHz. The structure of the UMTS network is highly similar to that of GSM net. Most carriers therefore develop the UMTS net out of the existing GSM infrastructure. Since UMTS is a complete new technology standard, which operates off new frequencies in the 2100 MHz band, users also need special UMTS-adapted mobile end-devices (mobile phones, personal digital assistants and laptops with special cards) in order to obtain the mobile transmission signals. The UMTS standard uses a new modulation procedure, which together with the mobile phone and the infrastructure secures the connection. All connections in the environment of a base station are distinguished from each other through special, connection-based data coding (Wideband Code Division Multiple Access; W-CDMA). UMTS was created mainly to transmit higher data rates via mobile transmission. Language is thereby packed into data parcels and transmitted over the same medium. With this "parcel oriented" transmission, UMTS mobiles are always connected with the net - transmission takes place continuously. Another characteristic of UTMS is that the individual radio cells "breathe." This means they vary in size as soon as there are changes in the load. Because the maximal performance per cell is limited, the performance per user decreases as soon as the number of users increases. When performance for an individual user decreases drastically, it is automatically transferred to another cell. The transmission performance of UMTS is always exactly as high as it needs to be for a minimal good connection (Swisscom Mobile 2004: 27). In order to secure high user-friendliness and hardware availability and because the market has not yet fully been covered with UMTS devices, there is still a need for GSM technologies in addition to UMTS (INTCH-13).

Besides GSM and UMTS technologies, there is also the stationary WLAN (Wireless Local Area Network) technology, which is a strong example of the convergence of fixed-net and mobile services over the Internet. WLAN allows wireless data transfer with transmission rates of up to max. 2 Mbit/s. The standard theoretically allows up to 11 Mbit/s. In order to transmit data by WLAN, access points must be erected which - depending on location - provide a radius of between ten and three hundred meters. The WLAN standard (802,11b) is an open mobile transmission standard which is accessible to all providers. WLAN nets function in the wave band of 2,4 GHz. Prerequisite for the use of the WLAN technology is a laptop or pocket PC with WLAN card (Swisscom 2004: 31). In publicly accessible places (so called hotspots) like airports, transit stations, conference centres and hotels, customers (especially business customers) can access the Internet by way of WLAN as an open net, and - if supported by their company - the Intranet as well as office applications. This technology is under continuing further development and should soon obtain a data throughput of max. 57 Mbit/s (Swisscom Mobile 2004: 31p.).

Abbreviation	Label	Data transmission rate
GSM	Global System for Mobile Communications	9,6 kilobit/s
HSCSD	High Speed Circuit Switched Data	up to 57,6 kilobit/s
GPRS	General Packet Radio Service	up to 30-40 kilobit/s
UMTS	Universal Mobile Telecommunications System	200-350 kilobit/s
WLAN	Wireless Local Area Network	up to 2 mbit/s
HSDPA	High Speed Downlink Packet Access	up to 13 mbit/s

Table 1 Contemporary transmission technologies in performance comparison (Source: Swisscom Mobile 2004: 14 as well as www.swisscom.ch as of: 01.2008)

The newest technology in the area of 3 G in Switzerland is HSDPA (High Speed Downlink Package Access). This technology is based on UMTS and therefore on the WCDMA system. Currently, a data transmission speed of up to 3.6 Mbit/s can be reached with HSDPA. This is roughly as fast as ADSL access at home. To use HSDPA, special end devices (mobile phones, personal digital assistants, laptops with special cards etc.) are needed (www.swisscom.ch_SwisscomMobile as of: 07.2007; for a performance comparison see also table 1).

Development in the area of end devices which allow analog and digital technologies is heading toward computer-based, multi-function terminals both for mobile transmission as well as in fixed-line networks. This allows the processing of language, data, pictures (videos, etc.) and a variety of intelligent functions, with the microchip serving as the central control. Also end devices play a crucial role in the process of marketing new services, since without the availability of such devices it is not possible to generate demand. At the beginning of the boom phase as well as the start of the UMTS multimedia period, providers of mobile transmission networks often painfully experienced their dependence on supplies from the production end. Delivery shortages and quality problems made it much more difficult to gain new customers (INTCH-1). The importance of technological standard setting thus becomes evident at the interface between network and end device, so that security can be assured to the production industry and to the customer, and sales potential can be created by cross-national arrangements combined with attractive prices (Paterna 1996: 63).

In the past, computers and telecommunications were separate techno-economic fields. Then digitalisation triggered a process of technological convergence, allowing voice, data and images to be carried over the same networks. The introduction of digital computer (stored program) control-switching marked a first wave of computers used in telecommunications. As telephone networks increasingly became digitized, a number of telecommunications companies had to accumulate skills in software and micro-electronics. In the 1970s and 1980s, analysts and practitioners recognized this technological convergence (i.e., two product classes converging with respect to technology, but also one technology diversifying into a new application), and envisioned an industrial convergence as well (see: figure 4). Thus leading firms in those industries began a process of entering the other industry (Lindmark, et. al. 2004: 67). Additionally, there are a number of convergence processes taking place at different levels in the sector and its innovation system, in complicated patterns and with non-trivial consequences. It could possibly be claimed that digitalization at the technical system level drives convergence at technical knowledge, actor and institutional levels, whereby the latter have difficulties to adapt and adjust. Convergence requires complicated patterns of collaboration in technological innovation systems. The institutional regimes in particular seem slow to adapt. Intellectual property

systems also have trouble adapting, as do standardisation regimes and the regulatory framework. Finally, and perhaps somewhat paradoxically, convergence drives divergence (Steinbock 2003: 226).

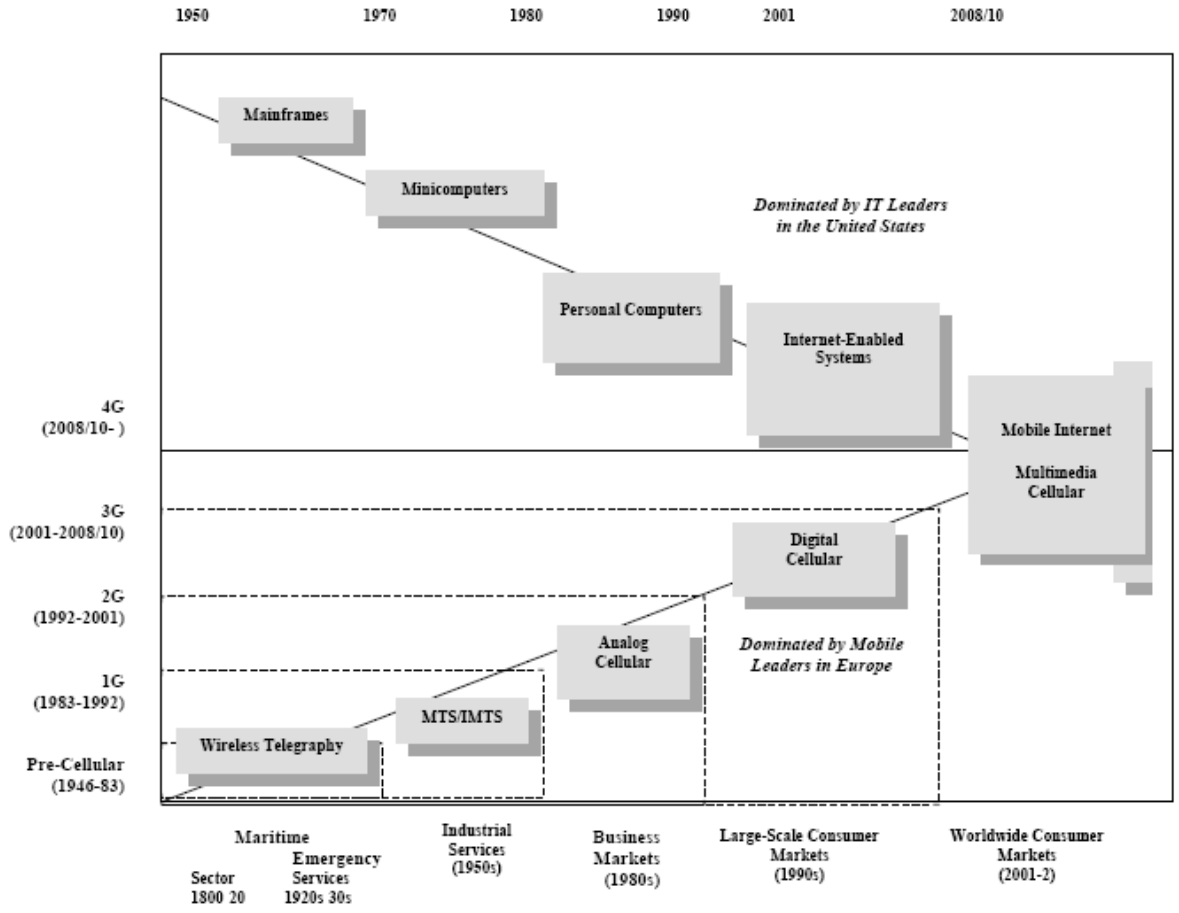


Figure 4 Convergence of computer and mobile technology (Source: Steinbock 2003: 226)

With the emergence of digitalisation opportunities in the 1970s and digitalisation implementation in the 1980s, possibilities for tele-services expansion increased, i.e., a more differentiated or divergent range of applications and services could be provided. As discussed in the previous section, digitalisation provided a platform for new types of services and convergence between media and services. Digitalisation has the potential to offer increasingly customised services befitting a society that has shifted towards individualisation and increasingly differentiated needs (Lindmark, et al. 2004: 67pp.).

From a sectoral system perspective this means the telecommunication sector itself may be divided into various parts or subsystems. First there is the convergence between IT and communication, which led to ICT technologies in the 1980s. There was also a convergence between ICT and the broadcasting/audio-visual technologies in the 1990s. This constituted the starting point of the so called multimedia revolution. Additionally the transfer to digitised mobile telecommunications systems in the 1990s implied a convergence of formerly separate technologies. The technological base had broadened to include innovations from outside the traditional telecommunications sector, mainly computer and software. On the level of the actors in the system, this meant that traditional service providers had to face competition from IT and software companies, as well as equipment producers. Other new actors and institutions which proved very important were standard-setting organisations and publicly funded research. Additionally, the 1990s also saw a convergence between traditional

telecommunications and the Internet. The emergence of the Internet during the so-called multi-media period meant that another subsystem entered the telecommunications sector. This again meant that new actors and new functions and institutions entered the sector (such as games and e-commerce companies, software and Internet-specialised consulting companies, etc.). We will see further convergence in the future between fixed Internet and mobile communications with 3G mobile technologies like WLAN. This convergence has in fact already begun with SMS, WAP and GPRS, UMTS and WLAN technologies. Also in the equipment field, computers are used to communicate today, and set-top boxes are starting to become an alternative device for Internet access (Edquist 2004: 182p.).

All this has meant that the knowledge base of the telecommunications sectoral system has become increasingly complex. Technological convergence also means that boundaries are changing and that sectoral systems are becoming larger and more complex. However, boundaries may also change in the opposite direction, so that sectoral systems become more specialised and more isolated from other systems and subsystems because of increasing specialisation; they therefore may become smaller. Thus both technological convergence and divergence occurs at the same time:

> "There is a certain degree of arbitrariness when it comes to the specification of sectoral boundaries. Therefore we can consider data communications to be one sectoral system, and mobile telecommunications to be another. However we could also see both of them as belonging to one combined system. (…) It is partly a matter of choice and convenience. (…) Here, we take a very pragmatic view of whether we are talking about one sectoral system or several (…) Sometimes it might be useful to consider the Internet and mobile communications to be separate SSIs. It depends on the context of the study. In addition also equipment production, network operation (access provision) and content provision can be regarded as separate systems or as one common system" (Edquist 2004: 183).

This thesis will focus on the evolution of the mobile sectoral system as a subsystem of telecommunications' sectoral system. Details from computer and software technologies are excluded. Only where convergence between the mobile system and other systems (e.g., media, computer) are very influential on the mobile system under analysis (as in data-communications) will further insight be presented on the related subsystem specifications, too.

As Edquist (2004: 183) states, when an empirical study of a sector is carried out, it is absolutely necessary to clearly identify the boundaries of the sectoral system to be analysed. If the system is not entirely global, boundaries must be specified in both a geographical and a functional sense, not only in a technological one. The central research question of this thesis revolves around understanding differences in the internationalisation strategies of former monopoly players in mobile communications in Sweden and Switzerland from a national institutional perspective. Therefore, my sectoral boundaries are functionally focussed on the development and change of internationalisation strategies. Geographically, the boundaries of the system are the worldwide mobile communications system in a wider sense, but with a clear focus on development and change within the European mobile communications sectoral subsystem (defined in 1 G by national standards, in 2G by the international diffusion of the GSM standard, and in 3G by UMTS), and on the mobile communications subsystems in Sweden and Switzerland specifically. The actors at the heart of the analysis are former monopoly service providers. In subsequent chapters this definition of the sectoral subsystem will be more precisely presented, expanding on the given information on technological features with descriptions of the main functional, organisational, geographical and institutional features of the system.

3.1.2 Divergent internationalisation in Switzerland and Sweden

Since the 1970s and 1980s and onwards, the complexity of economic globalisation has been raising new challenges for companies, but also for researchers and scientists who study the field of company internationalisation. The telecommunication industry is one example of this, as over the last 20 years former monopoly service providers have undertaken restructuring and transformation on an unprecedented scale (Fransman 2002: 1, Steinbock 2003: 207, Lehrer 2004: 1397). Changes in regulatory, technological, financial and market environments led to different internationalisation pressures along the value chain, making room for new roles and players. Most former monopoly players faced these challenges within the same time frame, from the 1980s until the late 1990s. New actors, institutions and power relations came up as these systems changed over time:

In policy, the trend in telecommunications has gone from monopoly systems to competition. In wireless innovation, it has moved from proprietary technologies and patents to increasing openness and international standardisation (INTSwe-16a). In market evolution, the most important turning point was from original demand and mass markets to replacements, re-branding and saturation. Even with the specialisation of the wireless value system and different locational contexts, the wireless industry is now at a crossroads. The bargaining power of new players in the business arose with the 3 G transition (Hess/Coe 2006). In the past, vendors and operators competed through gradual globalisation; today, many players are forced to globalize in order to compete. In the emerging 3G environment, strategic drivers are rapidly shifting from technology innovation to market diffusion (INTSwe-4; INTCH-11). This especially favours financially strong companies.

As strategies direct industry developments and consolidation, which affects markets on a global basis, innovation has become increasingly market-responsive and specialised in terms of cellular advancements, standards and technology development. Once basic research and the technology infrastructure have become more sophisticated, industry rivals may focus on specialized assets. The more competitive the industry value system, the greater are the incentives and rewards for innovative start-ups and challengers. In this era, leadership is no longer a monopolistic birthright (INTSwe-16b). Instead, companies must win leadership by winning new markets (scale) through internationalisation, e.g., by consolidation and differentiation in the triad nations or in emerging markets (Steinbock 2003: 232-233). Out of these challenges, the actual international industry trend for incumbents in mobile communications is:

- Cost leadership and service differentiation in triad markets: consolidation among service providers underway; M&A with lead suppliers; standardisation
- Cost leadership in emerging markets: acquisition of (if possible majority) assets in fast growing markets; M&A with local companies

The following statement about the global mobile communication company Vodafone in the Financial Times in January 2008 shows the importance of internationalisation for the success of global players:

> "Worldwide the number of Vodafone users jumped by 10.8 million to 252.3 million. According to the latest prognosis for the year, the sales of the company should rise to 34.5 to 35.1 billion pounds (46.4 to 47.2 billion Euro) - about 1 billion pounds more than earlier announced (…) Recent takeovers in India and Turkey positively affects sales. The growth is primarily thanks to the booming business in these markets. Apart from India and Turkey, other countries like Egypt or Rumania succeeded in steep growth rates of partially more than 30 percent (…) and the US will probably - as usual - indicate the direction for the world economy. In Europe, on the other hand, sales numbers developed more modestly" (www.financialtimes.de as of: 31.01.2008).

The actual international trend (scale economies and financial power) can particularly explain the success in international performance of large country players in the leading OECD nations (INTSwe-1, see also Hess/Coe 2006 1221). The following table argues in favour of this trend:

	Home Economy	Sales 2002 in Billion US$	Employment 2002	Number of Foreign Affiliates 2002	Number of Host Countries 2002	Number of Proportionate Mobile Subscribers 2004,in Million
NTT	Japan	99	213,062	72	19	49.0
Verizon	USA	67	229,497	13	11	43.8
Deutsche Telekom	Germany	51	255,969	86	28	77.4
France Telekom	France	49	243,573	129	42	58.4
SBC Communications	USA	43	175,980	16	12	29.4*
Vodafone	UK	42	66,667	65	19	151.8
AT&T	USA	38	71,000	51	28	See SBC*
Telecom Italia	Italy	30	106,620	192	41	37.6 (2003)
BT Group	UK	29	107,400	84	26	23.0
Telefonica	Spain	27	152,845	146	19	49.6

* In 2004, AT&T Wireless was bought by Cingular Wireless, which in turn is 60% owned by SBC. Thus the SBC figure includes both SBC and AT&T Wireless customers on a 60% proportionate basis.

Source: UNCTAD 2004; Company Information

Table 2 International businesses of the worlds` top ten telecommunication companies ranked 2002 (Source: Hess/Coe 2006: 1221)

The internationalisation performance at a certain point of time, measured in consolidated customers worldwide and geographical dispersion of target markets, of the companies is the best indicator to measure the difference of internationalisation strategies. However, if one looks closer at the internationalisation performance, and also at the geographical outcome of the international activities, the performance of former monopoly companies is characterised by major differences. This can also be seen in the example of Telefonica as well as in Asian players like KDD, which are active in Asia but not in central Europe or other emerging markets (see: figure 5). Telefonica is mainly active in Latin American markets (see: figure 6), and Vodafone did not manage to stay in Asia. The question arises, what is driving the differences in internationalisation performance among former monopoly companies in mobile communications?

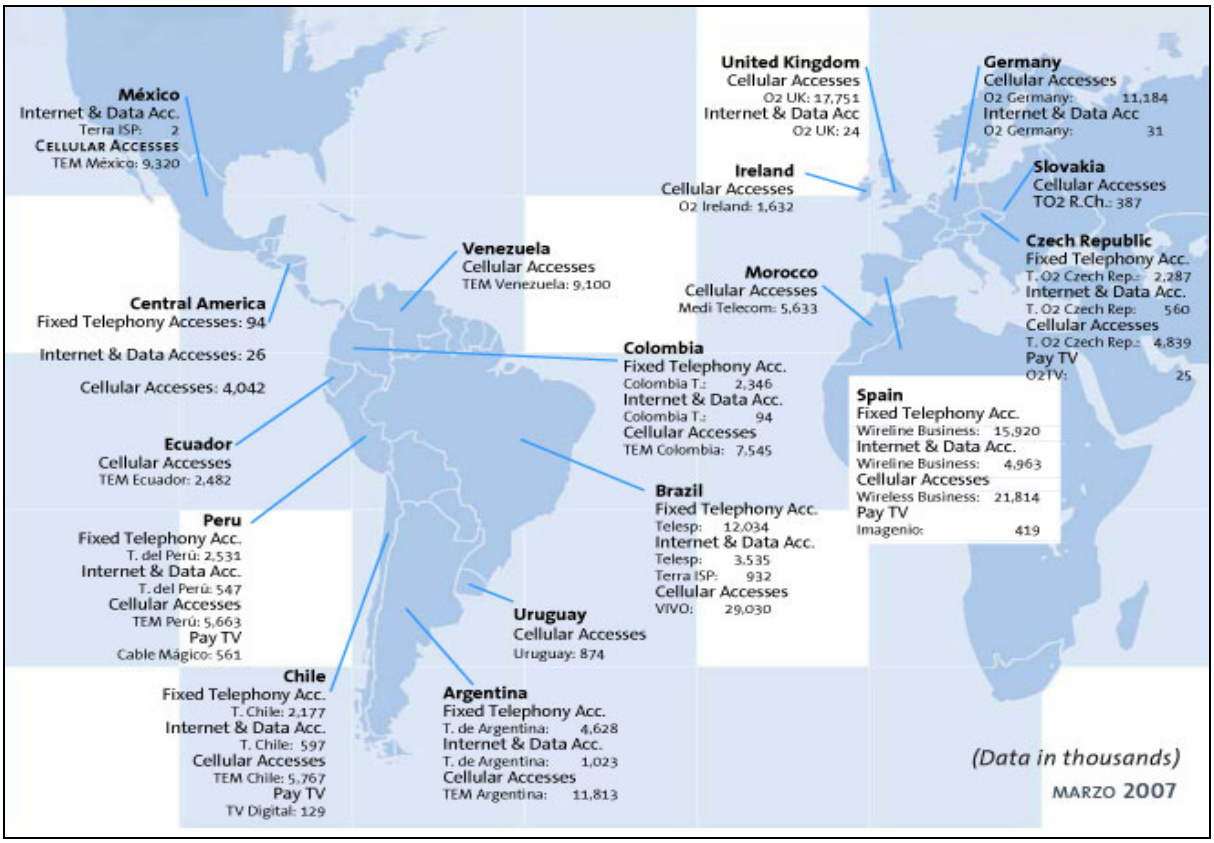


Figure 5 Telefonica`s international presence March 2007 (Source:www.telefonica.es as of: 18.06.2008)

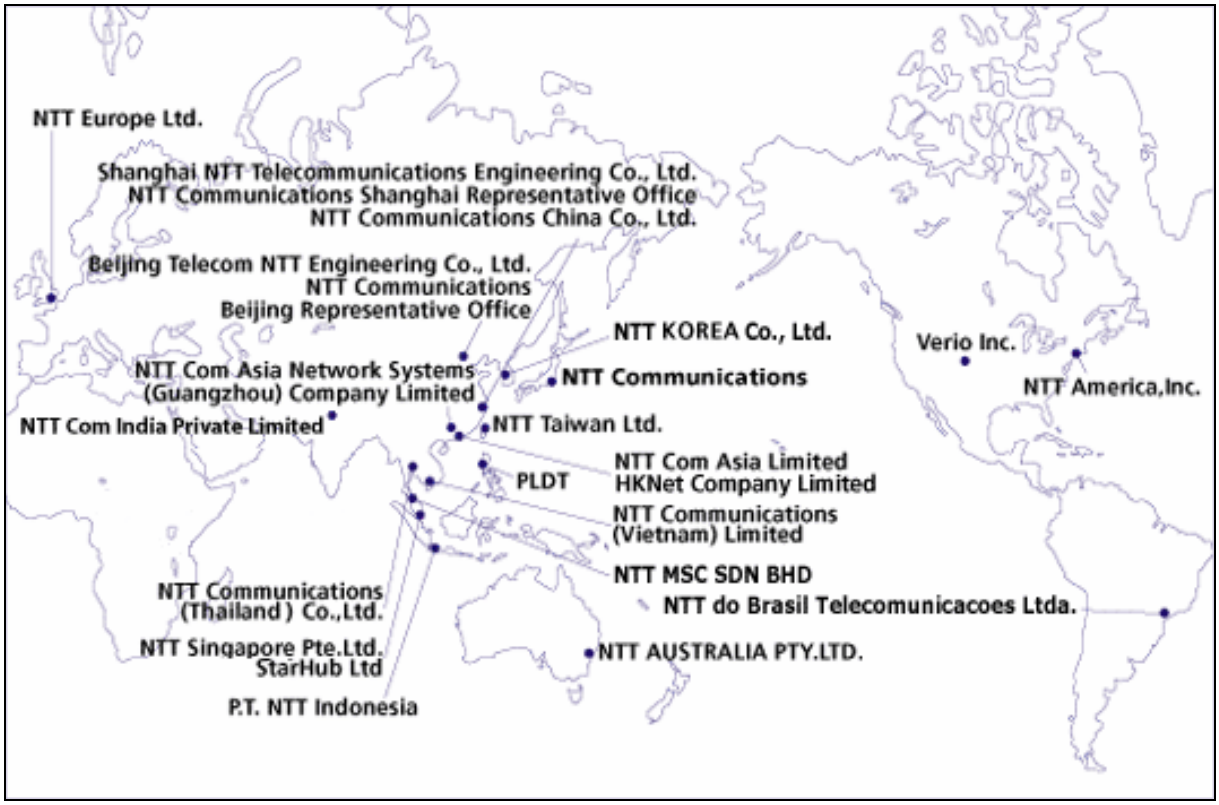


Figure 6 NTT DoCoMo`s international presence 2006 (Source: www.nttdocomo.com as of: 01.06.2006)

Another phenomenon which makes these differences even more visible in the sector is that some small country players managed to internationalise quite successfully as well, as is evident in the case of Telenor, Tele 2 or TeliaSonera. This would be an argument against the dominating international industry trend that mainly favours large country players. However there are also big differences among smaller players. One example is the current divergent internationalisation performance of Swisscom Mobile and the Swedish TeliaSonera Mobile, as the following short profiles indicate.

> "Swisscom is Switzerland's leading telecoms provider, with almost 5 million mobile customers, around 5.25 million fixed lines and almost 1.6 million broadband connections and a total of 19658 employees. As the largest network carrier by far, Swisscom contributes the lion's share to this investment volume. Swisscom is by far the most important provider of telecoms and IT services in all key business segments in Switzerland. Geographically, Swisscom's business activities today are primarily focused on the home market of Switzerland, although Swisscom was active in India, Malaysia and Eastern Europe as well as Central Europe before. Today, however, Swisscom is active in one of the most attractive broadband markets in Europe via the Italian provider Fastweb. In Eastern and South-Eastern Europe, Swisscom is acquiring specifically targeted small local Internet service providers, with the aim of participating in these growth markets by offering reliable and reasonably-priced broadband products. Additionally, in the field of mobile one, exclusive to the international Swisscom business field is the provision of broadband and Internet-based services for hotel guests and conference participants: Swisscom operates local networks in hotels and convention centres in Western and South-Eastern Europe as well as in the US through a subsidiary. To consolidate its market position in this segment, Swisscom enters into partnerships with leading international hotel chains (Swisscom Eurospots)" (Swisscom 28.01.2008).

In contrast to this, the short profile of TeliaSonera Mobile (2008):

> "TeliaSonera was formed in December 2002 through a merger of the Swedish company Telia and the Finnish company Sonera under Swedish ownership. The company has 28,528 full-time employees, with 10,427 of them in Sweden (TeliaSonera AR 2006: 8). TeliaSonera is actually present in 18 countries. TeliaSonera is the leading telecommunications company in the Nordic and Baltic regions and also holds strong positions internationally in mobile communications in Eurasia, including Turkey and Russia. At the end of 2006, TeliaSonera successfully launched mobile services in Spain. In its Nordic and Baltic home markets, TeliaSonera offers a wide range of services within mobile, broadband, data communications and fixed communication. The majority of TeliaSonera's operations in the home markets are wholly owned. Outside of the Nordic and Baltic regions, TeliaSonera offers mobile services in Spain and in a number of markets in Eurasia and through associated companies in Russia, Turkey and Afghanistan. TeliaSonera's positions in these markets are strong. The weak infrastructure for fixed communications in some of these countries results in strong demand for mobile services. In Eurasia, including Russia and Turkey, the focus is on creating shareholder value and exploiting penetration growth in the respective countries" (TeliaSonera 28.01.2008).

2006	Ownership[1], percent	Mobile Subscriptions, thousands	(Market Share[3])
Sweden	100	4,603	(46%)
Finland	100	2,407	(42%)
Norway	100	1,641	(32%)
Denmark	100	1,123	(20%)
Estonia	53.7	759	(47%)
Latvia	60.3	803	(43%)
Latvia	49		
Lithuania	100	2,074	(48%)
Lithuania	60		
Spain	76.6	24	(0%)
Kazakhstan	51	3,539	(56%)
Azerbaijan	51.3	2,333	(76%)
Georgia	83.2	1,032	(50%)
Moldova	100	448	(45%)
Russia	43.8	29,749	(19%)
Turkey	37.3	31,800	(60%)
Ukraine[2]		4,620	(11%)

Table 3 International activities of TeliaSonera Mobile 2006 (Source: TeliaSonera AR 2006: 5)

TeliaSonera has had a broad and relatively successful internationalisation strategy since the middle of the 1980s, with a focus on the Nordic and Baltic regions as well as Eastern Europe and Eurasia, with recently 119.3 million consolidated customers worldwide (TeliaSonera QR-1 2008). Not included in table 3 above are the newest acquisitions of TeliaSonera Mobile in Afghanistan (12%), Uzbekistan (99%) and Tajikistan (60%) (TeliaSonera QR-1 2008). Swisscom Mobile, on the other hand, after some years of diffuse internationalisation into India, Malaysia and Germany and further unsuccessful attempts in Ireland and Austria, is mainly focused on the home market, with nearly 5 million customers at the beginning of 2008 (see: figure 7). Thus Swisscom Mobile has only a limited internationalisation strategy today, mainly focussed on niche technologies (e.g., Mobile Unlimited, Swisscom Eurospots).

The 3G trend clearly favours large country players like the German Telecom, France Telecom and Telefonica. However, some small country players like TeliaSoneraa and Telenor are very successful in their internationalisation strategies, too. However, other companies like Swisscom which emerged out of similar starting conditions (e.g., home market size, company size, quality of customers) did not manage such a successful internationalisaiton strategy.

Hence some questions arise from this phenomenon:

- Why do firms in the same sector, with similar challenges, differ in their internationalisation strategies and performance (see: Swisscom Mobile versus TeliaSonera Mobile)?
- Why are small country players like TeliaSonera internationally successful?
- Why have other smaller players not succeeded internationally (Swisscom Mobile)?

My first attempt will be to try to come to an understanding of these processes via conventional buisness and mainstream approaches in the field of company internationalisation. Since the limited explanatory value of these approaches has been delineated in the theoretical section, this should only be a brief clarification based on the empirical example. This should serve as empirical evidence to support theoretical Metathesis 1: *"Conventional internationalisation theory does not properly contribute to an understanding of differences in internationalisation strategies and performances among national core companies in the same industry segment*" (see page: 53). Thus, no comprehensive or detailed argumentation will be offered, but afterwards an explanatory attempt will

be made based on my evolutionary economic model, with a focus on national institutions in the process of internationalisation.

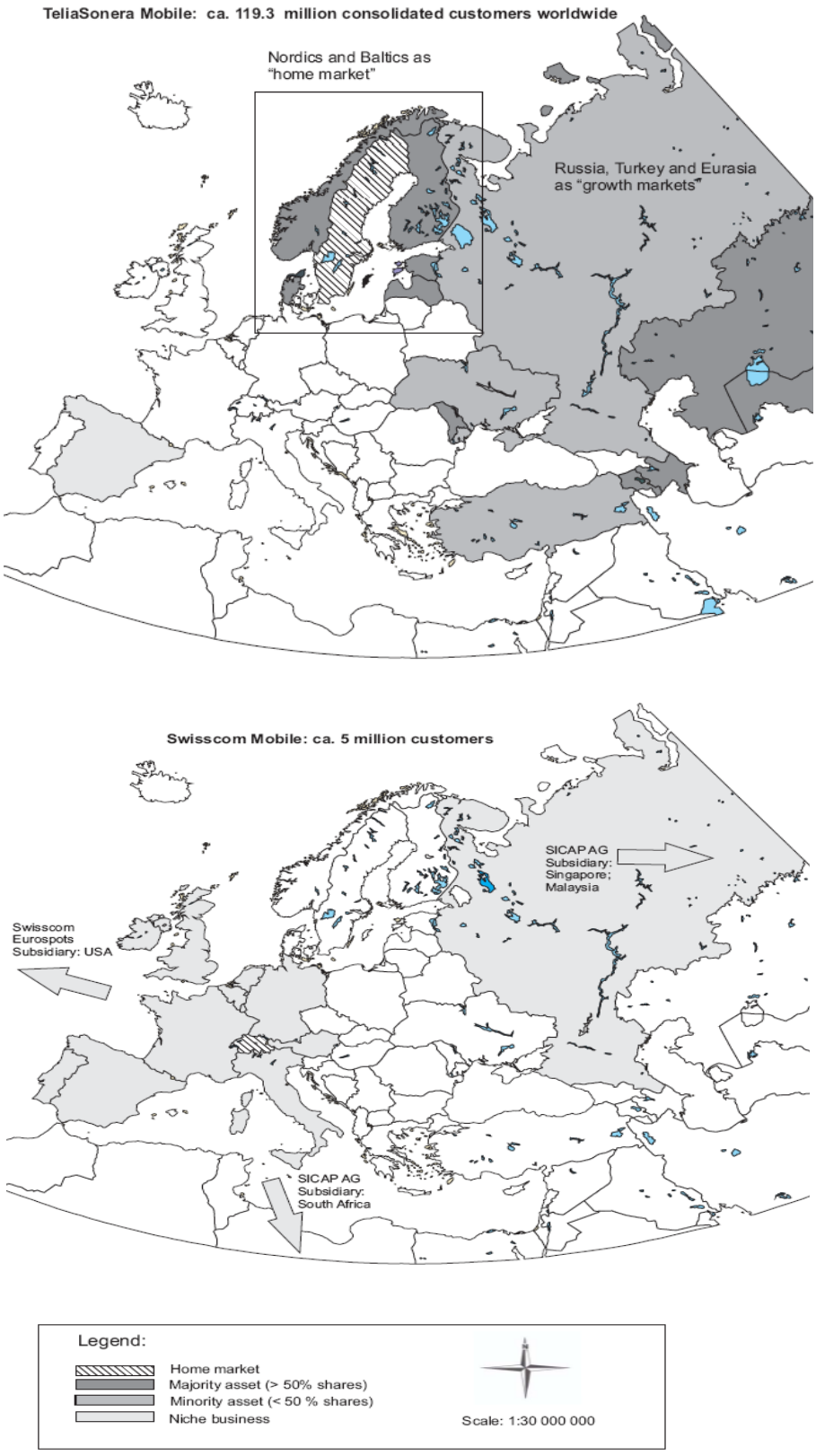


Figure 7 **Internationalisation performance of Swisscom Mobile and TeliaSonera Mobile in comparison (2008) (Source: Author according to Annual Reports (ARs) of Swisscom Mobile and TeliaSonera Mobile (until QR-1 2008) and homepages of both companies as of: 03.2008)**

3.2 The explanatory limitations of conventional internationalisation theory - empirical evidence

Dunning`s eclectical paradigm

In order to understand the relatively different internationalisation performances and strategies of the two companies, based on Hymer (1977: 41) and Kindelberger (1969: 11pp.) as well as a portion of "ownership advantages" by Dunning (1993), it is necessary to look at the specific advantages which allow multinational companies to succeed in their competition with domestic companies. Dunning (1993) in particular claims his model comprehensively explains internationalisation (Kutschker/Schmid 2005: 452). According to him, internationalisation always happens when a company features property advantages. Therefore, the Swedish firm TeliaSonera would have certain monopolistic advantages over Swisscom which make successful internationalisation more feasible. However, this is not obvious at the first static glance. In the following, only the central "**O**wnership-**L**ocation-**I**nternalisation" advantages will be presented in order to achieve a closer understanding of the different internationalisation paths in Switzerland and Sweden.[12] Also, Dunning lists location advantages in the home or guest country, which foremost includes factor costs, transport and communication costs, infrastructural conditions and the psychological distance to certain markets (Kutschker/Schmid 2005: 453). In particular, Dunning sees ownership advantages as the "conditio sine qua non" of internationalisation, the so-called starting disadvantage of foreign firms, or the "cost of foreignness" to be compensated for (Kutschker/Schmid 2005: 454). It is, however, not always clear what exactly ownership advantages are and what domestic market advantages are. In the following, it is intended to list a few property advantages which could at the same time be location advantages. Therein, TeliaSonera should show certain property advantages over Swisscom which explain the current internationalisation performance differences.

An **ownership advantage**, but also locational, home-market advantage, can be the home-market **customer base**. If we look at the customer base of both countries at the beginning of their internationalisation efforts, it is not very different. Switzerland has 7.5 million (2006) inhabitants (INTCH-1) and Sweden 9.2 million (2007) (INTSwe-16b). Swisscom might even have had an initial advantage, as it hadn't had to share its client base until 1998. TeliaSonera in Sweden has had to share its home market base since the beginning of the 80ies with its competitor, Tele 2. Also, the quantitative client structure in Switzerland is not very different from the client structure in Sweden. The value of the Swiss telecommunication market (including cable TV services) was 7.666 billion Euro in 2004, placing Switzerland 10th, in decreasing order, among the countries of the European Union. Switzerland is only a little behind Sweden (8.28 billion Euro) (OFCOM 2005a: 3).

[12] Internalisation advantages do not explain why an industry takes the decision to internationalise, only how the internationalisation is organisationally structured. Furthermore, export is no real alternative for service industries (Kutschker/Schmid 2005: 457). That is why this aspect of Dunning's eclectic theory is not mentioned here.

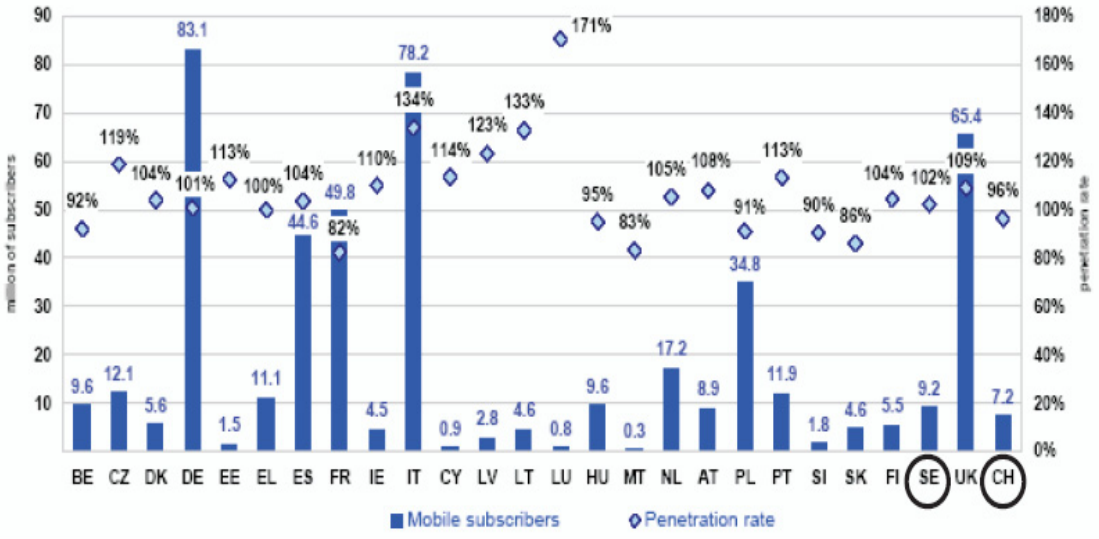


Figure 8 **Telecom penetration in Sweden and Switzerland in international comparison measured in million subscriptions (2007) (Source: OFCOM 2007: 51)**

Qualitatively, Swiss clients have the highest per capita spending on ICT worldwide, at 2,791 Euro per inhabitant (see: figure 9). But per capita spending in Sweden, at 2,350 Euro (ITU 2006), is almost the same. The EU average of per capita spending is 1,344 Euro (EITO 2007). The segmentation of customers means that high-value business customers and the number of multinational headquarters are also nearly equal between Switzerland and Sweden (INTSwe-16c):

> "The Swedish market spans nearly 9 million inhabitants. Swedish trade and industry is characterized by a large number of multinational companies compared with most European countries. Many of these companies have a great need for sophisticated communications solutions. TeliaSonera has a very strong position within the large corporate customers segment. This segment includes the 1,000 largest business customers and organizations in Sweden. (…) The Business segment is responsible for small and medium size business customers, which in Sweden totals nearly 900,000" (TeliaSonera AR 2002).

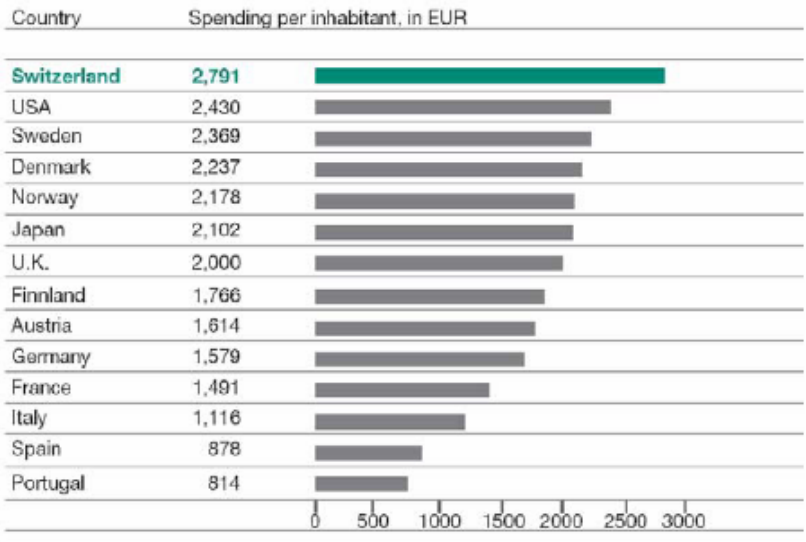


Figure 9 **Expenditure on ICT: Switzerland in international comparison (Source: BfS 2006)**

Small home-market power can be one explanation for Swisscom's poor internationalisation activity today, but not for TeliaSonera's relatively successful internationalisation. The high-standing business customers in both countries led to the Unisource agreement with KPN, Telefonica and AT&T, in which both companies were involved. The motivation for this agreement was to offer business customers better services (INTCH-9). Also the usage of mobile telecommunication infrastructure is very high in both countries, as is shown in figure 10. However, even here Switzerland outperforms Sweden. This might partly explain why Swisscom is active in the international niche segments of wireless LAN in Europe and the US (Swisscom Eurospots). However, it is no proper explanation for TeliaSonera's broad internationalisation activity in Eurasia and Eastern Europe.

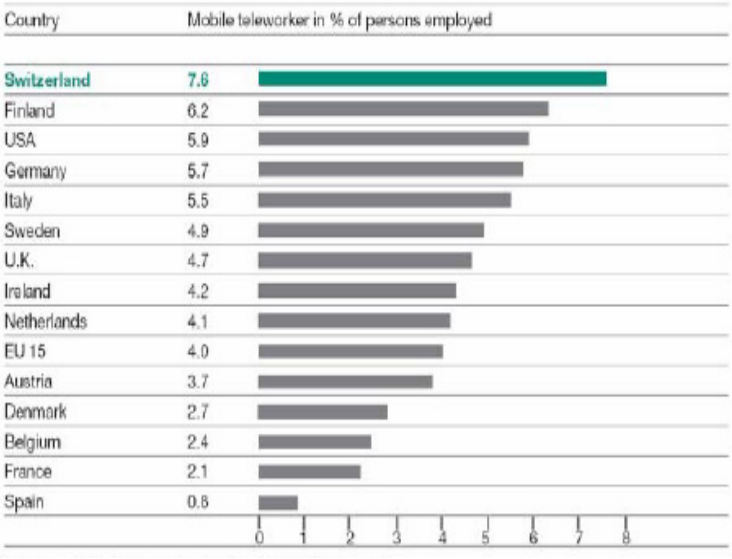


Figure 10 Mobile teleworking: Switzerland in international comparison 2006 (Source: BfS 2006)

Competitive pressure on network operators, i.e., the intensity of competition in the domestic market, can also explain the pressure for internationalisation. Telia as well as Sonera were exposed to competition in the early 1990s (INTSwe-14). However, this did not lead to any earlier or stronger internationalisation than with Swisscom. Swisscom started their internationalisation project in the beginning of the 1990s without being exposed to competition. Today, in both 3G markets there is a comparable number of competitors (see: figure 11), and both companies have similar market shares in their domestic market, with Swisscom reaching a market share of 63.21% (2006), which currently is a bit higher than TeliaSonera, with only 43.23% (OFCOM 2007: 57).

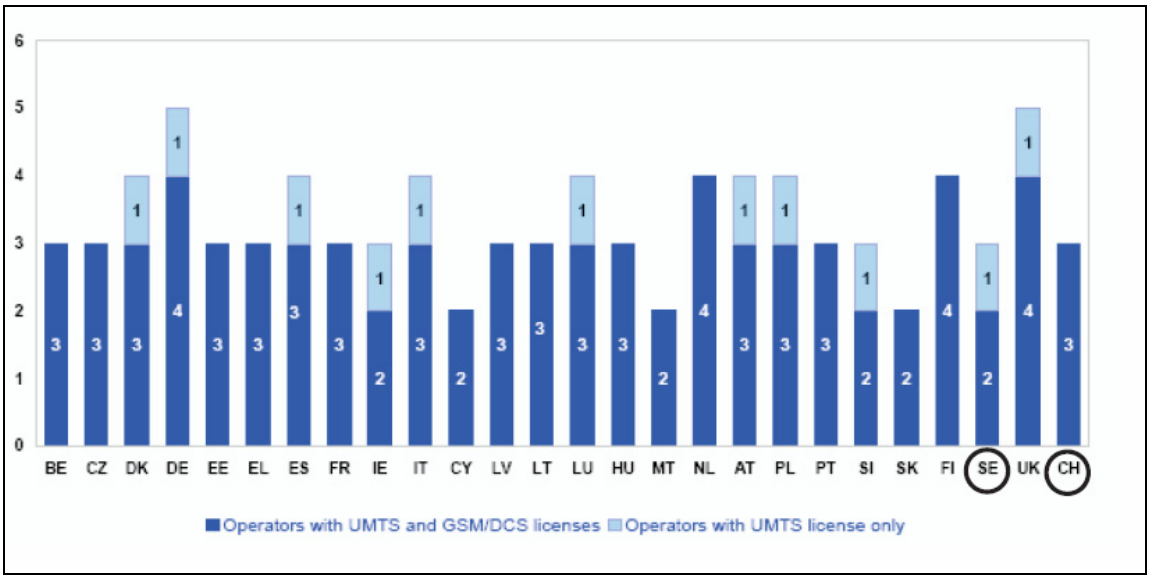


Figure 11 Number of UMTS licences per country – an international benchmark 2007 (Source: OFCOM 2007: 55)

Additionally, **economies of scope** do not play such a big role in mobile communications, because smaller companies have to face the same technical problems as the bigger ones. However, the quality of the network and the network technology are important. But they are influenced mainly by the historical, external decisions of the regulatory environment and co-evolutive processes with the customers and competitors. Those co-evolutive factors are widely neglected in Dunning's approach. But when network technology and development are viewed together, they can be qualitatively and quantitatively compared in Switzerland and Sweden, as both countries have had the NMT standard from the beginning and both countries began with good basic infrastructure (INTCH-4). Even today, they have a comparable quality of telecommunication infrastructure. Both Switzerland and Sweden are leading countries in coverage, with modern ICT infrastructure worldwide (see homepage TeliaSonera 2008 and Swisscom 2008). Furthermore, both companies' reputations were nearly equal at the beginning of internationalisation - Swiss products stand for high quality and innovativeness, and Swedish products gained a high reputation with the invention of the AXE switching systems and digital systems. Thus, both companies possess the necessary technical competence to be active as network providers abroad (INTCH-1).

Concerning the **financial health** of both companies, Swisscom stocks are rated a little better by the financial analysts than those of TeliaSonera. However, both companies outperform bigger companies like German Telecom and France Telecom. And both companies are outperformed by Telenor, the Norwegian player (www.swisscom.ch_Investor relations as of: 01.08.2007).

Concerning **location advantages** (L-advantages), Dunning focuses mainly on home and host market pull variables, like market attractiveness, but also on regulatory influences (Kutschker/Schmid 2005: 453). Particularly, an attractive host market can be a decision factor (INTCH-11). The pull-effect coming from the target market depends on the prevailing market characteristics. Their evaluation depends on the individual situation of the network operator and its entrepreneurial strategy. Growth prognosis, political environment, intensity of competition, gross domestic product or available income could be considered as general criteria (Paterna 1996: 256). Hence it is quite difficult to target the crucial criteria for market entry based on a purely statistical and quantitative evaluation of all criteria. The psychological distance and the political situation in markets like Asia, Africa or Latin America would be rather a location disadvantage (INTCH-12). However, the growth prognosis in

these markets could be a considerable advantage. But precisely in mobile communications, market entry is tied to conditions like licenses. It is therefore important for foreign investors to be able to predict the regulatory environment. Possible privileges for domestic providers or the permanent danger of possible changes deter potential investors. Dangers from political insecurities in such places as China, South America or certain Eastern European countries can range from discrimination all the way up to expropriation (Paterna 1996: 256). Good relations between domestic and target markets, i.e., good political relations, could facilitate market entry. However, even here there are serious differences. Switzerland as well as Sweden have good international reputations and are politically neutral. The geographic concentration of TeliaSonera's internationalisation in the Nordic and in the Baltic regions could be explained easily by their histoiccal-political relationships, but their large-scale internationalisation into Turkey or Eurasia cannot be explained this way. Neither can the geographic presence of Swisscom Mobile in Eastern Europe, Asia or Germany be traced back to this approach.

Altogether, these few examples show that Dunning`s eclectic paradigm reduces the complexity of the internationalisation process only to some explanatory variables. But as the examples have shown, these variables cannot properly explain differences in the internationalisation paths of Swisscom Mobile and TeliaSonera Mobile. Obviously, the topic of internationalisation in mobile communication is too complex to be explained just by a set of general, static company and market variables.

Knickerbocker`s oligopolistic approach and Johanson/Vahlne`s Uppsala model

As already explored in chapter 2.2.2, there are two central stage-models of internationalisation: the approach of oligopolistic parallel behaviour according to Knickerbocker (1973), and the Uppsala approach according to Johanson and Vahlne (1977). The explanations offered by the theory of oligopolistic parallel behaviour seem to be partially plausible for international service providers. In the case of power supply operations, however, there are only one-time licensing bid invitations. In this case there are quick reaction options for competitors. Neither does the theory provide explanation for initial investments. Internationalisation as a network operator remains, however, rather a sum of individual investments, which by themselves are more of a project nature, mostly unattached to the global strategic framework and not demonstrating any related reactions (INTSwe-16b; INTCH-17). Furthermore, changing alliances and the corresponding investments do not lead to an oligopolistic situation. Also, a direct worldwide oligopolistic situation does not exist in mobile communications yet, because of the different technological standards in Asia, the US and Europe. But, the alliance of MCI (US) and BT (GB) Concert) in the mid 1990s and the presence of those companies in Germany, for example, must have been a real threat to German Telecom. As a result, the company engaged in a strategic alliance with France Telecom and Sprint (Paterna 1996: 261).

However, the instability and technological dynamism as well as the homogeneity of the products in mobile communications could contribute to oligopolistic reactions within the standard regions (Knickerbocker 1973: 32p.). Today, the beginnings of consolidation are taking place in the telecommunication industry within the bigger standard "regions" (US, Europe, Asia), and this is contributing to oligopolistic reactions, such as follow the leader" strategies. Overall, however, because licences are needed for market entry, oligopolistic reactions in mobile communications might be rather a scarce phenomenon (INTCH-8). Swisscom Mobile as well as TeliaSonera, were engaged in the Unisource Alliance, too, but oligopolistic motives cannot be found, as Swisscom and Telia are not among the major key players in telecommunication like BT and German Telecom. There is a national oligopoly in Switzerland and Sweden because there are only three main competitors in the Swiss and

Swedish markets. But the internationalisation of these competitors has not led to an international "follow the leader strategy" or cross-investment reaction by any of the players in the Swiss market. In Sweden, however, the entrance of Telenor in the Swedish market was a reaction to the Swedish internationalisation into Norway (INTSwe-11).

But altogether, also Knickerbocker`s (1973) approach, because of the absence of oligopolistic market structures, provides only a very limited explanation for a wider understanding of the differences and motives behind the internationalisation paths of Swisscom Mobile and TeliaSonera Mobile.

Also, a multistage scenario from export to cooperation to direct investment, as described by Johanson/Vahlne (1977) and Bartlett/Ghoshal (1989), is not very common in mobile communications, as a service cannot not be exported (Perlitz 2000: 360) and direct investment is dependent on licences. There is no continuous internationalisation path. It is possible that there were some learning effects that brought Swisscom`s internationalisation strategy from Asia to "the heart of Europe" (see: debitel) (INTCH-11). The commitment to the Nordic and Baltic regions of TeliaSonera could also be explained by this argument (INTCH-16). The international experience of TeliaSonera might have been bigger in the beginning because of its early international consulting business, Swedtel. Nevertheless, the consulting business is not the same as the infrastructure and service-provision business. Neither company had experience in these fields at the beginning of the 90s. But mostly the model gives no satisfactory explanation because a wider contextuality is still neglected. Additionally, because internationalisation decisions are sometimes based on financial logic, they cannot be traced back to an industrial logic of organic growth only (INTSwe-1). Furthermore, explaining international evolution by focusing solely on the development of a network of external relationships within a host country ignores other influences, namely the relational networks and corporate governance of the home country, which is extremely important for former monopoly companies (Hess/Coe 2006).

More international experience and a gradual commitment to the Nordic and Baltic regions due to positive increasing returns, however, could explain TeliaSonera's successful internationalisation there. Nevertheless, it does not explain the company's presence in Turkey and Eurasia. Also the divestment in Africa and Latin America as well as in Unisource cannot be explained by this model. Thus, also Johanson/Vahlne`s (1977) approach serves only for partial explanation as it is purely geared toward experience and commitment in certain markets and almost completely neglects factors of context.

Summary: The explanatory limitations of conventional internationalisation theory – empirical evidence

In general, discussion of the potential determining factors of internationalisation once again shows how complex strategic, entrepreneurial decision-making can be. According to business management theories, the main variables that "explain" corporate internationalisation are:

- learning effects with internationalisation
- oligopolistic reactions
- domestic markets
- company size
- financial strength
- technological capability

Conventional internationalisation theory	Sweden	Switzerland
Dunning (eclectic paradigm)		
Market value	8.28 billion Euro (2004)	7.666 billion Euro (2004)
Market revenue mobile	1.79 billion Euro (2007)	1.2 billion Euro (2007)
Market volume (all)	9.1 million subscriptions (2005)	7.3 million subscriptions (2006)
Per capita spending	2,350 Euro per year	2,791 Euro per year
Number of employees (2007)	28,528 (int) / 10,427 (Sweden)	19,658
Partially privatised since	2000	1998
Market revenue (all)	4 billion Euro (2008)	5.3 billion Euro (2008)
Mobile clients	4.5 million (2008 in Sweden)	4.9 million (2008)
Knickerbocker		
	No oligopolistic parallel reaction	No oligopolistic parallel reaction
Uppsala School Approach		
	Only little previous experience with internationalisation (*de facto* state monopoly)	Almost no previous experience with internationalisation (*de jure* state monopoly)

Table 4 Basic market data chosen in accordance with conventional internationalisation theory (Source: Author according to statistical data present on both company homepages as of: 03.2008)

However, the value of the Swiss telecommunications market (including cable TV services), is 7.666 billion Euro in 2004, placing Switzerland 10th, in decreasing order, among the countries of the European Union. Switzerland is behind Sweden (8.28 billion Euro) and Belgium/Luxembourg (8.074 billion Euro), but ahead of Austria (6.397 billion Euro). In 2004, the Swiss telecommunications market was segmented as follows: mobile telephone services made up 47% of the market, fixed telephone services 25%, fixed-network data services 17% and cable TV services 11% (OFCOM 2005b: 3). A similar distribution also appeared in Sweden, but migration to mobile communications was somewhat higher. In 2005, the market for mobile telecommunication services turned over revenue of 1.79 billion Euro in Sweden. As of 31 December 2005, the total number of subscriptions was 9.1 million. In recent years, Swedish operators have generally enjoyed an operating profit margin of 40-50% from their mobile businesses (PTS 2006: 7). Both Switzerland and Sweden have high-value customers (in both business and private segments). Over 7.3 million people telephoned by mobile phone in Switzerland in 2007, while the Swedish market spans over nearly 9 million inhabitants. Sweden also has high per capita spending on telecom services, totalling 2,350 Euro in the year 2007. The EU average of per capita telecom spending is only 1,344 Euros (EITO 2007). At 2,791 Euro in 2007, Switzerland has the highest per capita spending on telecom services worldwide (OFCOM 2007). The segment of large customers in both countries includes the 1,000 largest business customers and organizations located in both countries (PTS 2007: 35). Both countries experienced virtually no learning effects from internationalisation at the beginning, and their internationalisation activities were not influenced by oligopolistic market reactions.

As the statistical data above in table 4 have shown both firms were seemingly equally positioned at the beginning of their internationalisation activities. According to business-economics theories, this would lead to similar international strategies. However, this was not the case. Therefore, an attempt to explain differences in internationalisation strategies with conventional theoretical models cannot be successful. None of the approaches is capable of contributing a comprehensive understanding of these strategic differences. Even when it comes to individual questions of how, when, why and whom, different approaches lead to various answers. Thus Dunning's approach provides information about context variables and considers such factors as national institutions and the

relationships between companies and competitors. However, his focus is mostly on quantifiable variables; a precise cause-and-effect schema for the individual variables, or a specific variable-set, is not provided. Interpretation is left up to the reader. Furthermore, the approach is purely static and hardly applicable to mobile communications, as it quite strongly depends on historical developments. In contrast, the dynamic approach of Knickerbocker (1973) and of Johanson/Vahlne (1977) is purely geared toward experience and commitment in certain markets and almost completely neglects factors of context.

To sum up, all the approaches provide only partial, mono-causal answers. De-internationalisation, or disinvestments in specific countries, is not considered either. As these few examples have shown for our cases of internationalisation strategies in Sweden and Switzerland, these few variables can provide insight into the issue, but cannot lead to a broader understanding of the phenomenon. It seems too complex a subject to be able to make any general statements about the internationalisation strategies of companies in similar industry segments and with similar starting bases. Thus, Metathesis theory 1 - *"Conventional internationalisation theory does not properly contribute to an understanding of differences in internationalisation strategies and performances among national core companies in the same industry segment"* (see page: 53) - is verified by the empirical investigation.

In the following, an attempt will be made to answer the posed questions based on an evolutionary economic model.

3.3 Understanding differences in company internationalisation from an evolutionary economic perspective: further thesis and operationalisation

3.3.1 Further thesis related to the industry segment

A theoretical model that aims to contribute to a more realistic understanding of the internationalisation process in mobile communication must be context- and time-sensitive according to the central findings in the theoretical chapters. Additionally, the central question referring to Metathesis 2 (Metathesis theory 2 see page: 53) is: To which extent might an approach based on evolutionary economic thinking, especially on national institutions in place and time, contribute to a more realistic understanding of differences in the internationalisation strategies of national core companies in the same industry segment? The Swiss and Swedish cases serve here as examples of different internationalisation strategies and are compared with general internationalisation trends in the sub-sector. In the following, the central theses drawn from evolutionary economic theory are outlined and adapted to the case of mobile communications. This means that as a prerequisite to understanding the issue, theses 2.1 (Space) and 2.2 (Time) will be restated in simple empirical terms.

In contrast to mainstream approaches, the analytical framework, based on evolutionary assumptions, highlights the importance of company embeddedness in national institutional environments for a more realistic picture of differences in internationalisation strategies among former monopoly companies in mobile communications (see thesis 2.1 page: 54). As far as the research object is concerned, the regulatory environment will be shown as particularly significant to mobile communications. Because service provision is involved, according to Perlitz (2000), domestic markets (customer structure and demands) are also decisive factors for internationalisation. And because both companies under analysis internationalised out of national environments, their corporate governance structures had to adhere even more strongly to national criteria. However, in mobile communications

technological developments (standards) as well as the influence of finance markets occur at the international level. Thus the first thesis referring to the theoretical implications given in chapter 2 before is:

> Thesis: SPACE (summary of all sub-theses under 2.1 see page: 54pp.)
>
> Differences in internationalisation strategies and performances are the result of embeddedness in different national institutional surroundings. In mobile communications the most important national institutions that influence internationalisation strategies are the market, regulatory and corporate governance institutions.
>
> The most important international institutions that contribute to an understanding of similarities (e.g. hype scenarios and international sectoral trends) are institutions within the financial system, as well as the technological system.

To test this thesis, the analytical framework must be adapted and tested to the specifications of the industry. For example, important institutions that are part of the above-mentioned systems (corporate governance system, market system, regulatory system and technological system) have to be identified and operationalised within the mobile sector (see next section).

Altogether this national contextual framework is not only static but dynamic in nature (see thesis 2.2 page: 56). However, this thesis also must be discussed for applicability to mobile communications. The evolution of the industry has been shaped by technological paradigms, from the analog to the digital to the multimedia periods, and by innovations that range from Marconi's wireless telegraphy to cellular platforms (Steinbock 2003). But the industry's dynamic has never been determined by technology alone, especially when it comes to corporate internationalisation, but by the subtle interplay of institutions within the regulatory, market and corporate governance systems, as well. As a result, the business has evolved through three basic phases: the analog era and 1-2G pre-liberalisation period, the digital era or 2G boom period, and the 3G multimedia period. In most domestic markets worldwide, the sequence of the technological paradigm shifts has been similar, but the timing has differed. These national differences in timing additionally contribute to an understanding of differences in international performance among former monopoly players in mobile communications today. Thus the central thesis posits that differences in national institutional settings during the domestic monopoly period, e.g. differences in the regulatory, technological, market and corporate governance systems, have led to today's differences in internationalisation performance among former incumbents in mobile communications. Additionally, superior national institutional settings may have led to evolutionary trajectories that in turn could have contributed to first-mover or laggard positions in international activity. With the convergence of mobility and the Internet, the industry currently is witnessing a transition from geographic to strategic advantages. Companies that managed to convert their national first-mover advantages into sustainable strategic advantages enjoy successful internationalisation performance today (INTSwe-16b).

> Thesis: TIME (summary of all sub-theses under 2.2; see page: 56p.)
>
> Central to understanding why former monopoly companies in mobile communications differ in their internationalisation performance and strategies today is a historical view of the company's co-evolution with national institutions, especially within the national sub-sectoral market and regulatory systems. Thus differences in internationalisation activities are the result of national institutional path dependencies, too.

This means all relationships vary over time and within special technological conditions (e.g., technological paradigms). There is a continuing co-evolution of all system elements and power relation, and the network configuration may change over time and between actors. This constitutes strategic and institutional development paths in mobile communications which today, according to thesis 2.1.1 and 2.1.2, are still shaped very much by national institutions, especially in the market and regulatory systems. Also important in this field is the question of the changing dominance of national and international institutions as well as tipping points (thesis 2.2.3). On the micro level this materialises as strategic learning effects within the corporate governance of the company (thesis 2.2). However, as time passes by, the more successful the company is with their internationalisation activity, the less important national institutions become for it (see thesis: 2.2.3). So, what are the important indicators of "time aspects" that may contribute to a further understanding of differences in internationalisation performance in mobile communications?

In general, with the increasing globalisation of the industry as well as the convergence of mobility and the Internet, the mobile industry is witnessing a growing thrust from geographic to strategic advantages, where economies of scale become important (Steinbock 2003). This favours international success for large-country players in the leading OECD countries. However national-institutional first mover advantages also led to a significant successful internationalisation of smaller players in the industry too. Thus long-term success in internationalisation is also significantly linked to prior superior national institutional environments which influenced the international sub-sectoral system, e.g., a special technological standard or regulatory mechanism. In most countries the sequence of the sectoral development has been similar, but the timing of new institutions' emergence or adoption (like new technological or regulatory standards) was different. These differences in timing illustrate the "geographic" and strategic drivers of wireless leaders (Steinbock 2003: 211). Some countries had superior national institutional surroundings, e.g., earlier de-regulation, earlier adoption of new technological standards or business models. The learning effects and knowledge gained from their own "superior national institutions" resulted in first-mover advantages for the former monopoly companies of these countries. But today these advantages are no longer enough to ensure sustainable success. Smaller operators now are internationally successful only if they have managed to translate their early "national institutional first mover advantages" into sustainable strategic advantages. These efforts optimally should have resulted also in significant economies of scale today. Latecomers have merely imitated the opinion leaders' (lead companies, consultants, analysts) strategies, but this is overall not a very sustainable business model (INTCH-1) and has resulted in turbulent international hype scenarios (UMTS; M&A cycles etc.). Thus in the case of mobile communications, a further thesis related to the industry segment will have to be analysed:

Thesis 3: "International success in mobile"

In mobile communications, the influence of national institutions on internationalisation strategies is decreasing due to reduced state influence in general and dominant international institutions in the sector. However, there is still an underlying national institutional logic. This means that the successful internationalisation of players in the industry may mainly be traced back to national institutional first-mover advantages and early learning effects. These companies managed to convert national institutional advantages from the monopoly period into sustainable strategic advantages. Additionally, these companies are also less dependent on national institutions today because of their successful internationalisation.

> The "latecomers" may imitate the strategies of "first movers" or other opinion leaders (e.g., consultants, etc.). The international financial community especially contributed to the "imitation of industry segment specific good practices," e.g., international industry trends and hype scenarios. However, the imitation of industry trends is no sustainable strategy. That is why latecomers mostly show no successful internationalisation performance and are more dependent on national institutions still today.

For most practical purposes, the evolution of internationalisation strategies in the mobile communication business was influenced by regulatory systems, sub-sectoral technological and market systems, and the corporate governance structure. The general industry trends indicate that new policies have moved the industry from monopoly to competition. Innovation has shifted from proprietary to open standards. Markets have evolved from original demand to replacements (see: theses 2.2.2.1; 2.2.3 page: 56p.) (INTCH-12). Finally, corporate governance systems have moved from state control to the interest of financial shareholders. This signifies an increase in the importance of international institutions in the sector. The foregoing section reformulated the central theoretical theses with regard to the object under investigation. In the following, these theses will be more precisely operationalised.

3.3.2 Operationalisation

In the following section, important national institutions within the different systems will be outlined for the industry segment of mobile communications.

Institutions within the technological system of mobile communications

An important driver of changes in the telecommunications industry is certainly the technological regime (Nelson/Winter 1982; Winter 1984; see also Fransman 2002: 36). This regime is determined by its knowledge base, which can be very context-specific and has manifested itself in different technological paths in the form of technological standards. Basic technological development in mobile communications has been about the same for all players, going from analog to digital to multimedia technologies. However, there were geographic differences in technology configuration (standards) which in turn have had special effects on companies' strategic behaviour and their internationalisation decisions. The potential for internationalisation through the development of **technological standards** categorically falls somewhere between the market system and regulatory system, because at times market influences play a role, at other times state components. The following will also examine technological development from these two perspectives, taking into account different territorial, institutional basic conditions (national vs. international sectoral innovation systems). According to Lundvall's (1988; 1992) NIS framework, the main actors within the national technological system are the companies themselves and their relationship with the supplier industry, e.g. **user-producer interaction**, as a formalised national institution. The most important institutional configurations are formal contracts, collaboration agreements between suppliers and users, and national technological standards as an outcome of the relationship. But intermediary organisations as well (like regulatory standard-setting bodies and special sectoral policy makers) might be of importance. Internationalisation potential might additionally arise out of superior technological knowledge and capablities. **Superior capabilities** might be build-up by superior **educational facilities**. Together with the time factor, this can indicate a lead-market function with international lead suppliers (Beise 1999). Technological innovation in the form of products, standards and services can be the further formal institutional output of this national relational embeddedness. According to the theory, the NIS changes over time as actors become more internationalised; in the technological arena today, network embeddedness in international sectoral systems (as well as in regional systems) is more important than

mere embeddedness in national technological systems (Malerba 2002; 2004). Additionally, the network position (power) of the actor within the system is also relevant (Hess/Coe 2006).

The development of mobile telephony technology could be described as a fairly orderly series of generational shifts, from the first analog technology (1G) to the second GSM (2G) and third multimedia generations (3G). The first non-cellular, land mobile telephone systems emerged in the late 1940s. However, commercial cellular systems had to wait until around 1980 for implementation, quite independently, in the US, Japan, Germany and the Nordic countries. A second generation (2G) of cellular systems, this time digital, was launched in the early 1990s, and 3G came about at the beginning of the new millennium (Lindmark, et. al. 2004: 242). The implementation and diffusion of these technologies also depended on **standardisation agreements** in specific nations and global regions (Steinbock 2003: 212). A direct result of this development was variation in technological mobile communication standards. These standards, then, could be seen as important rules of the game and could in this sense be interpreted as formal industry segment specific institutions in mobile communications (Edquist 2004: 167). Connecting these various technological features and functions (technology trends, services, calls, resources, etc.) through a network is the secret to success in telecommunications today. Standards can be established in three ways:

- de facto through the market (indirect force),
- cooperatively through the development of voluntary industry agreements (mostly open standards, no force)
- through national or international regulatory bodies (Gandal/Salant/Waverman 2003: 329).

Uniform sending and receiving standards are essential in communication engineering. Standardisation was reached on the national level by postal monopolies which set the usual national standards. Organisations of network operators (ITU) and other norm-setting authorities (CEPT, ETSI, etc.) worldwide later concerned themselves with the international recognition of uniform standards for mobile communications (INTSwe-13). Apart from legally created standards, market standards established themselves as well (a process of increasing market share and profit earnings squeezing out alternative technologies). This resulted in a network economy: the use of a communication device increased with the number of users. On the one hand, the intensity of an innovation can be curbed through the early establishment of standards, because alternative solutions are ruled out; on the other hand, standards provide producers and users with security that the new technology will be widely adopted. They accelerate diffusion and incentive for research and development in the field (INTCH-16). Thus, successive waves of innovation in mobile communication led to sharp changes in service operators and to opportunities for new business actors. Globalisation accompanied and strengthened this phenomenon.

While in Europe authorities such as the ETSI supported the early establishment of standards, the US's FCC rather placed emphasis on market power. In a market solution, producer- and user-committees and strategic alliances play a significant role. A solo-attempt by a company would be associated with too much risk, because ultimately only one technology could be implemented as standard (INTCH-8). Examples of successful agreements on standards in mobile communications are NMT, GSM und UMTS. Through the mixture of political and entrepreneurial interests, in fact, a variety of different technological standards among the triad nations, spanning the analog, digital and multimedia periods, have come into play (Beise 1999: 113). Mostly, it is market success or failure that decides the implementation of a standard. Control over a technology in telecommunications can be influenced by control of certain features, such as technological standards. An example of this would be the fight for a dominant standard between the stronger CDMA-based (US) and the TDMA-based (Europe) technology applications (Gandal/Salant/Waverman 2003: 329). Bekkers/Duysters/Verspagen

(2002) assert that successful standard-setting also requires the networking of several actors with important IPR (intellectual property rights), such as patents. The largest GSM networks in Europe arose in the mid-1990s. The five key players in the GSM area by the late 1990s, for example, were Ericsson, Nokia, Siemens, Motorola and Alcatel. In the GSM market, the largest mobile communications market in the world, these players achieved over 85% market share (Bekkers/Duysters/Verspagen 2002 1142p.). Thus the success of particular standards on a global scale is an important means of gaining technological control within the telecommunications system and, therefore, is crucial for understanding the dynamics of the sector. Standard setters have the opportunity to lock in customers around their product and to keep them locked in for future generations as well. The network embeddedness of corporate actors in mobile communications is considerable, not least of all due to this kind of technological "lock-in" (Hess/Coe 2006). Altogether the central institutions that help to describe the technological system in mobile communications are:

- "user-producer" interaction
- technological standards
- service, product or process innovation
- technological capabilities (knowledge, education)
- innovation policies (sectoral, national etc.) -> see regulative system

The formal institution of technological standards in mobile communications can be defined with relative exactness, and therefore it is an important basic condition for the internationalisation of service providers. Most of the time, a different technical standard means a high market-entry barrier. On the other hand, similar standards ease internationalisation and cooperation among actors with the same technological configuration. This can lead to technological lock-ins which influence further business strategies, such as internationalisation (INTCH-11). Thus different standardisation methods from the analog, the digital or the multimedia periods can be implemented at any time, which can create either opportunities or obstacles for internationalisation. Apart from this, power relations between the most important players have changed considerably during this time, as have the players themselves.

The question of interest here for mobile communications is whether the relevant institutions within the technological system mentioned above were mainly international (according to thesis 2.1.2; see page: 54), or whether a shift from the national to the international level occurred (according to thesis 2.2.3), and if so, when. Additionally, it is interesting to look at how technological-institutional contextuality-in-time contributes to a deeper understanding of differences in the international strategies of service providers in mobile communications today.

Institutions within the regulatory system of mobile communications

On the other hand there is also the regulatory system, which is characterised mainly by the relationship of the company to the state and/or regulator. It might be described further by formal institutions, such as laws, as well as company activities, like formal and informal lobbying efforts:

The relationship between the state/government and the company, according to Ruigrok/van Tulder (1995), is determined by the education system, the tax system and investment in infrastructure, as well as through so-called special-interest policy for the given sector, such as special regulatory means, research promotion and subsidy policies, and foreign trade (Ruigrok/van Tulder 1995: 107, see also chapter: 2.3.2). Thus a superior build-up of infrastructure can promote technological knowledge that later turns into internationalisation potential. Or certain technological capabilities in a country can

bestow a good reputation on a company there and contribute to its internationalisation opportunities. The same holds true for education systems and the labour market. A government's active encouragement of research and development or state demand can also cause certain potential or obstacles, and can lead to the immediate or delayed internationalisation of so-called "national champions" (Ruigrok/van Tulder 1995). Apart from this, trade policy - or government involvement in international trade alliances - and political relations also indirectly influence internationalisation potential (INTCH-8). It is generally true that countries especially orient themselves toward those governments where a good relationship already exists historically (Paterna 1996). When there is optimal interplay between formal regulatory bodies and socio-economic market institutions, a national innovation system can emerge in certain sectors or sub-sectors (Freeman 1992). Thus new national technology standards arise which can be diffused worldwide. This was discussed above in the previous section. Due to economic and political globalisation, however, many of these institutions today are no longer purely national (Grande 1996), but are influenced by supranational political bodies (EU, etc) or multinational companies. The following will demonstrate the extent to which national, formal regulatory bodies and informal belief systems have influenced former monopoly mobile-communication concerns and their internationalisation strategy decisions.

In order to understand the significance of formal institutions in the field of mobile communications, one must first address certain characteristics of the sector. The telecommunications market is referred to by economists as a 'network industry' (PTS 2003b: 7). The concept of network sectors refers to the physical network infrastructure (telecommunication- and power-lines, railway systems) and their connected services. Special technical and economic characteristics emerge in the network structure, determined by the network-supported infrastructure sectors and their regulatory bodies. This basic function bestows high societal and economic importance on network sectors. As a result, public authorities have exercised a special influence on the production of goods and services in most countries, both in the public sector and through regulatory interference. This thus places network sectors in a classic area of public service. As a result, activities are designated as in the interest of the general public and therefore held to special requirements (Abegg 2005: 3).

Besides the general features, economic particularities reveal themselves on the cost side as well as on the benefit side. On the benefit end, there are so-called network externalities. These represent a special form of positive external effects in networks and are created by interactions among the owners of a certain commodity. It is commonly understood that: *"The bigger the network, or number of network users and connections, the greater the benefit for the individual consumer"* (Vaterlaus/Worm/Telser 2003: 6). Various effects are present on the cost side, of which two are especially prominent. Agglomeration and density effects lead to a reduction of connection costs due to the spatial concentration of users. Neighbourhood effects lower the average connection costs as well (Schulze 2003: 8). In network services, concentration advantages and scale-economy advantages can arise, so that a single provider can operate more inexpensively than a majority of providers (INTCH-8). One factor is that operators are dependent upon access to extensive networks in order to distribute their services. Another factor is that an initial large investment is required for a telecom operator. Under free market conditions, this could result in over-investment as well as overly low service quality and unequal distribution of services - e.g., every actor might concentrate on high density areas (like cities) (PTS 2003b: 7). Thus the provision of public services touches upon the basic functions of a society. There are two main effects to be mentioned here in particular:

- The direct effect of prosperity refers to the benefits that private households receive by using the infrastructure. Spatially close infrastructure creates the effects of incentive and mobility, in that it enhances the attractiveness of a given region for living, leisure and work (Pfähler/Hofmann/Bönte 1996: 75).

- The productivity effect leads to an increase in a company's production options. This can occur directly, in that the infrastructure presents an additional production factor, or indirectly through the improvement of general conditions (Abegg 2005: 12).

Services of general economic interest differ from other market services in that *"from the point of view of the state, they must be rendered even if the market does not provide sufficient incentives to do so"* (European Commission 2000: 9). As expressed in the above-mentioned EU definition, the term "services of general economic interest" is used in paragraph 86 clause 2 TEC. Article 86 provides member states with an instrument allowing them to abstract public services from the private economic system within the basic framework of a free-market-oriented domestic market. This gives them a certain political freedom of scope, which they can use to designate certain activities as common-welfare obligations or even to create state-controlled monopoly areas. A **monopoly** describes a market situation in which only one provider or demander controls the prices in a specific market segment. The term derives from the Greek "monos" (alone, solitary) und "polein" (to sell) (Abegg 2005: 40). The legal form of a monopoly can arise due to state intervention to prevent market failure, or insurmountable market-entry costs (i.e., due to technological advantages, patents, etc.). In the past, natural national monopolies have been crucial to justifying state regulatory interventions in the network sector area (INTCH-7). In the understanding of the European Union, so-called universal service is an important measure in the process of **liberalising** public services, owing to the specific function fulfilled by network-based providers:

> "The definition and guarantee of universal service ensures that the continuous accessibility and quality of established services is maintained for all users and consumers during the process of passing from monopoly provision to openly competitive markets" (European Commission 2001).

This concept was created specifically for the network-based market sectors (European Commission 2003: 19). As regards content, universal services represent a subset of general-interest services, or public services. They constitute a minimal provision secured by law or constitution. The following service criteria are repeatedly specified in the definition of universal services (European Commission 2003: 20p.):

- Quantity: nameable and defined scope of service
- Universality: identical and continuous access to services for all individuals of a region (full scope). users cannot be excluded based on economic or social grounds.
- Quality: minimal defined quality of service
- Price: affordable for everyone

An entire set of government objectives is hidden in these criteria. For example, Eifert (1998: 176) mentions the politics of spatial structure (area coverage, unity of rate in an area), the politics of standard tariffs (general subsidisation of services to secure a high number of connections per square kilometre) and the politics of social welfare (subsidisation of indigent user groups). A concrete definition of basic service provision based on the above criteria involves a difficult balancing act, which can vary considerably from one national perspective to another. On the one hand, the specification of services alone makes the concept of universal service workable and therefore controllable (INTCH-8). On the other hand, with very dynamic technologies, overly exact definitions can keep things in a frozen state and hinder development. Thus considering so much technological and societal change, it is hardly possible to conclusively define universal service. Generally, when a new network-based service provider enters a market, its network development involves hidden costs that an existing network server does not have to reckon with. The latter therefore has a wider range of

strategic action on the domestic market compared to the newcomer. This is why Blankart and Knieps (1992) also consider market-power regulation to be appropriate (Hipp 2000: 162).

An additional issue following the liberalisation of mobile telephony, which is distributed with the aid of radio frequencies, involves the fact that the radio spectrum is a limited natural resource. The radio spectrum only allows a particular number of operators with their own networks. Overall, this means that the telecommunications market tends to be concentrated. Operators already in the market enjoy great advantages compared to new operators. This dominance by large and established enterprises has technical and structural causes and does not depend on the maturity of the market. Therefore, network industries are usually regulated by special national and international legislation following liberalisation (INTSwe-16a). This new regulation goes beyond the general law of competition. The aim is to allow the market to be open for new actors and to create competition. The most important measures to create competition in a network industry involve providing small and new actors with access to the distribution network (PTS 2003b: 7pp.). National and international regulatory bodies (like the EU) have therefore adopted formal rules that should help the market to function, e.g., by facilitating the entry of new telecom operators into the market. International legislation must be implemented on the national level, for it is superior to national legislation. However, even after the liberalisation of telecommunication services, the state still has various **sector-specific regulation**s, mainly in the following areas:

- Pricing (end customer pricing; inward movement price)
- Market entry/access (number of competitors, licences, unbundling)
- Ownership (state's share in incumbent operator)
- Quality of services
- Tariff quota (UMTS coverage etc.)
- Technical requirements and orders (carrier pre-selection, number portability)
- Environmental requirements and orders (e.g., UMTS; NIS orders)

The main formal institutions and laws which exist outside of these fields according to PTS (2003) are:

- Licence procedures
- Interconnection rules
- Pre-selection rules
- Number portability rules
- Provision of network capacity rules
- National roaming rules
- Environmental issues (electromagnetic radiation rules)
- Access to the local loop[13] (only an indirect influence on mobile operators)

Formal regulatory institutions both directly and indirectly influence the companies' relationship to the market and its institutions and have partially different influences on the market actors' relationships. Interconnection, for example, is a precondition for the operation of an open telecommunications network, where many different actors operate. An open invitation to the application procedure (licence regulation), the provision of network capacity, national roaming and access to the local loop decides whether a new operator will find opportunity to enter the market. Pre-selection and number portability

[13] The local loop is mainly a regulation that pertains to the fixed network. However, as different technologies converge today, a monopoly position within the local loop may also have direct effects on the mobile business and thus influence company strategies there, too (INTCH-8).

facilitate consumers' and companies' using these new operators. Environmental issues affect the security of the consumer concerning mobile technology. All these institutions can foster or hinder competition in the domestic market and thus influence internationalisation strategies directly or indirectly (INTCH-8; see also PTS 2003). The most direct form of this is strategic influence via ownership (see also chapter 2.3.2).

For a long time, the national regulatory regime, with its formal institutions and organizations (rules, laws, associations), played a crucial role in the field of mobile services in particular, which indirectly also affected internationalisation strategies. Companies, however, can influence the institutional environment through the learning effects of dealing with authorities in their own countries, and thereby create a new decision-making context for internationalisation strategies (Schneidewind 1998). This happens particularly by means of special-interest organisations and preliminary coalitions, in which specific knowledge is made available and self-interests can be inserted into the political process.

This influencing of the environment (co-evolution) occurs based on allocative and authoritative resources. Well-financed larger companies and enterprises, which have a positive public image or are capable of creating one, can apply a variety of means as pressure to assert their interests, which can result in changed formal institutions and thus new internationalisation potential (work places, infrastructure, taxes, media) (INTCH-8).

A company's influence on the policy level can be shaped differently in the areas of policy definition, agenda-setting and implementation. Decision-making in policy development is influenced strongly by the normative and interpretative schemata of the respective set of actors. A high level of organisation in business associations can have an especially crucial influence. Authoritative resources can be found in the prestige and charisma of top managers, and this can considerably increase a company's chances of asserting its interests and can also change interpretative schemata. Expert opinions in the industry are also instrumental in changing existing sets of norms. Companies thus are rarely active on their own, but rather take part in interest coalitions, whose composition can change according to interests (Schneidewind 1998: 248pp.).

In particular, informal relationships between management and the political arena play an important role in asserting self-interests. Furthermore, the position of power and the constellation of interests in relation to national institutions can change over time. The accompanying regulatory regime determines the intensity of competition in one's market and thus indirectly influences pressure to internationalise (Schneidewind 1998; Strobel 2004).

Companies can also aid the implementation of policy with their own resources. The public-as-stake-holder is particularly targeted to be influenced in this way[14]. Mass media no longer have a dominant influence on public opinion today, but are instead agenda setters who determine the issues of the day. In agenda setting it is important to have interest groups with expert knowledge, like research groups and communities who can influence public opinion on an issue. The charismatic and likeable appearance of company representatives is crucial in this regard. Problems are re-defined and evaluated through targeted PR efforts. Little by little, interpretative schemes start to change in a way that can either lead to new internationalisation potential or obstacles (discussion about outsourcing, etc.) (INTCH-11).

[14] The "public"will not be depicted separately at this point, because in a general service like telecommunications, the "public" and "customers" are one and the same.

Favourite themes in telecommunication are marketing, PR and image campaigns, which are usually fuelled by intensive sponsoring (via sports and culture) (INTCH-13). At this point, particular attention should be given to the person of the CEO, since he or she exerts great influence on PR (INTCH-17). This may be less pronounced in other industries. Branch associations are also of crucial importance in telecommunication, with a limited number of players (INTCH-8).

Institutions within the market system of mobile communications

Within the market system, formal and informal institutions are very important in the relationship between companies, competitors and users in mobile communications. The market for mobile services involves the transmission of analog and digital data. Further distinction can be made between the provision of the infrastructure and the services (operation). Hence, for the providers of services in telecommunication, market entry is only possible if they have access to the telecommunication network. The infrastructure consists either of a network of fixed lines or of a network of radio stations for wireless transmission. The services consist of phone services in the narrow band area (language and data transmission) and services in the broad band area (i.e., ADSL), which represent separate markets (Vaterlaus/Worm/Telser 2003: 17p.). In simple terms, the telecommunication sector can be divided into two markets: the market of the network operator and service provider (telecommunication services) on the one hand, and the market for telecommunication installations (telecommunication equipment) on the other (Beise 1999: 114p.). Publications in business management often mention the telecommunication sector but concentrate exclusively on the production industry, generally neglecting the large telecommunication services market (Perlitz 2000). The task of telecommunication network operators is the installation and the operation of telecommunication networks. That includes the planning (number of hierarchical network levels, choosing network structure, transmission capacity, number of hubs); the selection of appropriate network components (transmission and switching installations); the installation (erection of radio links and switching centres, mounting of cables); and the operation (trouble shooting, provision of telecommunication services, access to new customers) (Paterna 1996: 72). Well-known producers of telecommunication are companies like Nokia, Sony Ericsson and Motorola, etc. Many producers originated as suppliers of former monopoly telecom providers (PTT) (Paterna 1996: 76). The entry of new competitors into the telecommunication market was favoured, on the one hand, by liberalisation and re-regulation, and on the other hand also by low market-entry barriers. Low entry barriers existed because equipment producers had taken over the technological components, making it unnecessary for new market participants to acquire this knowledge (Fransman 2002).

The current **structure of the mobile communication market**, therefore, is as follows: In order to be able to use a mobile phone, the client needs an end device and an activated phone card (SIM). Only the phone card furnished with a personal code allows the use of a mobile phone. When acquiring a phone card, the customer transacts a service contract regarding the use of a mobile phone connection. The billing of accrued fees is also transacted through the phone card. The phone card and the mobile phone itself can be purchased from an individual merchant, in retail stores and from mail-order businesses or department stores. The distributing businesses contract with a service provider whose phone cards they are selling. In practice, retailers carry all mobile communication providers under their program, but all of them exclusively through the channel of one service provider. The service provision contract for the use of the phone, however, is transacted exclusively between the customer and the service provider. Prices for the devices are subsidized through payment of commissions (INTSwe-11). An end device is therefore significantly cheaper in connection with a phone card than by itself. Among the group of service providers, several belong directly to the

network operators, like Swisscom Mobile or Orange, while others are network-independent service providers. Network operators' service providers only market their parent company's network, while all the other service providers market all digital networks. Furthermore, the network operators are vertically integrated into the added-value levels of the retail traders. For example, Swisscom uses shops, while Orange and Sunrise have opened their own sales offices in city centres (INTCH-11). Service providers as well as re-sellers have contractual relationships with the network operators, in which the supply conditions for rented network capacities are placed in writing. The service provider therefore acts as wholesale dealer, purchasing network capacity from the provider, re-selling it to the customer and using external partners (retail dealers) and businesses for distribution (Paterna 1996: 168 p.). Altogether, a mobile operator can offer services to end-users either by producing the service on its own network or by purchasing all or part of the services from a mobile network operator (MNO). In the case of national roaming (NR), an MNO purchases access to mobile networks in areas where the MNO itself does not have geographical coverage. Access to NR is typically important in the establishment phase of a new MNO (INTCH-5). A mobile virtual network operator (MVNO) purchases radio access from an MNO and produces the rest of the mobile service itself. A service provider (SP) purchases basic mobile services from an MNO and resells the service under its own brand (PTS 2006: 4). For the MNO, cooperation with service providers offers the advantage of quick market penetration. The disadvantage lies in the direct competition with its own service provider (INTCH-11).

Mobile-communication market players' agenda in regard to a business understanding is dominated by formal market institutions, and is expressed in outline agreements, products, pricing and long-term cooperation agreements. Informal institutions comprise perceptions about life style, consumer patterns and the market participants' ideas about quality and **customer value** (INTCH-8). There are also formal, horizontal cooperation possibilities among competitors in the market system. This can include the formal pooling (or merger, fusion) of some providers in branch associations, or the creation of information platforms or interest organisations in order to actively assert a business agenda and establish **branch standards** (by way of lobbying law makers), or in order to study customer information and to influence informal institutions, like consumer patterns (INTCH-8). A successful competition strategy leads to market success, which on a national level can also be measured in market shares and market penetration. But also market entry possibilities/barriers in the national market determine the relationships of competitors in the sector. Here again one finds sector-specific overlapping with the regulatory system (INTCH-11).

To understand differences in internationalisation strategies originating in the market system, it is very important to know more about the national market structure. Mainly, it is characterised by formal and informal national institutions that exist in the relationship to customers and to competitors. The relationship to suppliers was already mentioned under the topic of technological sectoral systems (see page: 82). When describing internationalisation differences, market volume, size of market and the purchasing power of customers comes to mind first. Further quantitative indicators can include the number and characteristics of competitors, market penetration and saturation, market shares and customer habits. These indicators also appear in formal national institutions, such as products and services, price, infrastructure and technology, collaboration agreements and the distribution of power. The foremost indicators for the distribution of market power among competitors are market shares, as well as the number and timing of entrants into the market. But market saturation is also a very important component for understanding international activities in mobile communications (INTCH-6).

Furthermore, national customer habits, which materialise in products and marketing campaigns, as well as customer services are key to understanding a company's internationalisation in a certain market. Altogether general indicators that help to describe the market system are:

General quantitative indicators that help describe the market:

- Market entries
- Market penetration
- Market shares

Formal and informal institutions that comprise the relationships to the customer and to the competitor:

- Customer habits
- Product/services
- Price
- Infrastructure and technology
- Collaboration agreements
- Monopolistic advantages
- PR and marketing campaign

National branch agreements (e.g. price and product standards) are among the main formal national institutions in the mobile communication market segment (Schneidewind 1998 261p.). These institutions are actively influenced by the allocative resources of the providers, e.g. research and development grants (which can lead to innovation and new industry standards), investments in infrastructure build-up, as well as investments in new technologies, services and products. Chances for differentiation from competitors can be found in pricing, marketing or service design (INTCH-11).

What is especially true here is that a big success in the domestic market - resulting from the number of competitors, industry standards (prices), market entry barriers, market shares, market growth and a large customer potential (form and quality of customers) - can considerably reduce the pressure for a company to internationalise. On the other hand, domestic-market characteristics - unique industry standards (innovation), lead users, etc. - can lead to unique monopolistic advantages that can be transferred into other markets. In addition, the point-in-time of a company's development path is important in terms of first mover effects in the industry segment, as it can result in internationalisation potential (Kutscher/Schmid 2005). The company can attempt to expand its allocative and reputative power on the domestic market in a co-evolutive way by entering, for example, into cooperation with competitors, or by trying to establish its own industry interests through formal industrial associations.

Particularly customer communication, perceptions of customer value and quality of product are very important to the market system of mobile communications, because it concerns service provision (Perlitz 2000). A key component in customer relations and communication is knowledge about life style and consumer patterns, both of which can be strongly influenced by informal national and regional institutions. These resources can be increased through cooperation. Key charismatic figures (usually the CEO or branch experts) are especially important for establishing credibility and professional competence, particularly in customer relations, but also in political and public relations (INTSwe-16b). They can also contribute to knowledge about technological connections and thus actively influence life styles and consumer patterns. In addition, to demonstrate informal customer values, marketing strategies are evaluated through customer communication. These perceptions are

constantly reworked in the company's relationship to customers and to competitors, and are influenced by demand (consumer patterns and life styles).

Based on these indicators, internationalisation pressure, potential or hindrance can be viewed in Swisscom Mobile and TeliaSonera Mobile from a co-evolutive examination of national-market selection environments. The question according to thesis 2.1.2 (see page: 54) is: How can an examination of the role of national market institutions contribute to further understanding differences in internationalisation strategies among former monopoly companies in mobile communications?

Institutions within the corporate governance system of mobile communications

An important component to understanding internationalisation strategies on the micro level of company players is the corporate governance system. Radical strategy developments like internationalisation are usually initiated top-down from within the management of a company (see: chapter 2.3; Kutschker/Schmid 2005). The entire business organisation, i.e., also the organisation of the national value-creation chain, is determined by company management and this influences internationalisation strategies. On the micro level of actors in particular, management knowledge attains an important function (INTCH-17). Above all here, knowledge relevant to internationalisation (drawn from experience and learning) is significant. Thus the national institutional capital must be interpreted at the micro level of company decision makers. But this micro level is also shaped by national institutions, such as the national corporate governance system. This may be characterised by formal national corporate governance regulation (see: chapter 2.3.2) as well as informal national business- and management-practices, which can be broken down into management character, company organisational characteristics and specific company cultures (e.g., values, philosophy, guidelines). Thus central institutions that comprise the corporate governance system are:

- Formal CG regulations (according to national or international regulation)
- Informal business and management practices in the sector or country
- Management character (financial logic or industrial logic) (especially CEO)
- Management experience in internationalisation (learning effects with internationalisation)
- Company organisation and culture
- Influence of financial community on CG system and structure of shareholders in general

To understand the present strategic outcome of a mobile communication company, the character of the CEO (Ahorni 1997) is very important (INTCH-1; INTCH-10), as are organisational and managerial changes that occurred within the company in the post-monopoly period (new company cultures and organisational structures). Also the importance of international financial investors and the structure and interests of other shareholders becomes more important with declining state influence (INTCH-1). Thus a further key thesis to analyse is the role that international financial institutions (e.g., expectations of the international financial community) played for company strategies in mobile communications (thesis 2.2.2.1 see page: 56). The central argument in this regard is that due to the early internationalisation of the financial community and their institutions, this influential factor is mainly international (see: thesis 2.2.3). The question of financial and industrial logic within internationalisation activities is related to this, as well as industry-wide hype scenarios in internationalisation activities. Thus also thesis 2.1.1 (see page: 54) must be tested here, i.e., whether the influence of financial institutions today is mainly international and does not contribute very much to differences in internationalisation strategies, but mainly explains similarities and hype scenarios in the sector (see thesis 2.2.2.1 page: 56).

Operationalisation of the co-evolution of corporate strategies with institutional paths

It has been outlined in the chapters on theory (see chapter: 2.3.2) that institutions from national as well as international environments can have influence on corporate activities. Market and regulatory spheres come into play in the national environment, while technology and the finance community have influence in the international environment. It remains now to solidly clarify which mechanisms of path dependency act as important drivers of corporate internationalisation. For this, Deegs's (2001a, b) model of institutional path change will be referred to. He asserts that observable paths and path-disruptions can always be traced back to specific institutional changes. The need for clarification regarding path logic sprang from Deeg's (2001b) approach of deducing it directly from the observable behaviour of actors. The consequence of such an approach, however, is that it is not possible to determine whether actors' behaviour (which path logic follows) seeks to cultivate path-changing increasing returns (e.g., positive learning effects, company success) or randomly arises from unknown intentions. This is why the typical strategies, shared decision-making rules and routine problem-solving methods that account for path logic must be deduced from formal and informal institutions. Only in this way can the relationship between observable actor-behaviour and institutional path logic be evaluated. Connected to this idea is the consequence, not considered by Deeg, that a minority logic exists outside of the majority path logic which is continuously fuelled by institutional contradictions and minority belief systems (see the example of institutional path change in Swedish policy given by Strobel (2004)). To determine the tipping point between old and new paths, then, the initial formal and informal institutions, or dominant belief systems, must be analysed, and the old (majority) path logic re-constructed from this. Next, changes in the formal and informal institutions, with their resulting tipping of the scales, must be retraced. Because of concentration on the "monitoring device," the analysis of path change via path-changing increasing returns can be disregarded. Path logic will thus be deduced from formal and informal institutions. The tipping point from path alterations to path shift will be precisely demonstrated based on a systematic analysis of changes in formal and informal institutions and the resulting path logic. Furthermore, the synchronism of continuity and path change will be addressed. Connected to the key observation that gradual path change is possible and traceable by means of path logic is Deeg's finding that minority logic can appear alongside majority logic, i.e., that continuity can co-exist with change. Strategy development dynamics and change based on territorial-institutional path alteration can be demonstrated in this way. For our example of internationalisation strategy, this means that the internationalisation path can be influenced by national selection fields as well as international ones. These can both co-exist, although a clear differentiation between majority and minority logic exists (Deeg 2001 a, b; see also Strobel 2004). Attempt will be made to identify these in the empirical section of the thesis.

The extent to which convergence or intersection of national and international institutional developments takes place in Switzerland and in Sweden should be observed over time, too. For this, the international influences on national development paths should be identified and analysed through an examination of institutional majority logic. An attempt will be made to identify the institutional tipping points in Sweden and Switzerland (thesis 2.2.3) between national and international institutional path logic, and to understand their effects on internationalisation strategies in the sector. A possible operationalisation of these mechanisms is presented in table 5:

TIME	Institution	Institution developed out of national institutional environment	Institution developed out of international institutional environment	Influence of institution on corporate internationalisation (internationalisation potential)
1985	technological standard 1	X		first mover advantages in the field of international consulting businesses
1990	collaboration agreement with international lead supplier		X	international industry segment specific trend – imitation of sub-sectoral "best practice"
1995	new sub-sectoral interconnection law	X		e.g., more competition on the national market and as a result more pressure to go international

Table 5 A dynamic view of national institutions in understanding differences in corporate internationalisation (Source: Author)

3.3.3 Summary: research model

In the previous chapter, the theoretical theses were operationalised more precisely upon the object of investigation (mobile service providers), especially pinpointing the relevant actors and institutions in the different systems, thereby emphasising the central categories of analysis (indicators) of the study. Since certain stakeholders within and around the company form the framework for entrepreneurial decisions (based on their relative power and their interest in a national context), an analysis of these stakeholders and their relationships to the company (or the actors relevant for decision-making within a company) will come into central focus. Thus the stakeholders' interest in the systems of regulation, market, technology and corporate governance during the period from around[15] 1990 to 2008 will be highlighted. Different sets of problems and issues arising in the relationship patterns will come to the forefront.

Only important institutions within the relationships will be revealed, which allows an easier understanding of differences in the process of international strategy development (justification for this choice is given in the theoretical chapter 2.3.2), as well as the previously specified operationalisation for the subject of mobile services). Thus an attempt is made to grasp the change in informal belief systems and formal institutions during the time period of around 1990 to 2008, in order to comprehend the formal strategic internationalisation path of each company, based also on the time factor and on the categories leader, laggard, imitation, learning and co-evolution). Altogether, the operationalised static and dynamic analytical framework is shown in figure 12:

[15] around = because there can also be previous results which must be included

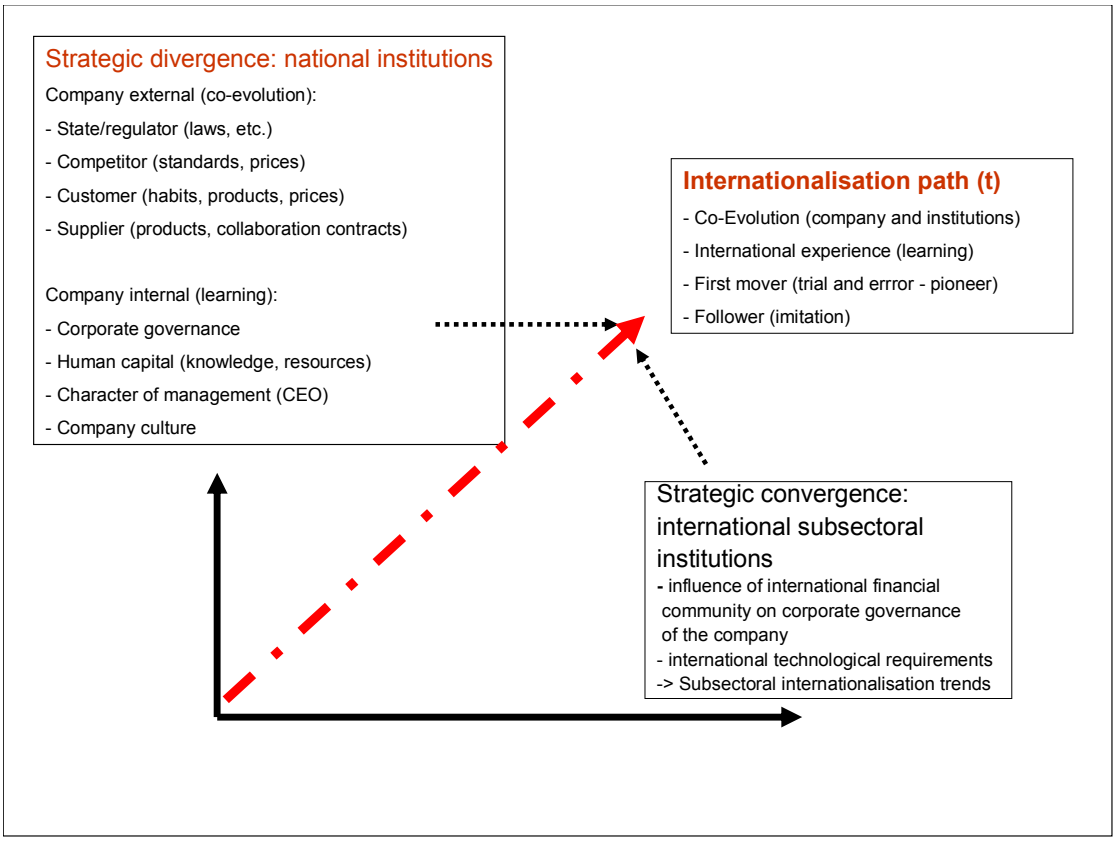


Figure 12 Understanding divergent internationalisation strategies of incumbents in mobile communications from a national institutional perspective (Source: Author)

The validitiy and usability of the model will be "tested" in chapter 5, "Research results," which will start with a dynamic analysis of the international institutions within the sub-sectoral systems (technological, regulatory, etc.) in general. Internationalisation trends from these international institutional influences are tried to get deduced. Then it will be focused on the institutional specifications in Sweden and Switzerland and show how these specifications have led to a different outcome in internationalisation strategies in both countries. As this is meant to be a dynamic analysis, the aim will be also to outline important tipping points between national sectoral and international institutional paths in Switzerland and Sweden. The central national-institutional driving forces of differences in internationalisation performances in mobile communications in Sweden and Switzerland and the main industry implications will be outlined and discussed in chapter 6. From this important conclusions concerning differences in the above-mentioned current internationalisation strategies in Switzerland and Sweden are drawn from an evolutionary economic perspective.

However, firs chapter 4, "Methodology", follows which focuses on descrining the research methodology (qualitative) applied during the research process and explains the research process itself, e.g., how and why certain decisions with regard to the research methodology, the case studies and the process were made.

4 Methodology

In order to understand differences in internationalisation strategies among companies with similar starting conditions (industry segments, market size) from a national-institutional perspective, empirical investigations were carried out on former monopoly firms in mobile communication in Sweden and Switzerland. This required identifying the area in a company in which internationalisation strategies can be analysed, and an account of this is provided in a historical analysis. Since the concern here is the significance of national contexts for understanding differences in internationalisation strategies among national core companies in the same industry segment, questions about relevant formal and informal national institutions and their transformation over time are at the centre of this thesis. An investigation which targets differences in internationalisation strategies on the basis of institutions and institutional transformation can not only work with standardised data, but must also include the views and evaluations of different system components. The diversity of the examined system relationships alone suggests an incremental, or explorative, approach. Reputative power structures and informal institutions as well as institutional changes are very difficult to quantify and can only be grasped in their totality through qualitative methods. Because scientific interest sets special standards for the process of data collection and evaluation, the decision for this thesis was to use a mainly qualitative approach supported by quantitative statistics. This methodological design, especially the qualitative interviews, fulfils the essential research requirements.[16] Most authors assume that a researcher may only use a qualitative analysis if the data to be analyzed is of a qualitative nature, or a quantitative analysis if the data to be analyzed is of a quantitative nature. Neuendorf (2002) examines how the nature of data and the methodology of analysis can be separated through a research methodology usually referred to as "content analysis." Consequently, the nature of the data does not necessarily define the methodology of analysis to be applied. In this research study, the nature of the data is both qualitative and quantitative, although the emphasis is on qualitative data. However, the nature of the data analysis is only qualitative.

4.1.1 Choice of case studies

The starting-out point of this deliberation was the thesis that differences in internationalisation performances among "national champions" could be traced back to basic national-institutional conditions and not only to differences in size or market power. In order to demonstrate this with accurate methods, it was important to find companies that are demonstrably exposed to internationalisation pressure and have internationalised from out of different national institutional environments. This was absolutely necessary in the telecommunications field and especially in mobile communications, due to the opening of national markets, restrictive regulatory environments and the resulting sinking market shares. The internationalisation of important customers as well as the globalisation and fragmentation of the value creation chain further contributed to this pressure (Hess/Coe 2006). A further consideration is that investigating "national champions" confronted with similar challenges at a similar time, whose internationalisation strategies have a comparable time horizon, involves a historical analysis. This led to an examination of former monopoly firms in mobile communication that were all liberalised and privatised in a similar time frame and had to face similar technological challenges, from the analogue (1G) to the digital (2G) and multimedia worlds (3G). For this reason, telecommunications companies were chosen in different national-institutional environments that were similar in terms of market and size at the beginning of their

[16] An all-encompassing presentation of qualitative methods is forgone here and reference is made to Flick (2000), Heinze (1995) und Lamnek (1988/1989).

internationalisation processes. This was the case in Sweden and in Switzerland (data: customer quality; market size for a detailed description see pages: 72-78). Both companies developed large internationalisation projects from out of their home markets at the beginning of the 1990s, which vary significantly as the divergent number of customers worldwide shows: around 5 Million in Switzerland and 119.3 Million in Sweden (at the beginning of 2008). With these examples, differences and commonalities in internationalisation paths could be studied, and the national-institutional characteristics driving subsequent internationalisation decisions could be identified. The choice of Sweden and Switzerland as areas of investigation is based on these preliminary considerations and on statistical data from regulation- and business-reports. This narrowing down proved to be correct since Sweden in particular, where the roots of mobile communication lie, displayed special national-institutional influences, and this led to interesting questions about internationalisation. Cellular-phone-device producers such as Ericsson and Nokia are especially well known, and their role in the internationalisation strategies of service providers is of particular interest. Furthermore Switzerland, as a non-EU country, appears to be a special case still to this day, and its role by way of comparison is especially interesting for this reason.

Additionally the industry segment of mobile communication is an especially strong force for international growth in the telecommunications industry, and together with the internet it is the market of the future for telecommunication (Thorngren 2007). In fact, mobile communication has moved to the centre of public discussion in the last few years. The reason for this lies in the importance granted to mobile telecommunication technologies and services. Thereby, discussions have been led by social scientists, political economists and business economists, with different emphases. Social scientists speak of our development into a mobile information society and analyse the effects of work habits, the family, women's position and institutions, like schools, leisure activities and culture. Business economics studies have discovered information as the fourth production factor. The application of modern, mobile information- and communication-systems in companies should help shorten development times, reduce hierarchy levels and speed up reaction time to customer demand. Comprehensive information received at the earliest possible point in time serves as a strategic weapon in the fight for the competitive edge (Paterna 1996: 47). From the perspective of political economists, the rising significance of telecommunication sectors for a country's competitiveness is of interest. Not only the availability of modern communication services for producers and service providers, but also the growing value-creation of telecommunications firms themselves is an object of industrial- and locational-political interest. Currently, the performance of former state companies is an issue under intense discussion in Germany (discussion of regulatory holidays), Sweden (current discussion about France Telecom buying TeliaSonera), and in Switzerland (Eircom case 2006), because the population holds a large portion of shares in the former monopolists. Related to this are discussions over liberalisation, privatisation and deregulation at the national level, as well as innovative business models, technologies, take-overs and consolidations of large telecommunication service providers at the global level. In this respect former monopoly companies in telecommuications are truly "national champions" according to Ruigrok/van Tulders definition (1995: 36).

The research here is based primarily on qualitative primary data collected through interviews. Nonetheless, quantitative secondary data was collected, such as a detailed analysis of annual, regulatory and business reports, as well as a long term study of the following newspapers: Der Bund, Financial Times, Frankfurter Allgemeine Zeitung (FAZ), Neue Züricher Zeitung. The reason for this was to maximise the efficiency of the historical-data-collection process and also to obtain valuable, current background information about this dynamic industry. The quantitative data is used mainly for illustrative and validating purposes. However, as this thesis is based mainly on qualitative research, the quantitative data in itself is not further analysed with statistical methods. In the search for "expert"

subjects for the qualitative analysis, important decision-makers who experienced the liberalisation and privatisation processes in Sweden (Finland) and Switzerland were written to. Furthermore, researchers with expertise in this field were contacted, and the best possible approaches were discussed. Based on these explorative conversations and background information from business and regulation reports, the decision was made to mainly interview contacts from the top management of both companies, as they would have insights into their firms' internationalisation projects and into the development of mobile communication in Switzerland and Sweden (Finland) in general. Additionally important contact groups from the field of mobile communication were identified on national and international levels. Interview appointments with relevant subjects were sought by telephone. More specific information on the thesis was mostly sent by e-mail. This mainly consisted of a short description of the research project and initial central questions. Response from the interview partners was very positive, and thus confirmed appointments with 44 experts could be realised (see page: 273).

4.1.2 Applied methods and techniques of data collection and evaluation

The focus of this thesis's central question comprises, on the one hand, hard facts (e.g., about the specifications of individual internationalisation projects, the evolution of industry segments in respective countries, goal-setting, participating actors, geographic emphases, formal institutions, etc.), but on the other hand, also "soft information" in the form of opinions, estimations and evaluations (e.g., about power, the importance of national institutions for internationalisation strategies, informal national institutions, character traits and leadership styles of CEOs, corporate philosophy, domestic culture, etc.). The knowledge and evaluations of experts were used to obtain the necessary data and value judgements. Because the validity of the information was difficult to confirm, interviews were conducted according to the methodological principle of "maximal contrasting" (Hunziker 2000), which means that relatively open interview guidelines were followed and the conversation was quite widely spread over the most diverse levels. The structures and relationships of expert knowledge could be analysed expressly through these interviews and could help prove the applicability of the basic theoretical approach of this study, as well as contribute to the generation of new theses. The results of the interviews thus serve a double purpose - thesis generation and thesis testing (Malecek, Seminar: Introduction to qualitative social research, SS/2001; see also: Kleining, 1995). The choice of experts was generally dependent on the respective research interest. According to Malecek (2001), an expert is the responsible person in an organisational-institutional context, is competent to make decisions and has privileged access to information from the respective field of activity and to people who are in some way responsible for the planning, implementation or monitoring of problem resolution. In order to do the topic of this study justice, the widest possible spectrum of information and evaluations had to be covered, and this could best be achieved through interviews of experts from various function- and responsibility-levels:

- with contacts from the top management and/or corporate governance of both companies (e.g., from the international area, regulatory affairs, human resources, strategy development, etc.)
- with former members of top management (especially regarding the transition from the national monopoly period to privatisation and internationalisation)
- with high-ranking contacts in the most important national regulatory bodies of both countries
- with national officials of both countries (e.g., representatives from the ministries of communication)
- with contacts from the top management of direct national competitors (e.g., chief strategy officers of rivals, CEOs)
- with representatives from field-specific national economic associations in both countries

- with contacts from the management of direct, important national suppliers (particularly in Sweden with Ericsson)
- with financial investors monitoring the sub-sector (especially those overseeing the companies)
- with representatives of consumer associations in both countries

The choice of contacts in this field was made primarily according to their expert status as well as their readiness to share their perspectives on the influence of national institutions on internationalisation projects. With a few exceptions, the readiness to share information was very high. The target contacts within companies were exclusively members of top management, because the complexity of the issue demanded an overview of the whole company, and the basic significance of the expected results would be influenced by the interviewee's overall insight into the relevant processes. Key contacts were company directors (CEOs) or persons from the areas of strategy development, internationalisation, investor relations, human resources management, group management and members of the boards of directors for the companies in question (see pages: 273p.). For purposes of historical analysis, former top-managers of Swisscom and TeliaSonera were tracked down as well. These contacts had the most insight into respective strategy decisions as well as a good overview of branch developments. In addition, a well balanced mixture of representatives from the governments, regulation authorities and important corporate associations of both countries were interviewed regarding the influence of formal national institutions on company activities. In the foreground here was the co-evolution of formal institutions (e.g., laws) over time. Representatives from suppliers, competitors and consumer associations, as well as scientists studying other important initiator groups at the national level were also interviewed regarding the influence of informal and formal national institutions on company activities. Additionally, consultants and finance analysts globally active in the field of mobile communications were also contacted. In particular, the influence of trends and hypes on the industry as well as the imitation of "best-practices" was examined here. Because the topic of this thesis concerns the internationalisation strategies of the top management of Swisscom Mobile and TeliaSonera Mobile, they make up the main group of interviewees. Furthermore, because of the merger of Swedish Telia with Finnish Sonera in 2002, Finnish experts were also interviewed (however, in smaller numbers than their Swedish counterparts, see: table 6 and chapter 8.4), for the internationalisation strategy of Swedish TeliaSonera today is in large part a legacy of Finnish Sonera, too.

Regulator		
Switzerland	ComCom	X
Sweden	PTS	X
Finland	FICORA	X
State		
Switzeland	OFCOM (Department of the Ministry of Telecommunications)	X
Sweden	Ministry of Telecommunications	XX
Finland	Ministry of Telecommunications	X
Competitors		
Switzerland	Tele2, Sunrise, Orange	XX
Sweden	Tele2, Telenor, 3	XX
Finland	Elisa, Finnet Group	XX
Industry associations		
Switzerland	SICTA; Asut; Forum Mobil	XXX
Sweden	IT Företagen	X
Finland	FICOM	X
Clients/ country culture		
Switzerland	Client Research Uni Fribourg	XX
Sweden	University Expert (Chalmers)	XX
Finland	University Expert	X
NIS/ Supplier		
Switzerland	University Expert; Swisscom Innovations	XX
Sweden	University Expert (Chalmers), Ericsson	XX
Finland	University Expert	X
Analysts/Consultants		
Switzerland	BCG; Credit Suisse, Deutsche Bank	XX
Sweden/Finland	International	XXXXXX
Company representatives		
Switzerland	Topmanagement	XXXXXXXX
Sweden	Topmanagement	XXXXX

Table 6 Interviews conducted in each country listed by functions of interview partners (Source: Author)

The methodological process of the interviews was formulated as follows: Open-ended, guideline-oriented expert interviews were chosen as the data collection instrument. This counts as a method of interpretative social research, as it fulfils the conditions of communicative data collection and non-standardised evaluation. With these guidelines (see: table 7), a relative openness in the interview process could be assured. Thus with few exceptions, the interviews lasted from about one to two hours. The ones in Sweden and Finland and with international finance analysts were mostly conducted by telephone, which by no means led to any limitations (and instead partly made for more open and less-restricted conversations). The presentation style of many of the experts was clearly structured. This turned out to be positive in the evaluation. The recorded conversations were transcribed. First the information was evaluated incrementally, so that contours in the object of investigation could eventually emerge. Pre- conceptions and cognitions, theories and practice could be contrasted and a higher understanding of the research object was made possible (Lamnek, 1988: 82; also see: Kleining, 1995: 47-66).

Interviews with ...

...representatives from the regulatory environment and corporate associations:

- Goal setting and task scope of the organisation
- Financing (power relations)
- History and formation of the organisation
- Key challenges in the cellular phone system field
- Which key formal/informal national or international institutions (e.g. laws) has the organisation contributed to?
- Most important formal national institutions and their influence on the company (price, quality, relations with competitors, customers, publicity) and on internationalisation strategies in particular?
- Public perception of technology
- Which interests are behind this?
- Power relations
- Cooperation with important actors in the creation of formal institutions
- The learning process over time
- Co-evolution of the company and its environment
- Initiatives for the promotion of the national environment
- International cooperation
- Impact of the international regulatory environment (EU, etc.)

...representatives from the market environment (companies, customers, competitors, suppliers):

Meso-level: National institutions as internationalisation potential or hindrance

- How are relationships between important national and international stakeholders formed, and what are the important formal/informal institutions that characterise these relationships?
- How would you characterise the national competition?
- How does this materialise (products, prices, customer demand, etc.)?
- Power relations between the rivals?
- Advantages from the monopoly period?
- National customer structure as internationalisation potential?
- National competition structure = pressure to internationalise?
- How are customer relations shaped? How has this changed?
- Customer characteristics as internationalisation potential?
- What are the company's own key competencies in comparison with its rivals?
- National regulatory environment = pressure to internationalise?
- Are there national branch standards (e.g., quality, pricing) which have emerged from internationalisation potential?
- To what extent do internationalisation potentials or hindrances arise out of earlier formal/informal relationships (e.g., alliances)?
- What role does the company play nationally/internationally?
- Allocative and reputative resources in relation to important stakeholders, national and international = potential for internationalisation?
- How actively does the company attempt to change its environment (lobbying, marketing, standard setting, cooperation agreements)?

Micro-level: Interpretation of internationalisation potential and hindrance in a company

- How are internationalisation strategies planned?
- What are the decision-flows and power relations in the company's corporate governance?
- How would you describe the starting-out phase of internationalisation?
- Learning effects, imitation or trial and error?
- Corporate culture: from national monopoly provider to international private corporation
- Company philosophy and the country's culture
- To what extent can similar company philosophies (culture) make international alliances easier?
- The role of individual management character in the company (e.g., the CEO): the reputative power of the CEO and influence on corporate strategy making?

... with representatives from research facilities:

- Nature of the facility and field of research
- Exerience with internationalisation strategies
- Are there observable tendencies in the national innovation system from which internationalisation potential could have emerged?
- Evolution of the sector

… with finance analysts and consultants:
- Experience with internationalisation strategies - Evolution of the sector - Influence of the finance market on the branch segment - Concrete influence on the company's corporate governance - Consulting knowledge and internationalisation - International hype scenarios (e.g., UMTS, M&A cycles) - The industrial and financial logic of internationalisation strategies - Speculation tendencies (e.g., boom and bust scenarios in telecommunications, UMTS, etc.)
Relevant for all interviews:
- Evolution of the branch segment - Central challenges for the branch segment - Power in the company's corporate governance - Influence of financial investors - Company culture and strategy decisions - Imitation and scanning (the role of consultants) - What role do formal institutions play in the regulatory environment area? - How are relationships between important national and international demand groups formed, and what are the important formal/informal institutions that characterise these relationships? - What is the role of the international regulatory environment? - How would you describe the influence of politics (parties, etc.) on the branch segment and its internationalisation activities? - What role do formal and informal institutions play for national/international competitors? - Power relations and interests at the national level (lobbying)? - To what extent do national customer demands impact internationalisation decisions? - To what extent does a nation's culture influence internationalisation (norms, values, etc.)? - What role do lead markets play in the internationalisation of mobile communications? - Public image (e.g., antenna moratorium) - Do international institutions influence the internationalisation strategies of former monopoly firms more than national institutions? Has this changed over time?

Table 7 Key thematic foci in the interview guideline (Source: Author)

The individual interviews were then categorically evaluated according to Lamnek (1995) and the methods of Meuser/Nagel (1991). In the first step, interviews were arranged in chronological sections according to the analysis model (see page: 95), as well as thematic blocks of summarised expert data. Next, these sections were given text-based headings. Here the interview sequence was interrupted, because similar thematic sections were spread out over several passages in the text. These were eventually summarised under one main heading. Thus a theme-based abstract of the whole interview was created (Schmidt 2000: 447-456). An interpretation of each individual interview was followed by a comparison of the conducted conversation. Typical responses to specific theme-complexes were placed in an evaluation matrix, which was developed based on Lamnek's example (1989: 116). This allowed a direct contrasting of responses. Finally, extracted empirical data was compared with theoretical concepts, in the sense of a hermeneutic circle. Based on these empirical approaches and findings from the ongoing literature review, an attempt was undertaken to compare and evaluate theory and empirical facts. The interview quotations used to illustrate the research results do not serve as direct evidence for lines of argumentation, but rather serve as examples to support an inter-subjective understanding of the interview interpretations (Hafner, 1996: 54; see also: Malecek, Seminar: Introduction to qualitative social research, SS/2001).

5 Research results: understanding differences in inter-nationalisation strategies in Switzerland and Sweden

This chapter examines differences in the internationalisation of former monopoly players from an evolutionary economic perspective. The central thesis is that corporate strategies have evolved dynamically over time (technology) and differently across locations (national-institutional place and path dependencies). Thus the aim of this chapter is to present the central national-institutional differences that over time contributed to today's divergent internationalisation performances among Swisscom Mobile and TeliaSonera Mobile. To do so, the common sub-sectoral internationalisation trends that sprung from international institutional convergence within the international technological, market, regulatory and corporate governance systems will be outlined first. Additionally, trend setters (leader companies, individual countries, etc.) will be presented in this section. Then the general industry-segment-specific trend will be compared to specific national-institutional developments within Switzerland and Sweden. Thus the influence of national institutions on divergent corporate internationalisation in both countries within the market, technological, regulatory and corporate governance systems is compared. The central question here will be whether examining divergent national institutional developments in the above-mentioned systems may also contribute to a broader understanding of divergent internationalisation performances today. The time line under investigation is characterised by the technological paradigm-shift in mobile communications from 1G to 3G (approx. 1990 to 2008[17]). The analog and first digital phase, the time period before market liberalisation, is called "the 1-2G pre-liberalisation period" (approx. 1970 to 1995). Additionally, the digital period after liberalisation, the so-called "2G boom period" (approx. 1995 to 2001), and finally the "3 G multi-media period" (from 2001 to 2008) will be analysed.

5.1 Corporate internationalisation in the 1-2G pre-liberalisation period (approx. 1970-1995): an institutional perspective

5.1.1 Sub-sectoral internationalisation trends arising from similar international institutional influences

The international technological system during the 1-2G pre-liberalisation period

The first non-cellular land mobile telephone systems emerged in the late 1940s. However, cellular systems were not implemented until 1980, quite independently in the US, Japan, Germany and the Nordic countries (Lindmark, et. al. 2004: 242). The implementation and diffusion of these technologies thus depends on the standardisation agreements of specific nations and global regions (Steinbock 2003: 212). This directly results in varying **technological standards** in mobile communications. Therefore these standards might be seen as important rules of the game, and in this sense might be interpreted as formal sub-sectoral institutions in mobile communications (Edquist 2004: 167). Over the analog period, evolutionary trajectories favoured three advanced but different types of

[17] 1990 until 2008 is the central time period under investigation. During the empirical section also events before this central time period will be investigated if it helps understaning important events during the central time period. Additionally there is some overlap between the three mentioned time periods: the 1-2G pre-liberalisation time (approx. 1970-1995), the 2G boom period (1995-2001) and the 3 G multimedia period (2001-2008) which results out of the divergent national institutional developments in both countries. For example the 1-2G pre-liberalisation period for Telia was until 1993 from a regulatory point of view, as Sweden was re-regulated in 1993. In Switzerland this happened only in 1998. So to characterise this time period a date in between 1993 and 1998 had to be found, which is the year "1995" in this thesis. However also within this time periods important historical events that contribute to the understanding of activities in the mentioned era, will be included in the investigation. That means the given time has to be interpreted relatively wide during the whole text.

regional standards. AMPS and a unified marketplace allowed US players to dominate wireless competition in the 1G era. However, the Nordic countries also led in the analog period with NMT, as did Great Britain with TACS (Steinbock 2003: 212). In the mobile industry, the technological development of these standards mainly took place within the value system and especially within the relationship to national key suppliers. Each firm in the mobile industry has its own place in the network of value relationships. Therefore, achieving, sustaining and renewing strategic advantages as well as internationalisation strategies depend not just on an individual firm's relationships, but on its role (power) in the broader value system. From the late 19th century to the 1980s - through the pre-cellular phase and the 1G era - a single network operator, typically the national postal service, was the wireless value system in most developed-country markets. Its natural monopoly allowed it to control the system, from the supply chain and company activities to channel and buyer-value relationships, from contractors and manufacturing to marketing and customer service (Steinbock 2003: 209). Amid the 2G transition, wireless revenues were still marginal and ancillary to most telecom giants, which focused on corporate markets and high-end consumer markets. Until the 1980s and 1990s, the interplay between the dominant network operator and its **supply relationship** with one or more equipment manufacturers served as the prime catalyst of change and value-winning propositions. Thus operators dominated the relationships throughout the monopoly stage (Steinbock 2003: 209p.). In the monopoly period, innovation-relevant knowledge was mainly produced in the key research and development laboratories of the large monopoly providers. Even though no competition existed at the time to make innovation necessary, service providers were under national pressure to improve the quality and quantity of their service. For this, innovation was indispensable (Fransman 2002: 219). Every national telecom provider had its own designs and technologies, and thus the global knowledge base was markedly fragmented.

In the selection environment of monopolists there was, in fact, no direct internal pressure to compete with rivals, but there were other incentives from the political end, such as the international competitive fight for the fastest implementation of new services and technologies (Fransman 2002: 42). In the most developed markets, the interplay between vendors and producers during the monopoly period was represented by the concept "Ventel" (Vendors and Telecom Operators). Even though this Ventel association was very influential, it owed its bargaining power in large part to its home bases (Steinbock 2003: 225).

Over the past century, several models have evolved between the operators and their supply chains, but one adapted better than the others to the dynamic industry environment. Among these in the analog era were Bell Systems in the US, a combination of AT&T and Western Electric, which inspired most if not all relevant business models in mobile communications. In all cases, the operator-supplier relationship reflected the larger industry environment and has been unique to each domestic market or macro region. In the analog period, this superior "national" institutional setting between users and producers (supplier-operator relationship) led to the development of superior technological standards, too. One of them was the US development of AMPS, which evolved out of vertical integration between suppliers and operators in the US and other big European countries (Great Britain, France, etc.) (INTCH-1). The other was the NMT standard, which emerged from superior collaboration among Nordic operators and manufacturers. On the other hand, in Japan there were national collaborative agreements, such as "controlled competition," between a number of suppliers and NTT (the national telecom provider). Building on indigenous industry developments and an increasing diffusion of knowledge, Japanese and Nordic operators and vendors were able to catch up with us developments by the late 1970s. One of the first international standards for modern cellular telecommunications began

to be specified in January 1970 and was called NMT 450, or the Nordic Mobile Telephone Standard, based on 450 MHz band width (Edquist 2004: 167). NMT 450 can be considered an institution in the sense of a set of rules. This set of rules reduced the degree of uncertainty and risk for mobile-communication equipment suppliers in the Nordic countries, such as Nokia and Ericsson. The NMT standard was at first only a regional standard but later became a pan-European one (Edquist 2004: 169p.). Additionally, even though Japan's NTT was the first to launch an analog system in 1979, the Nordic players achieved market penetration more quickly and extensively. Unlike NTT, with its proprietary standard, the Nordic counterpart (NMT) was based on open specifications. Secondly, whereas Nordic monopoly providers favoured competitive and internationally oriented vendors, NTT's family of suppliers was more cooperative by nature, just as the entire value system was domestic, like those of the large-country, monopoly telecom providers in Western Europe. As a result, NTT failed to translate its pioneering activities into more sustainable international advantages in the analog cellular industry (Steinbock 2003: 222). While Canada, South Korea and the UK followed the US standard, other nations like Germany, France, Italy and Japan pursued their own path of standard development in an attempt to promote their domestic industries. Unlike the US, where despite rivalries among domestic firms the government exercised its power to implement a single standard, the balance of power between firms and governments in Europe and Japan was more even. This balance of power between manufacturers, telecommunication carriers, and governments in Europe became the basis for the development of the most successful of second generation mobile standards, known as GSM (Hess/Coe 2006).

Thus national and regional[18] **innovation systems** existed - in this case characterised by the national institution of superior user-producer interaction between operators and manufacturers arising from the monopoly period - which paved the way for new technological developments in mobile communications. Superior national or regional user-producer interaction may have led to first-mover advantages in internationalisation, too, as prior technological knowledge would diffuse on the international level and lead to the implementation of international industry standards. In the phase of regulation and national separation, the main motivator for internationalisation came out of the technological environment of research and development abroad or international R&D collaboration to develop new technologies and standards together.

This worked extremely well for players from small countries who lacked economies of scale and therefore were forced to collaborate (INTSwe-16b). The bigger players like German Telecom were not much interested in collaborating on technological development, as they saw themselves in competition with other large-country players and their national industries' interests (INTCH-1). The national industrial interests of the major manufacturers or manufacturing conglomerates (Siemens in Germany, for example) hindered international collaboration. Thus the analog era was mainly dominated by technological competition between large-country players (the US, FT, Telefonica, German Telecom, BT, NTT, etc.) and by collaboration among smaller players (Nordic countries). However, because of closed national markets, a kind of "friendship" existed among all players, and knowledge diffusion occurred relatively easily at international conferences (INTCH-12). One example of such collaboration took place in 1964, when the Swedes formed a study group to clarify the commercial, economic and political aspects of future wireless services. As the leading Nordic country, Sweden served as a model

[18] Not to be understood only as "region" in the traditional sense (as a territorial entity of a nation), but also beyond the national level in the sense of transnational macro-region, like southeast Asia; central Europe, etc. In mobile communications, mostly congruent with the diffusion of a special technological standard (like GSM, NMT, etc.).

for Denmark, Finland and Norway, as well as their telecom administrators, operators and vendors. In a 1969 Nordic conference, the Swedes proposed that mobile telephony would become part of Nordic cooperation. The Nordic Mobile Telephone Group (Nordiska Mobil Telefongruppen - NMT) was created to develop a new, pan-Nordic automatic mobile telephone system. It began by outlining system requirements based more on market needs and open standards than on mere technical parameters and national industry interests (Steinbock 2003: 223). Whereas Nordic vendors established international leadership by creating NMT, the internationalisation of operators took longer. However, the Nordic telecom monopolies were among the first players to internationalise:

> "Unlike AT&T and European PTTs, they sought scale via scope, not scope via scale. By the early 1990s, these companies saw the entire world - not only Northern Europe - as their marketplace" (Steinbock 2003: 223-224).

However, amidst such unique institutional developments, and due to superior user-producer interaction in national or international collaboration, some technological standards proved to be more promising and diffused faster on the national level than others (INTSwe-16a). This superior national-institutional setting could have led to opportunities for international activity as well. Among these superior institutions was the US standard in the analog time, which gave US companies the chance to operate in Latin America and Asia as well. BT's standard was also very successful internationally, as well as the Nordic NMT standard, which diffused rapidly in many emerging markets and other developed countries around the world, as well as in small-country markets in central Europe, such as Switzerland. This of course affected the internationalisation strategies of incumbent leaders in those technological first-mover countries during the analog period and resulted in early internationalisation opportunities.

The international regulatory system during the 1-2G pre-liberalisation period

Besides internationalisation trends from a technological perspective that can be observed in the mobile value system's user-producer interaction and superior in-house capabilities, the regulatory system can also be seen as important in shaping the industry. A decade or two ago, most domestic markets were ruled by a de facto national telecom monopoly (the dominant network operator), which constituted the telecom industry before the arrival of new public policies (INTSwe-16a). Most telecommunication firms in larger countries were state-owned and thus motivated for technology development by standard competition driven by the interests of the manufacturing industry, as mentioned above. Most developed countries wanted to ensure a competitive technological telecom infrastructure (wide coverage, etc.) and high-standing services. During the monopoly period, regional political implications often fuelled infrastructure policies as well, for socio-economical purposes. Later in the 1980s, when locational rivalry emerged, the telecom infrastructure became a field of national competition. International companies and large business "clients" put a lot of pressure on governments to ensure better and cheaper services (INTSwe-10). For markets in small countries, the pressure came from the supplier industry as well as from business clients who wanted to have roaming possibilities and one-stop shopping on-demand to facilitate their international communication. That is why national governments in smaller countries began to work together even earlier to build common international technological standards than in bigger countries (INTSwe-8). As a result, the first international regulatory telecommunication authorities, like the CEPT and ITU, emerged as standard-setting bodies. This phase was dominated by the diffusion of national technological standards on the international level (through international standard-setting organisations as well as international consulting) and by

internationalisation among small-country players to gain economies of scale. This phase was additionally characterised by the early liberalisation of equipment- and manufacturing-markets (INTSwe-3). This led to a rapid internationalisation of the equipment- and manufacturing-sectors in many countries (Paterna 1996: 124 see also Karlsson 1998; Steinbock 2003; Lindmark, et. al. 2004; Hess/Coe 2006). However, telecommunications became increasingly important and costly, making a number of large users (which accounted for a substantial part of the traffic in the networks) seek low-cost transmission in the form of private networks. These could be built by using new technology. Since the monopoly telecom firms had used the revenues from such large users to subsidize residential ones, the old monopoly regime came under serious stress. To illustrate, in the US roughly one-third of telecom investments were made by non-carriers in the mid-1980s, compared to 0% in the mid-1970s (Noam 1992: 44-45). Private competitors increasingly organised themselves into associations and began to actively lobby against the market-dominating monopoly firms, which they accused of misusing their monopoly standing (Paterna 1996: 86pp.). Frey (2000: 10) argues that the inefficient performance of public companies would have been tolerated *"as long as the domestic economy was largely a national economy."* Under the buzzword "globalisation," basic economic conditions changed decisively in the 1990s. Nation states came under pressure not only economically but also politically. Besides the restructuring of the welfare state and the re-energising of the economy, the liberalisation, de-regulation and privatisation of former monopoly services were also planned (INTSwe-8). For public infrastructure and service provision, this meant that former state obligations, like the basic supply and service branches, would now be privatised, de-regulated and liberalised; thus the task of basic supply in the telecom field would no longer be provided through the state but through market mechanisms in combination with new coordination forms (state regulations, etc.). Additionally, the equipment industry also paid increased attention to international activities in order to compensate for saturation in home markets, which in turn exerted pressure (at least partly) to open up these markets (previously protected from competition). Finally, technological development (satellites, fibre optics) made transmission costs less dependent on distance, further eroding telecom monopoly firms' policies of overpricing long-distance and international services (Noam 1992: 46-47). In addition, the divergence of new applications and services made it difficult for a single network to serve all specialized needs. In the end, there was pressure within these monopolies, in particular those that bore the burdens of the postal sector. Engineers were attracted to the much higher salaries of the high-technology private sector.

Management and politicians realized that in order to cope with the inevitable competition, the telecom monopolies had to be transformed into more flexible and independent structures (INTSwe-6). These and other factors drove the market liberalisation and "corporatisation" of these monopolies. In addition to these factors, it is important to add the one given by Karlsson (1998b), namely policy diffusion. The telecommunications industry was part of a general liberalization trend, with the US as prime mover and the WTO particularly advocating the policy (Lindmark, et al. 2004: 80pp.). Because of mostly closed and regulated markets in Europe there was almost no internationalisation opportunity during this phase. Thus the point in time the first markets were opened was very important as these companies were among the first movers in internationalisation as well (because of rising pressure to defend their margins).

The international market system during the 1-2G pre-liberalisation period

Innovative users, such as the military and police forces, fire departments and power companies, already made pioneering developments in land-mobile radio in the 1920s. However, a number of technical problems remained to be solved before commercially viable public services and products could be introduced. Despite the above problems, the mobile radio industry expanded. In the following years, new user groups, such as water, gas and electricity utilities, railroads, buses and taxis adopted mobile radio (Lindmark, et. al. 2004: 299). However, at the beginning of the 1G era, the wireless marketplace was high-cost and low-volume, and an expensive niche-market by nature:

> "In the pre-cellular era, a wireless phone had been confined to emergency services. Its function centred on safety. In the 1G era, the cell phone - more precisely the car phone - had penetrated the business markets, but remained a household luxury" (Steinbock 2003: 230).

There was low customer orientation during this time period and product and service innovation was mainly driven by the interplay of suppliers and operators. At the same time there was also high technology orientation, and international competition among the biggest countries was clearly technology-driven (INTSwe-4). Furthermore, this development occurred in different ways and in different locations. The US was especially adept at trend-setting, and the analog era was characterised by the earliest innovations of wireless telegraphy in the maritime and military sector there. Since the 1970s, niche markets developed in the field of analog mobile telephony out this situation in the US (auto-telephony). Thus in the early 1970s, telecommunications were dominated (>95%) by fixed telephony services. However, already back then, fixed services were an aging application in some advanced countries. They were already declining in the latter part of the period studied, in the sense that both the number of subscribers (users) and revenues were falling in OECD countries, for example (Lindmark, et. al. 2004: 35). Building on indigenous industry developments and increasing diffusion of knowledge, Japanese and Nordic operators and vendors were able to catch up with US developments by the late 1970s. Even though Japan's NTT was the first to launch an analog system in 1979, the Nordic players achieved penetration more quickly and extensively (Steinbock 2003: 222). The first "lead markets" of the analog era were thus the Nordic countries and the US. Competition was government-driven, especially between the bigger players, with strong industry interests that hindered roaming possibilities for a long time. Between smaller players, especially in the case of the Nordic and Baltic countries, roaming was possible earlier because of a common vision of how to develop the market in mobile communications. This led to collaboration among the Nordic players already during the analog period and to the development of first-expertise in the professional marketing of services (nationally and internationally).

There was a pressure from international business clients later on, especially in smaller countries which lobbied in favour of opening the market quickly in order to achieve roaming opportunities and one-stop shopping for telecom services. This is why already in the pre-liberalisation period, operators organised themselves into international alliances to provide their valued business customers with international services from one source. This marked the beginning of big international alliances like Unisource (1991) and Concert, etc., which were the market-driven, international industry trend-setters during this time (INTCH-1).

The international corporate governance system during the 1-2G pre-liberalisation period

An important formal institution within the corporate governance system is the organisational structure of a company. During the monopoly period, a company's organisation was mostly characterised by complete vertical integration of all the firm's areas of activity. This is particularly obvious in the example of innovation-relevant knowledge. At that time, this knowledge was mainly produced in key research and development labs. Even though there was no competition then driving the need for innovation, service providers were under government pressure to continually improve the quality and quantity of their services. After the monopoly providers' R&D operations tested their inventions, they were passed on to manufacturers like Western Electric (for AT&T), NEC, Fujitsu, Hitachi and Oki (for NTT) for mass production and serial manufacturing. In time, however, these specialist manufacturers began to increase their own R&D abilities and thus could gradually take over more R&D tasks from the service providers. But because every national telecom provider had its own designs and technologies, the global knowledge-base was extremely fragmented. The innovation process was therefore very slow (Fransman 2002: 39pp.). The informal belief system in a company thus was influenced by government value guidelines designed to promote technological leadership for the good of the domestic economy during the monopoly period. This could especially be felt in the larger markets like Germany, France or the US. Here, the enormous interests of national economic conglomerates lay behind the organisation and management of monopoly operators. In general at the time, monopoly companies were marked by inflexible, bureaucratic organisational designs with established hierarchies strongly bound to government guidelines. One followed the rules, and personal initiative remained mostly out of the picture. Functional routines, formalised and standardised processes were the rule (INTCH-9). Innovation came about only through enormous R&D investment and was usually of a purely technological nature. Process innovation was even more seldom. There was absolutely no cost- or customer-orientation, for there was no market-economic incentive system. Quality- and price-controls were overseen mostly only by the state. Decision paths along the hierarchic levels were long and drawn-out and resulted in inert monopoly organisations that could only be slightly flexible in reacting to customer needs. Power during the monopoly period lay mostly with group leaders in the fixed network field, for this made up the core activities of the companies. The mobile communication segment is in fact more innovative and market-oriented because of its newness, but its directors still have little influence on the total strategy of the company. This is why most CEOs in the first phase after liberalisation emerged out of the fix-net field. Additionally, the corporate governance system during telecommunications' analog period was mainly characterised by hierarchical, bureaucratic state organisations in the big countries, with civil servants and engineers (INTCH-15).

However, there were different main corporate governance models all around the world. There was never a de jure monopoly in the US, for example, but a de facto monopoly situation with AT&T, and the same was true for some Nordic countries (Sweden, Finland). In comparison to the US model, however, these gave more autonomy to their owners, and their development was characterised by an early market orientation and a unique entrepreneurship culture within the public companies. This led to developments like NMT and later GSM. There was also a great deal of orientation toward in-house technology and engineering capabilities. The same was true in Japan. Among the big-country players of Western Europe, the hierarchies and inflexibility of the whole bureaucratic system and the divergent interests of manufacturers, operators and large user groups made the development of an entrepreneurial culture difficult:

> "In contrast to European monopolies, vertical integration in the US and cooperative relationships in Japan, the model developed by Nordic countries was competitive and adaptable to dynamic business realities in the late 20th century" (Steinbock 2003: 223).

However, the belief systems and interests of the ruling parties dominated the telecom business in most countries. At this time, states were mainly interested in having a good and competitive infrastructure. Sometimes priority was given to providing easy access to mobile telephony through a low tariff system, as in the Nordic countries (INTSwe-21). There was an internationalisation among the engineers and managers of the Public Telecommunications Operators (PTOs) as well, which met at international conferences or had already established a network within their community of operation.

There was little rivalry during the telecom monopoly period, and most players tried to learn from each other (at least in Europe) because of rising insecurities caused by liberalisation and privatisation (INTCH-11). The first organisational changes, therefore, already took place during this period, with monopoly firms attempting to implement more market-orientation into their structures. Among the lead movers in these "mind change" projects were the Nordics and the US countries, as they already possessed a latent market-orientation and had established marketing and customer services capabilities. The laggards during this time were the big European national champions, for whom it was quiet difficult to switch to a flexible, market-oriented approach.

Trends in corporate internationalisation: a dynamic perspective

Altogether this reveals a very complex process of similar national institutions (see: table 8) unfolding internationally and leading to similar sub-sectoral internationalisation trends already in the 1-2G pre-liberalisation period:

Technological system	Convergent institutions	Sub-sectoral internationalisation trends
"user-producer" interaction	National user-producer interaction (Ventel)	Small countries – international roaming
	National sectoral policies (e.g. NMT)	International "friendships" and R&D collaboration
Standards	National standards	International, government-led competition among the big-country players
	AMPS (US; Asia; Latin America) NMT (Nordic countries) National standards (Germany, France, Great Britain, Italy, etc.)	Implementation of lead players' technological infrastructure in emerging markets, or small-country markets
Regulative system	**Convergent institutions**	**Sub-sectoral internationalisation trends**
Ownership	State monopolies	Closed markets – almost no internationalisation
Prices and quality of services	Technology policy of certain countries (indirect technology competition among biggest countries) Liberalisation of equipment markets	Internationalisation impossible due to closed markets Technological innovation in mobile com. – international standard setting
Co-evolutive pressure due to price levels and quality of services	Lobbying power of business customers – liberalisation pressure because of high tariff levels and inflexible services	Internationalisation of equipment manufacturers Internationalisation pressure; provide business customers with international services
	Internationalisation of regulatory authorities Standard-setting bodies in EG, for example; First international telecommunication organisations emerge (CEPT; ITU)	Internationalisation of technological standards
Market system	**Convergent institutions**	**Sub-sectoral internationalisation trends**
Customer habits	Internationalisation of business clients	Roaming collaboration among smaller players. Internationalisation pressure because of business clients needs
Price levels and quality of services	High tariff structures, inflexible service Non-market-oriented services High infrastructure costs (due to universal service) (exception: Nordic countries)	
National industry interests	Government-driven competition among bigger players (FT, German Telecom, BT)	International friendships among smaller players and competition among bigger players.
Market size	Small markets ->	Roaming due to international collaborations
	Big markets ->	Closed markets due to national industry interests
		Build-up of infrastructure in emerging markets in Eastern Europe, Africa, Latin America and Asia
Corporate governance system	**Convergent institutions**	**Sub-sectoral internationalisation trends**
Company organisation and culture	National belief systems (according to political party: social or strongly market-economic, or technological competition)	Technological competition Knowledge exchange at international conferences and in committees; to some extent friendships between members and entities; internationalisation strongly influenced by government relations
Main shareholder	state	Little internationalisation at first due to national interests

Table 8 Sub-sectoral internationalisation trends arising out of similar international institutional configurations in the 1-2G pre-liberalisation period (Source: Author)

However, if we look at the historical evolution of these internationalisation trends, we become aware that this was a co-evolutive process which mainly arose concurrently with new technological developments and market-system developments. Furthermore, it is not easy to pinpoint which

institutional driver came first (and this is perhaps not the aim of this thesis). However, some of the central drivers which affected one another and fuelled the process can be examined. One of these was the globalisation of the markets, especially the globalised business clients who needed international services. At the same time, technological developments made mobile communication for the mass market possible. As the equipment industry realised this, their own domestic market potential seemed to be quite limited, so they exerted a lot of additional pressure on their national governments and organised internationally (CEPT, ITU, WTO). National governments were finally forced to react to this pressure, and in some countries this happened earlier than in others. Regulation in the Nordic countries, the US and Great Britain - which historically had a lighter, more liberal, more market-oriented approach to their telecoms - favoured this development and easily drove further liberalisation. This put some pressure on the lagging countries (big European countries, etc.) as well. Concurrently, superior technological developments in the more market-oriented countries (US, Nordics, Great Britain) led them into the leader position worldwide. When other markets opened up, much potential for internationalisation was created for those leaders, and this was also supported by the international financial communities' expectations for profit from the new technology. The financial community targeted further investment all around the world. Money was easily available for mobile ventures during this time (INTCH-1). The lagging countries had less experience in the business (as they mainly possessed restricted state organisations) and thus had to go it on their own or imitate the leader operators' strategies. They began to involve themselves in international strategic alliances and to trust consultants' advice (which highlighted M&A), or the opinions of financial analysts, who especially highlighted minority investments in Asia during this time (INTCH-3) (see: table 9).

Path dependencies	International institutions	Sub-sectoral internationalisation trends
Co-evolution	Pressure from globalised business clients to open up the markets and to offer better and cheaper services	Alliance hype scenarios in the mid-90s (Unisource, Concert)
	Pressure from technological and regulatory development in lead countries (US, GB, Nordic countries) and international organisations like the WTO	Markets opening up – internationalisation is possible First international sectoral organisations arise (CEPT, ITU etc.)
	Pressure by equipment manufacturers (and operators) to liberalise markets	Early internationalisation of equipment manufacturers
	Expectations of financial investment community	Highlights investment in the sector in general and also in international businesses (emerging markets; infrastructure build-up; first minority investments in other countries)
First Mover	Superior institutional configurations in all systems in the US and in the northern European countries	Internationalisation potential especially for equipment manufacturers in these countries, but also for operators (consulting business)
Learning	Positive learning effects and build-up of human capital (international management cultures) in leader countries due to early international experience	Positive increasing returns in the international development paths of leader companies - more commitment
Imitator	Small developed countries and emerging markets	Lead operators help those countries to build up their infrastructure – first international contacts arise
	Lack in human capital and knowledge about internationalisation	Influenced by leader companies' strategies, by consultants and financial analysts
Laggards	Big European and Asian countries (with national industry interests and standards)	Almost no international activity among operators because of big domestic market (only equipment manufacturers internationalise)

Table 9 International institutional path dependencies in the 1-2G pre-liberalisation period (Source: Author)

5.1.2 The role of national institutions in understanding divergent inter-nationalisation in Switzerland and Sweden in the 1-2G pre-liberalisation period

The next step now is to examine the internationalisation performances of Swisscom and TeliaSonora during the 1-2G pre-liberalisation period (approx. 1970-1995) to see whether the trends stemming out of international institutional developments had an influence in Switzerland and in Sweden at the time.

TIME	Televerket/Telia Mobile	Swiss PTT
1985	Telia Overseas Consulting (Swedtel)	
1989	Division Telia International	
1991	Unisource Latvia (60%) / Russia (17%)	Unisource
1992	Estonia (24.5%)	
1993	Hungary (Pannon) (23%) Russia (ZAO North West) (17%)	Hungary (JaszTel) (50%)
1994	Minority investment in emerging markets	Malaysia (30%)
1995		Czech Republic (27%) Latin America
1996		India (32.5%)

Table 10 Internationalisation performance in Sweden and Switzerland in the 1-2G pre-liberalisation period (Source: Author according to ARs of both companies)

In fact, the internationalisation strategies of Televerket/Telia and the Swiss PTT did already differ during the 1-2 preliberalisation time. The Swiss PTT started to internationalise together with KPN and Televerket/Telia at the beginning of the **1990s** in the Unisource Alliance. AT&T-Unisource Communications Services (AUCS) was held by Unisource (60%) and AT&T (40%). The affiliation to WorldPartners - an alliance of Unisource, AT&T, Japan's KDD, Singapore Telecom and Australia's Telstra - bestowed a global dimension to the service-provision offerings (Swisscom AR 1999b). JászTel Rt., Jászberény, Hungary, was then also taken over in **1993** within the framework of a joint venture with PTT Telecom Netherlands. The Swiss PTT has a 50% share in JászTel Rt. The company is the exclusive telecom provider in the Hungarian region of Jászág (Swisscom AR 1997: 33-37). In **1994** the Swiss PTT had a 30% share in Mutiara Swisscom Berhad (Kuala Lumpur) and was thus the largest stockholder in this holding company, which has been listed on the Kuala Lumpur stock exchange since December 1997. Mutiara owns national licenses for the operation of the largest national digital mobile networks (GSM 1800), a fixed network, an international gateway, VSAT and data network services in Malaysia. In **1995**, together with PTT Netherlands (today KPN), the Swiss PTT acquired a strategic 27% share in the Czech Rebublic's partly privatised national telephone company, SPT Telecom (SPT Telecom a.s., Prag) (Swisscom AR 1997: 33-37). In addtion to this, the Swiss PTT was engaged in marginal businesses in Latin America (Venezuela) at the time, which was also involved in the mobile communication field and other areas (INTCH-12). These, however, were not mentioned in the business report. Next, in **1996**, the Swiss PTT acquired a 32.5% share in India's Sterling Cellular Limited (New Delhi). A state-of-the-art GSM mobile network was built in this city of 12 million people under the guidance of Swisscom. The products and

services were marketed under the brand name "Essar Cellphone" (Swisscom AR 1997: 33pp.).

In contrast, internationalisation already began in the fix-net area for Televerket (today TeliaSonera) in the **1950s**, with an international consulting business. The history of Televerket's international consulting business began in the 1950s, when the Ethiopian government approached the Swedes for assistance in the development of its telecommunications. Based on an intergovernmental agreement, the Swedish Telecom Administration, the predecessor of Telia, set up a project organization that supplied management and expertise for long-term development support to the Ethiopian Telecom Authority. Televerket/Telia built up a unique competence in process-oriented team-work in a foreign culture. A nucleus of 30 to 40 experts with international experience in various telecom disciplines evolved, which later would form the foundation of the international consulting organisation in telecommunications, Swedtel. In the middle of the **1970s** Swedtel fulfilled large contracts in Saudi Arabia, Iran, Libya, Thailand and Jordan, to name just a few. Later Swedtel was active all around the world. These contracts were mainly for network development through complete project organizations comprising management, planning and purchase expertise as well as supervisors and network specialist staff (Swedtel 2000: 1). During this time, there was also government- and technology-driven collaboration with the other Nordic operators (Finland, Norway, Denmark) to develop a common mobile standard for roaming possibilities. The NMT standard emerged from this collaboration (INTSwe-7). Additionally, with the advent of digital switching technology in the late 1980s, Ericsson achieved a breakthrough for its AXE-system, developed by Ellemtel AB and jointly owned by Ericsson and Televerket/Telia. Thus Swedtel started marketing AXE support services internationally in 1987, and it quickly became a successful operation. In **1988**, Swedtel, the Swedish Telecom International division created by Televerket/Telia, commenced international operations. With the increasing liberalisation of the early 1990s the telecom market began to change considerably. In **1991**, the telecom operators of Holland, Switzerland and Sweden established the jointly owned Unisource Business Networks. Aside from this, in the same year a minority shareholding of 24.5% was agreed to in Lettland with Latvia's Mobilias (24.5%), and in Lithuania (Omnitel) (28.5%). This involvement in neighbouring Nordic countries was then expanded to Estonia in 1992, with a holding of 24.5% in AS Esti Telekom. Also in **1992**, an international telecom management training program was created in Kalmar (Sweden) in the form of a company, which was made a subsidiary to Swedtel AB. The International Program in Telecom Management and similar management programs had been a success from their inception in 1979. A good number of young, potential telecom executives travelled every year to Sweden for short or long courses that enjoyed a strong international reputation. In this manner, Televerket/Telia, through the "Swedtel Academy" built up a vast international network over the years with strong personal relations with the key staff of telecom operators in more than a hundred countries (Swedtel 2000: 4). In addition, a shareholding of 23% in Pannon GSM AG in Hungary was agreed upon in **1993**, as well as a 17% share in ZAO North West GSM Russia, which also held Finnish and Russian partners, among others. Furthermore, Thai Telephone and Telecommunication (TT&T) awarded Swedtel a large contract to manage the construction of 500,000 lines in Thai districts - a direct result of Swedtel building strong customer relations and participating in World Telecom 1995 in Geneva (the

world's largest telecom exhibition). In Europe, a specific office within Swedtel was the driving force behind Telia's bidding for a stake in Telecom Eireann (Iran) (Swedtel 2000: 5). In **1996**, the market network of Swedtel grew with the establishment of new sales offices in markets of increasing importance, such as Brazil (for the Mercosur market) and Zimbabwe (for the Southern Africa region) (Swedtel 2000: 5) (see: table 10 above)[19]. This was mainly done by minority investments in the mentioned emerging markets or with Joint Ventures with local partners (INTSwe-12).

Altogether, both companies began with major international projects at the beginning of the 1990s, and both followed the international industry-segment-specific market trend with the Unisource Alliance as well as the international financial trend to conduct minority investments in emerging markets in Eastern Europe and Asia. Thus within this field, both companies followed the trends of the time, mainly driven by big business clients and the financial community. Another market-driven industry trend was for small players, because of their small home markets, to look for friendly relations with other small-country players, in order to have roaming possibilities for their services. This can be seen especially in Sweden (collaboration with Nordic players in NMT), but to a lesser extent also in Switzerland (collaboration with Nordic players in the Unisource Alliance). Similarities in the internationalisation activity in Sweden and Switzerland are:

- Similar needs in the technological and market systems – user-producer interaction: collaboration in standard-setting, such as NMT
- Similar customer habits (business customers) within the market system: Unisource Alliance
- Expectations of international financial communities: minority investment in emerging markets; broad global investment in the mobile sector
- Regulation: dominant state interests; build-up of international friendships; international collaboration

Thus thesis 2.1.2 (see page: 54) is partially true for this time period, as formal and informal institutions created by the financial investment community contributed to international investment hype scenarios in emerging markets. Surprisingly, this already began under the major ownership of the states, before the privatisation of the companies. Mainly, international institutions in the international market and financial systems (and also partially in the technological sphere - see NMT) led to a convergence of internationalisation strategies among the operators. It is predominantly Telia's worldwide consulting business (with its superior expertise in the field of NMT) and its early international focus on the Nordic and Baltic areas that differentiate Telia from Swisscom during this time. Swisscom mainly followed the international industry trend mentioned in the section above, with minority investment in emerging markets and contribution to an international alliance like Unisource. In the following, a contribution to a deeper understanding of these differences will be made with the help of a dynamic national-institutional perspective for the time period under study.

The national technological system during the 1-2G pre-liberalisation period

As both Televerket/Telia as well as the Swiss PTT are located in Europe, they mainly face technological challenges that concern the European standard models (e.g., NMT, GSM), not the Asian or US ones. In terms of national divergence from the international industry trend, the main difference between Sweden's and Switzerland's national technological systems at this time lays clearly in the national innovation system (NIS) and the user-producer interaction of the analog times (INTSwe-13).

[19] Here again as already stated before the time period under investigation 1970 until 1995 is interpreted relatively broad. The year 1996 is additionally mentioned (see: Swisscom Mobile`s acquisition in India), as this is a part of Swisscom`s internationalisation activities into emerging markets that "logically" belong together.

From the beginning, there was no real NIS in mobile communications in Sweden or in Switzerland. However, Televerket was embedded in a superior national institutional environment that indirectly supported the development of new technologies and innovations in mobile telephony and led to NIS in the field during the later stages of the 1-2G pre-liberalisation period. The **national innovation system** approach (according to Freeman, 1992) highlights some institutional elements, which include educational policies (university system etc.), user-producer interaction, national sectoral policies and funding, regulation, etc. (see: chapter 2.3.2). The national sectoral policy in Sweden was indirectly very supportive from the beginning. For example, the state-owned operator had relative autonomy in its decisions, for it was no de jure state monopoly as in most other European countries. Following the international industry trend to be technologically competitive, and having unique capabilities in the field of radio communication and an educational system based on engineering skills, a highly entrepreneurial spirit emerged in-house during this time. Thus Televerket also had its own in-house R&D manufacturing unit and was not dependent on any other industry interests (INTSwe-15).

Additionally the Swedish state's hope was to achieve high-standing equal access to **telecommunication infrastructure** for every one through a policy of private/public partnership and low-tariff structures. This was a result of the traditional, high significance of telecommunications in a sparsely populated country (INTSwe-15). It led early on to high penetration rates in new mobile technologies already in the 80s (INTSwe-16c). From the 1940s on, Televerket gradually assumed a role within this national technological system as the dominant and pioneering actor in radio service provision in Sweden, as both a commercial operator and regulator. In the late 1940s, Telestyrelsen assigned Sture Lauhrén of Televerket's "Tekniska byrå" and Ragnar Berglund of Televerket's "Radiobyrå" the task of developing an automatic land mobile telephone system (eventually named MTA - Mobile Telephone system A) (Lindmark, et. al. 2004: 266 see also: Mölleryd 1999 and INTSwe-15). Berglund worked on radio-equipment improvements (tone code signalling and crystal elements) that eventually led to the introduction of an improved national system (labelled "system Berglund," or MTB). Televerket started testing the system in 1961 and launched it in Stockholm and Göteborg in 1965, and in Malmö in 1967. A few firms that constituted the Swedish supplier industry were partly involved in the innovation process also. These were Ericsson, SRA, ANT and AGA (Lindmark, et al. 2004: 269 see also: Mölleryd 1999 and INTSwe-16c). Furthermore, MTA's and MTB's pioneering developments created **technological competences** inside Televerket. The experiences gained by commercialising the system also guided future research. Some knowledge may have been developed in the domestic supplier industry as well. The roles of government and universities seem to have been negligible at this time. All functions in the innovation system were improved during the 1970s, in particular those that aided the formation of markets. When NMT was introduced, Sweden had an advanced user market, developed distribution channels and a competitive supplier industry. Furthermore, the competence that had been developed at Televerket's radio labs enabled it to take a leading role in the development of NMT (although its Nordic counterparts also contributed to some extent). It became a leading innovator as well as lead user, guiding the efforts of the **supplier industry** in a direction it would never have taken if it had been left to its own decisions, e.g., the choice of the AXE switch. Additionally, Nordic telecom management appointed a working group, labelled the Nordic Mobile Telephone Group (or the "NMT group"), and charged it with investigating future compatible Nordic mobile telephone systems (INTSwe-7; INTSwe-16b; INTSwe-20). This development was initiated by Nordic PTOs in Finland, Norway, Denmark and Sweden. The Swedish PTO, however, took a leading role.

The implementation of the project began in 1977, and the Nordic PTTs started to look for suppliers for the different component technologies. The bidding was international, but the Swedish firm Ericsson won the order to deliver switches to Sweden, Norway, Denmark and Finland (INTSwe-

18). Additionally, Televerket wanted an adopted version of Ericsson's fully digital switch (AXE) and made it clear to Ericsson that they would choose NEC's digital switch if Ericsson did not offer the AXE. NMT 450 began in Sweden in 1980 and in Denmark and Finland in 1981. Thus, NMT 450 can be regarded as an important formal institution, meaning a set of rules in the relationship of operators and suppliers in the purchasing process. This set of rules decreased the degree of uncertainty and risk for the equipment suppliers (Edquist 2004: 168p.).

> "The institution of NMT 450 provided the cradle for the development of pan-European mobile telecommunications. It actually spurred the development of a whole new industry - or sectoral system - of very great economic significance" (Edquist 2004: 169).

However, it was first implemented in Saudi Arabia in August 1980. Because more subscribers signed up than expected, the standard NMT 900 was invented in 1986 (Edquist 2004: 168p.). The rapid subscriber penetration in Sweden, much higher and faster than in other EU countries, contributed to rapid market growth, which was important for allowing equipment suppliers to benefit from economies of scale. The development of NMT is actually an example of "superior" national user-producer relations in innovation processes between the operators and their supplier industry that emergerd due to superior in-house capabilities in mobile related technologies in Televerket[20] and some of its national suppliers. However, the **user-producer interaction** was not only characterised by collaboration, but also phases of "fruitful" competition and rivalry (INTSwe-7). The public organisations, especially in Sweden, provided a framework for private equipment producers and decreased their uncertainty (education based on engineering skills etc.). The Nordic producers Ericsson and Nokia greatly benefited as well, and this is a very important factor behind their success today. Both Televerket and Ericsson contributed to the rapid development of mobile communications in Sweden, and as a result also to the internationalisation of Swedish players (Edquist 2004: 170 see also: INTSwe-12; INTSwe-14; INTSwe-16b; INTSwe-18). However a fruitful collaboration between Ericsson and Televerket only appeared by chance in the later stages of NMT and GSM: Especially Televerket started the development of public mobile services already in 1956. Ericsson during this time was running a development of its own within a subsidiary (SRA) coowned by Marconi and General Electric mainly geared to private networks as opposed to public networks (INTSwe-7).

> "The latter focus meant that Ericsson had at first a luke-warm (even negative) reaction towards the launch of NMT in 1981. Given this reaction of "non-interest" from Ericsson it could have well been NEC rather than Ericsson to ride the early success of Mobile Telephony. (…) There are examples of productive cooperation between Ericsson and Televerket/Telia like in the case of Ellemtel/Axe - but also a number of cases of rivalry" (INTSwe-7).

However by chance a superior national collaboration with Ericsson ocurred ("*Back in the days of AXE, both companies had "pre-AXE" solutions. It could well have ended into two competing "AXEs". Telia had own factories and could at least be a challenge to Ericsson. It was actually Mr. Wallenberg (a banker with crucial holdings in Ericsson) who brought the two parties together into a joint development company ELLEMTEL"* INTSwe-7), which materialised in the Joint Venture Ellemtel[21] and the development of the AXE Switch in the 1970s (INTSwe-7):

[20] Televerket has developed out of the Military Signal Corps, migrating from the "Optical Telegraph" to the "Electrical Telegraph" and in the 1980-ies further to the provision of mobile voice telephony. Voice services were launched in Sweden from day one in international competition with Bell Telephone (US). This period of infrastructure competition was important insofar that the penetration of phones in Sweden rose dramatically, even to higher levels than in the US (INTSwe-7).

[21] When Ericsson and Televerket, Sweden's state-owned PTT, signed an agreement in April 1970 to establish a joint research and development company called Ellemtel Utvecklings AB, this was a result of Ericsson's long-term development partnership with Televerket. Since the mid-1950s, the two parties had been collaborating in the development of electronic switches. Since the early 1960s, Ericsson had been working to develop a commercial electronic switching system called

> "Ellemtel recruited personnel from both owners and could thus bring together expertise from both the manufacturer and the users of telephone stations. The company's organization was such that ideas and influences from Ericsson and Televerket impacted development work at all important levels, from the boardroom down to the engineers' drawing boards" (www.ericssonhistory.com_Ellemtel as of: 06.2008).

Thus mainly Televerkets development of mobile telephony and the key decisions it took shaped the innovation system with respect to several of the functions of the analytical framework of this thesis. Ericsson acquired all these competencies only by 1982-83, partly through internalizing much of the Swedish innovation system through acquisitions (INTSwe-18).

> "However also back then Telia was never a passive "user" forced to accept whatever a local producer like Ericsson offered. Telia was free to choose any vendor as well as to produce in factories of its own. By no means only a passive user" (INTSwe-7).

In particular, the close user-producer interaction, as well as fruitful rivalry, between Ericsson and Televerket in the late stages of NMT development led to the rapid diffusion of NMT internationally. Televerket started marketing NMT together with Ericsson in the late 1980s all around the world. Ericsson had already been international since the 1880s and could transfer this knowledge to the new mobile activities (INTSwe-7). For Televerket this resulted in an international consulting company, Swedtel. Another company, Telia International, emerged out of this superior national in-house capabilities of Televerket during this time, too. This led to the build-up of a solid international reputation and further internationalisation potential. Additionally the NMT collaboration with other Nordic and Baltic suppliers and providers especially led to thorough knowledge about the other Nordic markets and may explain the early internationalisation into Nordic and Baltic countries as the markets opened up. To sum up the analog era, the prime mover in the Swedish mobile "industrial complex" (Ruigrok/van Tulder 1995) was Televerket, due to its good in house knowledge in the field of radio and related mobile technologies.

In comparison to developments in Sweden, the Swiss PTT was not embedded in any of the above-mentioned superior national institutions. Geographically, Switzerland was located next to large-country players like German Telecom, Telecom Italia and France Telecom (FT). This prevented the Swiss PTT from implementing roaming possibilities early, as in Sweden, because the bigger operators were not very interested in sharing their technological standards. Also, national interaction between users and producers was not focused on the development of mobile technologies (INTCH-10). Switzerland is more an advanced-user country in the field of ICT - because of the many multinational companies and high per capita spending, it is a very attractive market. This is why the Swiss state focused mainly on establishing good basic **infrastructure** and innovative services in this segment, but

AKE, while Televerket conducted work in parallel on its own electronic switch. By the end of the 1960s, it had become clear that this new development effort would be of a completely different magnitude than the previous generation of electro-mechanical switches had required. Ericsson had also begun to realize that the AKE system did not appear to be viable for large switching stations - it was too slow and expensive - at the same time as it appeared that the company's international competitors had made considerable progress in their electronic switch projects. Ericsson's position as an independent Swedish switch supplier was thus threatened. Developing a new generation of switching equipment was a question of survival for the company. In late 1969, after Ericsson had lost a large AKE order to its competitor ITT, management at Ericsson and Televerket concluded that it would be most effective to combine resources and jointly develop an electronic telephone switching system. With the commercialization of the AXE system and the transfer of most development work on Ellemtel's products to Ericsson, many of Ellemtel's employees left the company to take jobs at Ericsson. Ellemtel continued its operations thereafter as a partially owned strategic development company up until October 1995, when Televerket sold its remaining Ellemtel shares to Ericsson. Ellemtel was thus integrated into Ericsson's organization. (www.ericssonhistory.com_ellemtel as of: 06.2008).

did not support any huge mobile technological developments (INTCH-8). The Swiss PTT in fact had a wireless car phone service in 1958. But due to the economic crisis and the PTT's accrued deficits at the time, the NATEL (Nationales Autotelefon, or national car radio) project was postponed because the Swiss government did not regard the technology as commercially viable. However, when the recession of 1975 became more serious, the PTT decided to introduce NATEL after all, since the Federal Council had recommended that they act more anti-cyclic in their investments. In 1978, therefore, NATEL A, the first mobile national telephone network, was introduced to the Swiss market with surprisingly big success (Trachsel 1993: 104). NATEL is a registered trademark of today's Swisscom, and the term is only used and understood in Switzerland. In 1992, the NATEL C network already covered 95% of the populated area of Switzerland, with a subscription membership of 215,000. It used the Nordic NMT Standard 900. The system was implemented in cooperation with Ericsson (Swisscom Mobile 2004), because the national suppliers were not able to develop the needed competencies. At the time, Swisscom's **core suppliers** were the Swiss companies Hasler, Autophon, Zellweger, Gfeller and the international subsidiaries Siemens-Albis and Standard (Trachsel 1993: 125). Hasler, the oldest telecommunication company in Switzerland, early on provided the market with a wide array of telecommunication products. Internationally, Hasler had made itself a name with the delivery of tele-printer and Telex installations, as well as the first Local Area Networks (LAN). Hasler is also a leader in the field of precision mechanics (Trachsel 1993: 304). The relationship of the Swiss PTT Telecom to its suppliers could be seen as very one-sided during the monopoly period, with the power clearly on the side of the monopolist:

> "The PTT protectively held its hand over the telecommunication industry, but it could also give orders and knew how to play the key suppliers against each other. Whoever did not dance to the tune of the masters on "Speichergasse" had to be prepared to take possible cuts in orders" (Trachsel 1993: 303).

Dissatisfied with the national situation, Pro Telecom was founded as an association of Swiss telecommunication industries. Hasler in particular was already in cooperation at the time with Ericsson and secured itself an AXE license from Northern Telecom. The international pressure caused by the liberalisation of the market for end devices in many countries led companies in Switzerland to thoughts of merger. Autophon, Hasler and Zellweger, the three largest telecommunication providers in Switzerland, thus merged in 1986 and became ASCOM (Association Suisse de Communication) (INTCH-8).

User-producer interaction was highly influenced by state interests in those days in Switzerland, as the Swiss PTT was governmentally organised and was a de jure monopoly, obligated to follow the interests of the state. Its hierarchical organisation made it very slow, and there was almost no market orientation (INTCH-1). Mobile technologies in Switzerland only gained importance when the government saw an increase in mobile telephony in the other European countries as well. Thus Switzerland was a clear laggard in developing its own mobile technology capabilities during the pioneering phase (Trachsel 1993). However the Swiss state's interest was to establish a high-standing infrastructure and the newest technologies, with high-quality services, throughout the country as well (also in the mountain areas). Thus Switzerland needed the help of Ericsson and Televerket to implement the NMT standard. This made roaming possible with the Nordic partners early on, and these contacts led to the development of an international alliance at the beginning of the 1990s (Unisource Alliance).

Altogether, the Swiss PTT followed the international industry trend, with the Ventel model and traditional monopoly regime, and focused on fixed communication systems, like most other bigger European PTTs during this time. It was quite slow in adapting to new technologies during the analog period, about 10 to 15 years later than in Sweden. This led to relatively low internationalisation potential from the point of view of national technological systems. In Sweden there was an early national innovation system in mobile telephony, mainly characterised by supportive national-sectoral policies, in-house capabilities and, later, superior national user-producer interaction. Sweden was a clear first mover in mobile telecommunications which influenced the international technological development. However, the operator Televerket did not manage to properly convert all these national institutional advantages into internationalisation potential during this time (Lindmark, et. al. 2004; see also: INTSwe-16b). Ericsson, in contrast, was more successful in doing so and internationalised on a larger scale (INTSwe-18). But this was also due to regulatory barriers in the operator business at the beginning, because only a few markets were liberalised back then.

Technological System	Sweden	Switzerland
"user-producer" interaction	National innovation systems in mobile telephony:	International "user-producer" interaction
Superior national capabilities	- education: engineering culture - sectoral state policy (supportive: organisation, low tariffs etc.) - superior technological capabilities (Televerket; Ericsson – Ellemtel etc.) - fruitful rivalry among national players - International R&D collaboration among Nordic states - Leading expertise in mobile technologies (NMT)	Low significance of the sector for Swiss state in the analog times - laggard in the adoption of mobile technologies Later: high infrastructure standard and attractive test market (high value customers; 4 languages, topography)
Development of technological standards	International first mover - NMT standard	
Internationalisation potential/strategy	Early technological expertise - International consulting (Swedtel and Telia International) Good international reputation (lead market) Relational capital and learning effects due to collaboration with Nordic players in NMT consortium Early international competition in fixed line services (e.g., Bell Telephone from the US)	Collaboration with Ericsson in build-up of NMT Unisource agreement (relational capital)

Table 11 Potential for internationalisation stemming from national institutions within the national technological system in the 1-2G pre-liberalisation period (Source: Author)

The national regulatory system during the 1-2G pre-liberalisation period

Developments in the regulatory system during the analog era are connected to the events mentioned above. However, we can go more into detail in this section and explore divergent regulatory developments as well. Until the beginning of the 1980s, the formal and informal institutions, i.e. the legal regulatory framework of the Swedish telecommunication industry and the informal belief systems, were characterised by the following central, national characteristics:

- First, the Swedish government only possessed a virtual network monopoly, which was created in 1918 by the purchase of the last of what were once 400 local networks. Telegrafverket, subsequently named Televerket in 1928, thus became the sole public operator on the Swedish market ("By 1920 Televerket has managed to buy out its competitors, which meant a de facto monopoly position to last until the late 1970-ies when other players (see: Comviq) again entered the scene" INTSwe-7). This de facto dominance was based on its provision of telecom services in sparsely populated areas in northern Sweden, but also on a high degree of commercial and managerial freedom compared to other monopoly companies in Europe during this time, which were ofthen locked into a PTT structure under supervision of a ministry (INTSwe-7). This de facto monopoly regime stayed stable from that time until the late 1970s (INTSwe-15; INTSwe-16a). This monopoly was never codified legally, so that it would have been possible to establish new private networks (Karlsson 1998: 21pp.). The permanent possibility for competition led to a constant competitive pressure and also to first, early experience with international actors (like Bell Telephone from the US) (INTSwe-7; INTSwe-19).
- The second characteristic was the ambivalent legal form of the telecommunication authority "Televerket" as "Affärsverket," based on which it took an intermediate position as "commercial government authority" (Pontusson 1988: 130) or "public enterprise," which made it something between an authority and a company (Petersson 1994: 103). "Thus Televerket was not incorporated in any PTT structure. The Swedish term "Affärsverket" can be translated to the term "Crown Corporation" (see Canada), implying at least an arms length distance from the government" (INTSwe-7). Concretely this meant that Televerket was no corporate body, but was subject to directives from government and parliament in important issues; its wealth belonged to the government, and it was subject to the principle of public disclosure which governs public administration. On the other hand, the responsible minister of transportation was not represented on the board. Furthermore, Televerket was independent in questions of detail and was not integrated in the postal authority. Postal services have even a longer history, but have always been a separate service in Sweden (INTSwe-7). The obligation to cover its expenditures as well as to generate profits, its own production department and stock corporations Teli und Affärsverksinterne Aktiengesellschaften - e.g. "Telefabrikations AB" (TEFAB) and "Ellemtel Utvecklings AB" - led to a strong entrepreneurial component (Karlsson 1998: 25 und 79pp.; Richardson 1986: 84). This relative freedom allowed the emergence of the international entity Swedtel and made the company relatively market-driven and flexible. This in turn fostered an internationalisation potential in telecommunication. Thus Televerket was in a powerful position in relation to the ministry. Even in the field of internationalisation, the company could conduct its own business. Already in 1984 Televerket was completely decoupled from the government budget and could seek international financing in its own name (Karlsson 1998 see also: INTSwe-7; INTSwe-19).
- By the 1970s, Televerket was still organized as a public enterprise under the supervision of the Ministry of Transport and Communications (INTSwe-13). This meant all major decisions had to be taken by the government or the parliament. On the other hand, company management was rather unconstrained regarding internal economic matters. They could decide how to use their operating income themselves (INTSwe-3).
- Furthermore, the administrative scope of Televerket in telecommunication included a monopoly for devices. This was a function of their responsibility for the stability of the network as well as for its installation, maintenance and ownership and for the corresponding equipment, from the telephones to the switchboards. Therefore, Televerket determined the boundaries of the monopoly areas supplied with Teli and TEFAB products (Karlsson 1998: 141pp.). Thus the company controlled the supply side, which led to important and productive relationships later on, especially with Ericsson. This also contributed to internationalisation potential and a reputation for excellent technological cabilities in the area of mobile communication. Televerket also assumed a regulatory role within the traditional regulatory regime, managing radio frequencies and issuing licenses since 1954 (Lindmark, et. al. 2004: 261 see also: INTSwe-20).
- Furthermore, besides its obligation to provide universal access, Televerket's other administrative responsibilities included the official duties of international representation, technological standardisation, inspection and admission of telecommunication devices as well as the administration and allocation of radio frequencies. This authority, combined with the company's monopoly on devices and (de facto) monopoly on the network, effectively limited competition in the non-monopolised areas in the name of stability of the public network (Karlsson 1998: 141pp.; Prop. 1980/81 Nr.65: 5p.). These liberties allowed entrepreneurial activities and, therefore, innovation and the first international contacts with other small countries. Contacts with the Nordic representatives in particular led to a breakthrough in mobile communication based on NMT and GSM. This also

contributed to further internationalisation potential, which in the beginning mostly centred on the erection of infrastructure in countries without "modern" mobile communication networks and without their own national standards.

- Enormous internationalisation potential arose from early international cooperation as well as from Swedish political actors' approach to mobile communication in regards to the development of MTA, MTB and NMT standards.
- Values in the political belief system in Sweden, like equality and solidarity, led to the expansion of a high-standing network infrastructure that early on included a low price level (Lindmark, et al. 2004: 110). The 100-year-old collaboration between state, private and local actors, as well as the political implications of Swedish telecommunication law (household phone access had long been considered a social right), made 20th century Sweden the country with the highest number of telephones and the lowest calling fees (INTSwe-3). This, however, eventually led to new services quickly penetrating the market in mobile communication. Very early on, this extensive market penetration and the low prices enormously increased internationalisation pressure for the Nordic players.

The company's belief systems co-evolved with the development of the state's belief systems, and this contributed to formal regulative institutions (as in national standards) in Sweden:

- Due to Televerket's relative independence from the state, a strong cost and market orientation was implemented much earlier in its belief system than it was in the political sphere. This led to an orientation toward the interests of business customers and toward customer-friendliness through development of the standards MTA, MTB and especially NMT. This market-based behaviour from the start allowed the company the flexibility to attempt international projects in a competent manner. At the time, this kind of expertise was lacking in most other monopoly companies in Europe (INTSwe-18).
- Finally, the company had an important equipment manufacturing division, which meant that it could develop its own manufacturing and R&D expertise and become a powerful purchaser. This unique expertise in the field of R&D led to a good international reputation and to first consulting contracts in underdeveloped countries (Karlsson 1998: 25).

Again, this relative regulatory "freedom" resulted in an earlier market orientation and the possibility to engage in early international collaboration with other Nordic players. In the mobile communication field, the Swedish state had deep economic relationships with other Nordic and Baltic countries. The Swedes formed a study group already in 1964 to clarify the commercial, economic and political aspects of future wireless services (INTSwe-16a). This collaboration was additionally supported by the Swedish state, which also had good contacts with all the other Nordic countries. In the belief system of the Swedish politicians, it was crucial to emphasise mobile communication and to energise their own small markets with this technology. The aim was to develop a new pan-Nordic automatic mobile telephone system. First, system requirements based more on market needs than technical parameters were outlined (INTSwe-15). The advantage of this collaboration was that the Nordic regions became more specialised and more open to worldwide innovation and internationalisation than other regions, because there were no other political or dominant industry interests preventing this development (Steinbock 2003:223). Additionally, Sweden's state neutrality made it possible for Telverket and Ericsson to be active in early consulting and infrastructure build-up in emerging markets all around the world:

> "And then it was also about politics, and Telia, as a Swedish company, might have been thought of as welcome. (…) We both together helped the new embryonic government in Estonia, primarily by offering them the opportunity to talk to the outside world, and that was one of the advances of mobility. Because until that time, every call outside Estonia had to go via Moscow (…) TeliaSonera opened up a link across Finland, and that was also politically motivated, because of historic relationships and neutrality (…) Additionally, it is a completely different game if you are doing business in the European arena - you have to take conventional business into account and a little bit of politics. But if you move out of Europe, there is even much more awareness on the political side" (INTSwe-16b).

This was especially also true for emerging markets outside Europe (INTSwe-16a). As Televerket was also the controlling body for licences in Sweden, it had control over the national industry system and was the most powerful player there. The state education system, which favoured engineering careers, also supported the system. Liberalisation efforts came out of Televerket itself, which saw international opportunities, unlike companies in Switzerland, which experienced pressure from business clients and from the European Union. At the same time, the potential internal contradictions (double mandate as commercial enterprise and government entity; possible trade-off between economic efficiency and social equality and solidarity) showed that there was potential for change. In the 1970s, however, the monopoly situation started to adapt to changing conditions. These changes were partly driven by the opportunities created by technological change, which stimulated large users and new firms from the emerging electronics and computer industries to join forces. They were supported by liberal and conservative politicians. A general liberalisation trend, with the US as a prime mover, contributed to this. Televerket management was relatively quick to react to these changes - it began to adapt the organization and actually pushed for de-regulating the market in some respects (Lindmark, et. al. 2004: 154). In the middle of the 1980s this led to opening the market for end-devices, and at the beginning of the 1990s (1993) to the liberalisation of the services market and the introduction of the first regulatory terms; until then the segment hadn't experienced any direct regulatory policy in Sweden (INTSwe-16a).

Within the national institutions of the Swedish regulatory system, based on these first intense contacts among Nordic players, it was possible to gain mutual insight into the market structures and the national regulatory policies. This eventually led to joint internationalisation projects and to TeliaSonera Mobile's current extended focus on the Nordic and Baltic areas. The progressive regulatory practice in Sweden further contributed to the creation of superior standards in this area, which became internationally diffused through the Nordic collaboration (NMT). Given the company's relatively free hand in Sweden and lack of de jure monopoly, the constant possiblity of competition led Televerket to a market orientation and to an international course much earlier than other players in Europe. The liberalisation and re-regulation of the sector was actively supported by Televerket management (to an extent not seen in any other country), and therefore it could be implemented relatively early on (1993). This led to earlier competition in Sweden than in Switzerland, for example, where liberalisation didn't occur until 1998. Thus internationalisation pressure was greater in Sweden already at that time (INTSwe-18).

In contrast the history of the regulatory development in Switzerland is as follows: The Telegraph and Telephone Act (TVG) of 1922 formed the original formal legal basis of the Swiss PTT. Although federalism was and is important in the Swiss political structure, the responsibility for telecommunication regulation remained exclusively at the national level for many decades. This regulation was overseen by the Federal Department of Environment, Transport, Energy and Communication (DETEC) (OFCOM 2003b: 2). This means that the state had a de jure network monopoly. To carry out monopoly services, the Federal Council gave the Telecom PTT a sovereign mandate, which included among other things the responsibility of providing universal coverage and setting prices. The network monopoly traditionally had enormous obligations, as the basic provision of telecommunication services was a task of the federal government. This basic provision mandate was noted in Art. 92 of the Swiss constitution in an explicit manner:

> "The federal government provides sufficient and price-effective basic postal and telecommunication services in all regions of the country. The fees are set based on uniform standards."

The details of these basic provisions were recorded in the Telecommunication Act and were precisely specified in the telecommunication ordinance. According to the ordinance, the Federal Council determined the maximum prices as well as the quality standards for basic service provision. They applied for all of Switzerland (INTCH-22). The Swiss government thereby emphasised equal service quality in the urban regions as well as in the many mountainous areas. Particular efforts were made to achieve maximum, high-quality coverage in order to foster equal wealth and growth opportunities and to counteract the disparity between city and countryside. The federalist decision-making structure and the large agricultural lobby in Switzerland further strengthened these efforts during this time (Luzio 2004). Values such as solidarity and egalitarianism were stressed. Thus the PTT's yearly expenditures for individual connections were regionally very different, and in the mountainous areas they were double those of the cities (Trachsel 1993: 178pp.). But business customers increasingly exposed Swiss voice telecommunication to international comparison, and thus exerted enormous pressure on regulatory authorities for further liberalisation. Already in 1974 these customers had formed ASUT (Association Suisse Dûsage de Telecommunications) (Trachsel 1993: 294). Eventually, the Federal Council presented a first draft for the revision of the old FMG Act (Telecommunication Act) in December 1987. Three and a half years later, parliament passed the new FMG Act, which became law on 1 May 1992 and replaced the Telegraph and Telephone Act (TVG) of 1922. Thus the quasi-autarchy of PTT Telecom in the field of telecommunication and the legal form of the de jure monopoly were softened.

Only extended-data and value-added services were liberalised in the first formal step of the new FMG Act of 1992; the monopoly on voice-communication and on the network remained. Unlimited competition also reigned in the device market at this point (INTCH-15). The further liberalisation of the telecommunication market then followed, based on the Swiss government's informal position and on growing international pressure. The creation of the new FMG Act was a first formal step toward this end: *"The new legislative package of 1992 introduced liberalisation in the so-called wide-range services (commutation of messages, services of memorisation, etc.), while basic services (telephone services, voice communications, Telex, etc.) remained a monopoly of the Swiss PTT company"* (OFCOM 2003b: 4). In general, it can be said that the revision of the traditional Telecommunication Act in 1992, by opening the market for end devices, led to increased internationalisation in this area. At that point, end devices were being ordered from internationally acknowledged suppliers. On the other hand, it became clear that this could only be a prelude to a complete market opening. Competition was no longer tied to mandatory, regulatory terms. However, cross-subsidisation was not allowed, and the PTT Telecom had to present its cost calculations transparently (Trachsel 1993: 176). The effects of the 1992 FMG thus could not be felt in the service area. Nevertheless, international pressure to liberalise the networks in the fields of voice communication and services grew. At the same time, the PTT Telecom felt enormous pressure from the FMG and from the high standards for basic provision. The company's administration realised that in the future, top emphasis would have to be on effective costs, customer service and price reduction instead of on regional politics, social aspects or cost equilibrium. Thus in the early- and mid-1990s, Telecom PTT began to prepare organisational and strategic changes in order to be ready for the free market:

> "It [Swisscom] wanted to create - initially only within the existing legal possibilities - market-oriented leadership structures and strategies. (…) This most of all demanded an international or global dimension to the new approach. Telecom PTT depended, though, on the exhaustion of the market-related opportunities, like international joint ventures, strategic alliances and other forms of holdings" (Trachsel 1993: 184).

Until that point, the acquisition of holdings was only possible under difficult conditions, since there was no human capital to devote to international expansion and none of the necessary experience in Switzerland The enormous government involvement (voice communication and service monopoly) did not permit any latitude in this area (Trachsel 1993: 185). Even though increased market orientation appeared incredibly difficult during the monopoly period, PTT Telecom could take advantage of what they had achieved up to that point. This included, on the one hand, an outstanding, internationally competitive infrastructure and knowledge about its construction and operation, as well as participation in European projects and years of experience with international entities (possible because many international customers and organisations are traditionally based in Switzerland). Swiss quality in this sector also has an internationally good reputation. With the implementation of the pilot network of pan-European digital systems, Natel D-GSM, at the end of 1991 (commercially introduced in 1993), PTT Telecom joined the Nordic countries as front-runners in mobile communication technology. Again, because Switzerland is the seat of so many international organisations, including the ITU (International Telecommunication Union), a global telecommunications fair took place in Switzerland in 1991. This is where the first contacts between the Swiss PTT and India and Malaysia were made.

Steps toward market liberalisation taken for the new FMG law at the beginning of the 1990s also explain why internationalisation began to develop before the market actually opened (INTCH-10). Already at the end of the 1980s, Telecom PTT had been searching for solid domestic and foreign cooperation opportunities. Since 1992, Telecom PTT has been participating as one third of the Swedish Telecom International and Unisource Alliance Services (USS) founded by PTT Netherlands, a firm specialised in data communication by satellite (Trachsel 1993: 181): *"Here there was an opportunity for cooperation with partners of comparable size, like Holland and Sweden"* (Trachsel 1993: 242). Furthermore the erosion of the core fixed-net business (including foreign and business customers) led to increasing internationalisation pressure.

Regulatory System	Sweden	Switzerland
Ownership structure	100% state owned	100% state owned
Political relationships	State neutrality State relationships with other Nordic countries	State neutrality
Political belief system	Political belief system of telecommunications as a basic unique service for everyone – good infrastructure and coverage, De facto monopoly since 1920 till late 70ies	Political belief system: High-standing infrastructure and regional equality
Formal company laws and sectoral regulation	Public private company with great autonomy for management (relative autonomous from state budget)	De jure monopoly State-owned company – bureaucratic – no autonomy
State managerial organisation of company	Televerket as regulatory authority Earlier liberalisation of the service market (1993)	Ministry of communications as regulatory authority
Governmental "belief system"	Autonomous management organisation Early government vision for mobile communications Early visions in mobile technologies	Government did not believe in mobile telephony for a long time
Internationalisation potential/strategy	Good international reputation – it was possible to be active in emerging markets Especially good knowledge of Nordic and Baltic markets and later internationalisation focus on this area Autonomous first mover in mobile technologies with indirect support from state policies Earlier pressure to go international (because of absence of subsectoral regulation and early competition)	Reputation of state neutrality and quality made internationalisation in different markets possible Laggard in mobile communications due to political belief system

Table 12 Potential for internationalisation from national institutions within the national regulatory system in the 1-2G pre-liberalisation period (Source: Author)

The national market system during the 1-2G pre-liberalisation period

The Swedish market spans over nearly 9 million inhabitants. Swedish trade and industry is characterized by a large number of multinational companies compared with most other European countries. Many of these companies have a great need for sophisticated communications solutions (INTSwe-10). In terms of penetration in residential telephone services, Sweden has been an advanced market since the late 19th century, and still is (Lindmark, et. al 2004: 16p.):

> "Anyhow, the voice services were launched in international competition in Sweden from day one, with Bell Telephone (…) This early period of infrastructure competition was successful insofar that the penetration of phones rose dramatically, actually to higher levels than US" (INTSwe-7).

Additionally the literature on the subject lists several reasons for the high penetration rates in Sweden. Sweden has traditionally been an early user of progressive technology. Technical education programs and engineering sciences are historically strong there as well. In general, there is a positive attitude toward new technologies among the populace. Thus in Swedish society, inventors and engineers have been regaled as heroes since the 19th century and have become role models for later generations (Steinbock 2003: 224). Already in 1880, Stockholm had the highest density of telephone access

worldwide (Trachsel 1993: 7); since its inception, the Swedish welfare state had been interested in securing access to telecommunication services for every citizen, since the country is relatively thinly populated and towns are far-flung. Telecommunication made it easier for the population to maintain social contact. In fact, the Swedish Telecommunication Act has long assured phone access for every household as a social right. This explains why Sweden was the country with the highest density of phones and the lowest calling fees in the 20th century (INTSwe-20). The Nordic countries had the highest rates of mobile phone **penetration**, even before the advent of liberalisation and before GSM during the NMT era. It was about 7% in Sweden in 1992, thanks to the high quality of services and low **tariff**s. Sweden's fixed subscription rates were much lower than those of the UK. Call charges were only about half of the UK's rates at this time (Edquist 2002: 168p.). As a result, all functions in the Swedish system were improved, especially those that aided the formation of markets. Thus Sweden had an advanced user market and developed distribution channels and a competititve supply industry very early (Steinbock 2003: 22). This led to the early internationalisation of other players into the Swedish context. The focus on internationalisation in the Nordic and Baltic regions has also been explained simply by the similar cultural background and the immediate proximity of the flow of knowledge and goods, as well as by a deep understanding of customer needs:

> "We have concentrated our activities in the Nordic countries and the Baltic region. The reasons for this are that we already have a strong foothold in the region, and it is a geographically well-defined area, with relatively similar linguistic and cultural conditions and a large flow of information, goods and services" (Telia AR 2000:4).

Additionally, the traditional collaboration among Nordic players even contributed to understanding customer, regulatory and market structure there. This sheds light on the first international steps of Telverket.

In terms of **competition**, Sweden was a rather advanced country, as light competition started already in the 1960s. But it was only in 1981 that Industriförvaltnings AB Kinnevik (holding company for the Swedish financier Jan Stenbeck - later Tele2) created "Comviq". Comviq used a different technology than NMT, with manual handover and roaming and because of this had only limited success at the beginning. This was also due to the fact that they provided the customer only with one kind of handset, as opposed to Televerket who gave the customer the choice between a number of handsets from different brands (Motorola, Phillips, NEC etc.) (INTSwe-7). Stenbeck had been involved in mobile telephony in the United States through its daughter company Millicom, and saw the Swedish mobile telephone market as a promising business opportunity. Televerket opposed this (with the argument that they should not be allowed to automatically connect to the telephone network). However, after an appeal, the Swedish government decided in favour of Comviq later in 1981 (Lindmark, et. al. 2004: 272). Nevertheless, Televerket had no commercial incentive to introduce GSM so early, and would probably have waited until 1995 or so before actively launching GSM, had it not been for competitive pressure by Comviq and new entrants:

> "Sweden was a special case because there never was regulation on the market and only the licences were regulated. Competition came quite early, which forced Telia to be more competitive and more market-oriented" (INTSwe-3). "Competition in the area of Mobile Telephony was a fact of life in Sweden already from day one, back in 1981. Some years before that any mobile services were opened in the US" (INTSwe-7).

Both Comviq and NordicTel launched their systems in September 1992 under the names of Comviq GSM and Europolitan, with Televerket launching in November of the same year. This is when real competition in Sweden's mobile segment began, since Televerket/Telia almost alone offered NMT (Comviq was not so successful) (INTSwe-19). Instead of two operators, which was the normal case in

Europe at the time, there were three operators on the Swedish market: Televerket/Telia, Comviq and Europolitan.

Two new entrants put a lot of internationalisation pressure on Televerket. That is why the company went early into markets that were geographically close and liberalised in Lithuania, Latvia and Estonia in 1992, and to Russia and other countries in Eastern Europe in 1993. Other markets in central Europe were still closed at this time (liberalisation only started in 1998 in most of countries). Because of their small allocative powers (small home market), Telia had to carry out its acquisitions together with the Finnish Sonera, or other players like Nordictel (competitor in its own market at the beginning). However, mostly only the acquisition of minority shares was legally possible during this time. Internationalisation potential due to NMT and GSM was extremely high, and Ericsson fully used it, but Televerket itself could not. This was also due to Televerket's national monopoly advantagages during the starting phase of Sweden's liberalisation. In the autumn of 1993, Telia Mobitel (the name was changed from Televerket Radio to Telia Mobitel on July 1, 1993) launched a new pricing package for NMT, named "NMT-Privat," thus harvesting on its successful analog NMT system and at the same time successfully competing with Comviq for private users in GSM (Lindmark, et. al. 2004: 282-290).

Compared to this, the Swiss market situation was not so different in the 1-2G pre-liberalisation period. The value of the Swiss telecommunications market (including cable TV services) was 7.666 billion Euro in 2004, placing Switzerland 10th, in decreasing order, among the countries of the European Union. Switzerland is behind Sweden (8.28 billion Euro) and Belgium/Luxembourg (8.074 billion Euro), but ahead of Austria (6.397 billion Euro) (OFCOM 2005a: 3). The most important customers in Switzerland have always been business people. Already before liberalisation, they made up 4% of customers and accounted for 40% of earnings (Trachsel 1993: 180). An analysis of these business customers shows that they mostly stem from growth segments in the economy. In absolute numbers, the most important **customers** for telecommunication services are public authorities and departments (5-6%). Similarly important are retailers and the construction industry, as well as chemical and pharmaceutical industries, machinery industries, consulting businesses, insurances and the financial, services and health sector (listed in decreasing order from 3% to 1,5%) (ICT Switzerland 2004: 7). In Switzerland, mobile communication per se began in the 1970s with NATEL A, in cooperation with car dealerships. This involved activity in a high price segment, and therefore NATEL became a specific brand in itself as a national car phone The monopolist provider was able to build a strong relationship with the customer by way of traditionally reliable and outstanding standards in the network infrastructure, which included optimal coverage (even in rural areas). Furthermore, already in the monopoly period, the population could take pride in and profit from such innovations as the prepaid card. However, during the analog era, market penetration with mobile communication products was relatively modest in Switzerland (INTCH-10). Though the Nordic mobile communication standard NMT was adopted, and in theory could have allowed roaming with the Nordic countries, it was only of interest for a few business and private telecommunication customers because of its high price level and limited functionality (INTCH-10; INTCH-17). In the areas of infrastructure and education, Switzerland is a progressive country and is internationally known for its solid and highly innovative fine-mechanics industries (e.g., machinery, watch-making in the Jura region, the pharmaceutical industry in Basel) as well as for its high-quality banking services (Geneva and Zurich). Already during the monopoly period, because of its economic situation and unique characteristics, Switzerland was technologically equipped with an extremely reliable, high-standing global **network infrastructure** (INTCH-8). It has four national languages (German, Italian, French and Rhaeto-Romanic), a high per

capita income and an internationally integrated economy with a high degree of traffic in international information services (INTCH-7). In addition, the multilingualism leads to higher advertising expenses. Already at the beginning of the liberalisation period, Swisscom had many roaming contracts as well as higher mobile-communication penetration than in Germany or the UK, with 15% in 1997 (Swisscom AR 1997: 14). Politically, Switzerland is characterised by international neutrality and direct democracy. This allows a good relationship with its neighbouring countries. The federalist system there is strongly developed, and numerous cantonal particularities must be kept in mind in daily business activities (INTCH-4; INTCH-6). As in other countries, the PTT Telecom's traditional relationship with its customers was originally characterised by lop-sided power structures in favor of the operator. But business customers began to make international comparisons at the beginning of the 1980s, especially for voice telecommunication services, and this exerted enormous pressure on regulatory authorities to liberalise further. Already in 1974, business customers formed the company association "ASUT" (Association Suisse Dûsage de Telecommunications) to ptotect their interests:

> "No more patience! The subscribers see themselves obliged to present their worries and concerns to the executives of the PTT. (…) Since they are not responsive toward individual subscribers, it is necessary to act cooperatively. There are enough companions in misfortune [thus] the ASUT is being created!" (Trachsel 1993: 294).

The ASUT pamphlets characterised the PTT as an "ivory tower," far removed from customer contact and services, whose only goal was to set prices high enough to recoup its expensive investments in the mountain areas. Regional and socially motivated goals affected PTT staff decisions for a long time. At the beginning of the 1980s, PTT Telecom made its first efforts to examine how to become a more customer-friendly organisation (INTCH-13). Furthermore, the first mobile communication frequencies were assigned to Telecom PTT in 1978 based on their monopoly position (national de jure monopoly since the Telecommunication Act of 1922). In 1997, as part of the process of market liberalisation, the authorities responsible called for bids for further frequencies. Before that there had been no competition in the area of telecom services. Commercial mobile communication hadn't begun in Switzerland until 1986, with the introduction of NATEL C. However, experimental pioneer networks had existed in the 1960s. The first commercial analog mobile phone system was modelled after the Swedish Nordic Mobile Telephone System, NMT 900. Thus it was possible to call internationally by mobile (roaming) with Scandinavia (Denmark, Sweden, Norway and Finland) and the Netherlands relatively early. In contrast to NATEL A and B, the analog C network offered a series of additional services, such as call forwarding and blocking. By the end of that year 1986 16,000 customers were in the network (Swisscom Mobile 2004). However, **tariff structures** were totally different from those in Sweden, as the Swiss state did not view mobile telephony as a core service and but more as a niche market, where high tariff structures would be no problem. Comparing prices on the basis of exchange rates show that until 1996, Switzerland held the last position in monthly mobile communication expenditures for private telecommunication customers in Europe. Switzerland's fees were clearly above the EU-average (Vaterlaus, et al. 2003: 79). Comparing prices on the basis of purchasing power parities, Switzerland's international position today is improving drastically. However, though Switzerland now occupies position 9, its average monthly expenditures for mobile communication services for private telecommunication customers still over the EU-average (Elixmann/Schwab 2003: 60). However, the pressure to **liberalise the market** and to be more market-oriented in Switzerland clearly came from business clients who wanted more flexible services and international roaming possibilities. The competition among operators thus began, and the Swiss PTT did not want to lose their valuable customer segments; they therefore had to enter into international alliances like

Unisource. Their relative cultural proximity induced TeliaSonera to cooperate with the Swiss PTT in the Unisource Alliance at the beginning of the 1990s:

> "We started this alliance and also took the Swiss in, because they had quite similar problems like we had (…) with a small home-market, political neutrality and so on (...)" (INTSwe-16b).

Switzerland already had good relations with Sweden through Ericsson, who's NMT they had implemented, and this expanded through the Unisource Alliance and their common participation and infrastructure build-up in Hungary and the Czech Republic. Thus Swisscom mainly followed the international industry trend with this strategy. Sweden was an international leader in the analog era, also in national market-system institutions. Superior national institutions in the market system contributed to early internationalisation potential in Sweden again.

Market System	Sweden	Switzerland
Tariff structures	Low tariff structures	High tariff structures
Penetration rate	High penetration with analog mobile technologies - mass market already in NMT times; early take-off of GSM at the beginning of the 90s	Low penetration – mobile telephony as niche market
Market access	Early competition at the beginning of the 90s	No competition in the service segment
Quality of services	Demand-oriented creation of services	Little demand orientation
Customer habits	Good knowledge of Nordic and Baltic customer	
Monopolistic advantages	Monopolistic advantages due to NMT	
Internationalisation potential/strategy	First mover in commercialising analog services in the Nordics and Baltics – success in early internationalisation projects as well Early internationalisation pressure due to competition Expertise in NMT and GSM - build-up of infrastructure worldwide	Low internationalisation pressure

Table 13 Potential for internationalisation from national institutions within the national market system in the 1-2G pre-liberalisation period (Source: Author)

The national corporate governance system during the 1-2G pre-liberalisation period

Additionally, the corporate governance system in Sweden as well as the organisational structure of the company during this time contributed to the international lead function of Televerket. By the 1970s, when mobile technology emerged in Sweden, Televerket was still organised as a public enterprise under the supervision of the Ministry of Transport and Communications. Thus an effective management had to be established, as the company was not a de jure monopoly. However, the management of Telverket was quite autonomous from state decisions. That is why an early entrepreneurial spirit emerged in the company and spread through the mobile sector in particular:

> "Those enterprises like Televerkehrt had a lot of money, but also a lot of freedom to develop new things (…) And that was the pride for which the people in those organisations worked. So there was some kind of entrepreneurial spirit. Also, it was not coupled with any real economic incentives" (INTSwe-15). "NMT and mobile were quite new (…) they were kind of very progressive. (…) to be honest, that is one question I have not been able to answer myself - where this drive to create new technologies came from. I think this was just a matter of certain

> individuals who were very technology-oriented and just had this vision. They just had their passion to find new things" (INTSwe-13).

The educational system in Sweden favoured technology-oriented engineering careers in Televerket. **Organisation**ally, Televerket had been dominated by civil servants and engineers, generating a genuine **engineering culture** with a strong technological focus (INTSwe-7). A factor contributing to this culture was the tradition of educating in-house staff through the "school of telecom" (Teleskolan). Educational facilities included both general introductory courses for non-skilled workers as well as higher-degree engineering studies. Consequently, not too many university graduates were employed in Televerket during the period in question, a situation that did not change until the 1980s and 1990s. In this respect, it is worth noting that Televerket's practice was similar to that of large Japanese corporations. In Televerket, this practice was maintained for many years and had a great impact on the character of the organisation and company culture (Hauknes/Smith 2001: 10). Additionally, during the 1960s and 1970s, Televerket went through a series of comprehensive restructuring campaigns aimed at rationalising the organisation. The first was the wholly owned subsidiary Swedish Telecommunication Consulting AB (Swedtel) in 1968, and then ELLEMTEL was established together with LM Ericsson in 1970. Swedtel was an international consulting company, which brought a lot of international expertise into the mother company. It provided special training and education that other international telecom companies sent their employees to as well (INTSwe-4). Both Swedtel and ELLEMTEL helped to market NMT worldwide. This also added a lot of international expertise to the company (INTSwe-3). Additionally, the danger of competition led to an early market orientation in the Televerket organisation. For example, in 1971 the first market-oriented matrix organisation appeared, with tele-regions and marketing functions. Swedtel, the international consulting organisation, also appeared really early in 1968. Later, an international training centre was established out of the Swedtel experience. This indicates there was a lot of international expertise in Televerket already in the analog times. The director general during this time (1977) was Tony Hagström, who himself actively lobbied for further liberalisation and market orientation (Hauknes/Smith 2001: 11). Televerket management already had vision regarding the convergence of computer and mobile technologies in the 1980s (INTSwe-16a).

Thus the national corporate governance system also contributed to early internationalisation strategies with consulting businesses all around the world. There has always been a solid understanding of Nordic cultures in Sweden, and that is why later the internationalisation into Nordic and Baltic countries followed. Thus, widespread technological development, hand in hand with the liberalisation of telecom regulations, characterised the period between 1980 and 1993 in Sweden. Additionally, under the leadership of Tony Hagström, the first international contacts also arose. The first alliance, Unisource, resulted out of an informal relationship of Nordic CEOs who shared a common business understanding at the time.

> "If you look at the evolution of Unisource from a different perspective, Televerket or Telia as it then became had understood the concept of competition quite clearly. And in discussions with first KPN, there was an understanding between the two CEOs at the time (…) There was a similarity in how they saw the world. (…) their view there was that a number of alliances would stell the future. And they wanted to make the first step" (…)."We did not feel so far apart from their cultural system also. So there was a good basis for understanding" (INTSwe-16b).

Thus Televerket's management could experience learning effects from the internationalisation of mobile services before the Swiss PTT could.

A law from 1907 formed the Swiss PTT's legal-organisational basis, which was reformed in 1961 and 1969 (Trachsel 1993: 204). As an executive organ with 15 members, the PTT's board of directors exercised a comprehensive oversight over all PTT companies. The board determined business policy guidelines to be followed by the head office, as far as these were not yet determined by law by the Federal Council (Trachsel 1993: 206). Because of this, PTT Telecom strongly depended on politics and **political interests** (INTCH-8). Thus **Swiss management** during the analog times was characterised by civil servants who were very bureaucratically organised. Before introduction of the 1992 FMG law, company philosophy and values were determined by the goals of investment recovery, by regional endeavours and by social concerns for high-value and full coverage (Trachsel 1993). High infra-structural expenses in the mountainous areas were supposed to be covered by revenues from the international and business-customer segment, which in international comparison were in the high-end echelon. But prices dropped with the opening of the first markets on an international level, and this led the Swiss PTT to increase its focus on customer service and internationalisation (INTCH-8). The influence of unions as employee representatives in the process of reorganisation was more limited in Switzerland than in Germany (INTCH-1). For the first time, emphasis was placed on the leadership level, and this led to the first formulation of a company strategy in 1990. A central element in this was management by objectives. All organisational units were structured as profit centres in order to create more flexibility and capability to react to customer needs and to keep abreast of international competition. The mobile section of the Swiss PTT was created during this time of change, and that is why there was a more entrepreneurial spirit there than in the fixed-line services. In the mobile section, under Walter Heutschi (**CEO** section Mobile in Switzerland: 1992-1999), the first industry vision appeared at the end of the 1980s (INTCH-12):

> "This came from our understanding of entrepreneurship. (…) Swisscom Mobile for a long time was the leader in the quality of new inventions. We introduced prepaid worldwide as well as the double MC. There were studies done and even a whole book written about Swisscom Mobile because we always had the craziest ideas internationally, offered wild things here and were also on the board of GSM A. Toni Stadelman represented us on the board. I was a member of the legal committee at the time, and so we were able to substantially influence the by-laws, which were fully based on Swiss law. We got them to function according to Swiss law even though they have their seat in London. And I wrote the first roaming contracts myself. We didn't yet know what that meant exactly, so we sat down together and said, boys, what is this all about? [We were] the first ones worldwide. I must say we were very ingenious and it was a totally exciting and fantastic time. We were thinking like entrepreneurs, and wherever there was something to earn, we wanted to get into it. Swiss Telecom's mobile department was one of the driving forces in world innovation. But we were not alone" (INTCH-12).

All in all during the analog times, mobile telephony was just a niche business in Switzerland and market orientation was low. The trend toward globalisation and international cooperation then led to further changes in the direction of traditional PTT policy. Already in the early 1990s, PTT's management demanded broader autonomy and independence from politics (Trachsel 1993: 220). This meant that there was a clear shift in the belief system of the company as well as among the political actors toward more market-oriented values like efficiency, cost control and competitiveness. This resulted in further organisational changes within Telecom PTT during the monopoly era. The first extended data services were liberalised, thereby creating awareness of a new market- and customer-oriented company policy. Due to pressure from business customers and based on the example of other already liberalised markets, management seized the opportunity to enter international technical bodies (GSM A) and dared the first attempts at internationalisation.

This included the expansion of the Swiss PTT toward Eastern Europe and Asia as well as its participation in the Unisource Alliance. The new regulatory regime was practically the starting signal of these leading changes within the monopoly company, arising out of fear and uncertainty over the new competition (expressed, for example, in the formation of international or marketing divisions). There was a clear intention to be prepared as best as possible for the market opening in 1998 and to take advantage of its international opportunities (INTCH-8). However, compared to Swedish management, there was almost no expertise in internationalisation.

Thus international business was generated through the informal contacts of the Swiss PTT management (INTCH-10):

> "For countries which are further away, international fairs are a good opportunity to create these contacts. It is hardly possible, I would say, to start a business by flying to New Delhi, [entering] a ministry and asking what one can do. First you need people from there and then you have to establish trusting relationships. We acquired India like this and also Malaysia, by way of contacts at a fair in Geneva" (INTCH-8). "Many internationalisation strategies took off through such contacts. Investment in Venezuela happened more or less with a handshake; India also, as well as Malaysia. One made contracts (…) but it was clear that it was also initiated by personal connections" (INTCH-12).

However, much was also undertaken on the advice of external international consultants and by following lead-player strategies as well as the opinions of ranking branch experts (e.g., financial analysts):

> "If a board of directors or a CEO is over-taxed with duties, which was clearly the case during this time, then it is clear that help is needed. Then consultants come and offer a concept of some strategy they have already given to ten others. Everybody gets the same strategy, which is great. They advise ten companies and tell all ten the same thing" (INTCH-12).

This also led to the Unisource Alliance with Nordic countries, Sweden and Holland, which helped the Swiss PTT implement NMT and later GSM infrastructure. As the countries had common problems, they entered into the Unisource Alliance together and later on into minority investments in Eastern Europe. In this case, both the Swedish as well as the Swiss followed the international industry trend to engage in such an alliance, but the organisation was related to relational capital and learning effects with international partners.

Corporate Governance System	Sweden	Switzerland
Management power	Autonomous management	Management dependent on government vision
Management characteristics	Management team with vision: Tony Hagström Management team itself lobbied for the liberalisation of the market Highly entrepreneurial spirit in the management of those times	The mobile section under Walter Heutschi more innovative and also entrepreneurial after later-stage organisational re-structuring
Company cultures (values etc.)	Internal belief system: demand- and technology-driven Engineering culture with strong technological focus in Televerket tradition of educating in-house ("school of telecom") in Televerket/Telia	Internal belief system: Implement state goals and mobile section, a little technology driven
Informal contacts	Good contacts with other Nordic operators and vendors	International contacts in the communities of practice
Internationalisation potential/strategy	Internationalisation into other Nordic countries Good international reputation - consulting services Early international expertise - Swedtel	Internationalisation possibilities due to contacts on the micro-level of management (India, Malaysia; Unisource)

Table 14 Potential for internationalisation from national institutions within the national corporate governance system in the 1-2G pre-liberalisation period (Source: Author)

Conclusion – Internationalisation in the 1-2G pre-liberalisation period

It has been shown that international industry-segment-specific trends arising from international institutions within the market and investment sectors led to similar internationalisation trends, like the Unisource Alliance and minority investment in emerging markets in Asia and Eastern Europe, during the 1-2G pre-liberalisation period. On the other hand, an understanding of the national-institutional differences within the market, regulatory, technological and corporate governance systems can contribute to understanding the divergent internationalisation strategies of the Swiss PTT and Swedish Televerket during this period. It is mainly Telia's worldwide consulting business (that is, its superior expertise in the field of NMT) and its early international focus on the Nordic and Baltic areas that differentiated Telia from Swisscom`s internationalisation strategy during this time. Swisscom mainly followed the international industry trend of minority investment in emerging markets and entry into an international alliance like Unisource, as mentioned above. Thus Switzerland was in a beginning laggard position then and mainly imitated opinion leaders' strategies, while Sweden was among the international lead players:

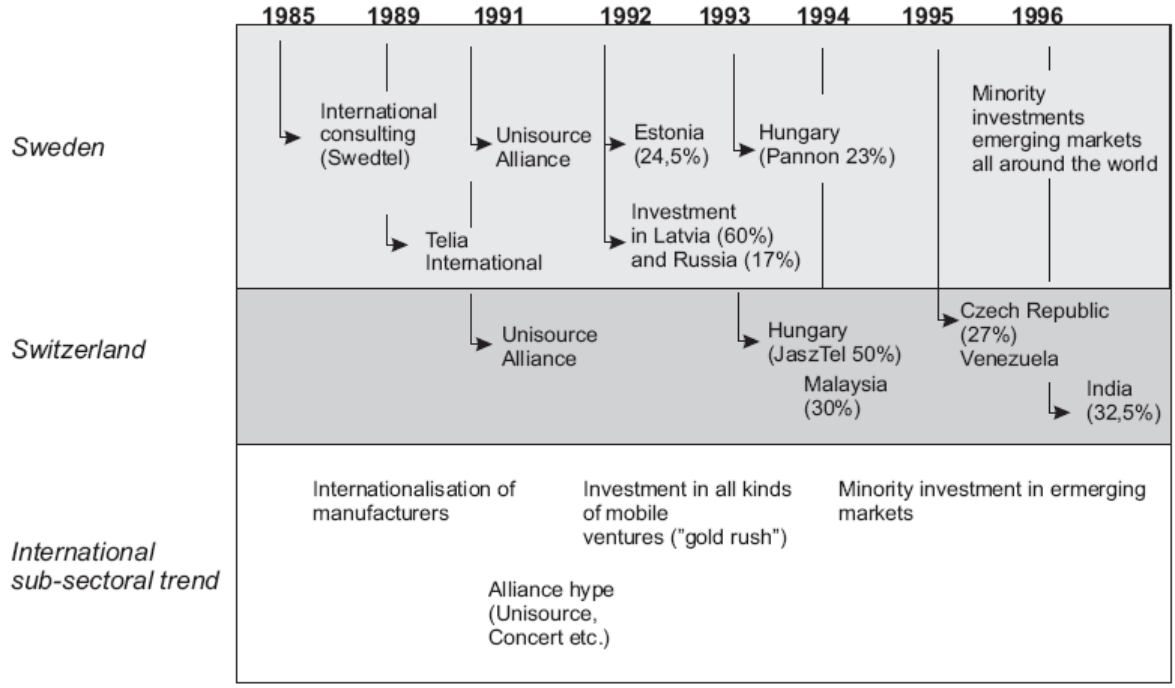


Figure 13 Internationalisation strategies in the 1-2G pre-liberalisation period in Switzerland and Sweden (Source: Author)

The early divergence of internationalisation strategies in Sweden and Switzerland can be traced back to early differences in national-institutional settings within the systems mentioned. The most important institutional drivers of these differences were as follows:

- Within the national technological system, mainly superior capabilities build up in house (through a special engineering culture and educational system) in Televerket and later also the supplier industry (see: Ericsson) contributed to first mover advantages in the field of mobile technologies (NMT; AXE-Switch). The development of NMT was also due to early collaboration with other Nordic players. However this collaboration was dominated by Televerket. Later a fruitful user-producer interaction between Televerket/Telia and Ericsson followed in the joint company Ellemtel (AXE switch). Out of this superior national institutional setting, a leader position in standard-setting in NMT and GSM emerged, which led to early, superior internationalisation potential in the field of mobile infrastructure build-up all around the world. This led to a first-mover position in international consulting services for Televerket as well (see: Swedtel).
- This was supported by formal and informal national institutions in the national regulatory and market environments as well (see: low tariff structures; light regulation), which led to early internationalisation pressure and international possibilities.
- In the corporate governance system, the high autonomy of management as well as the entrepreneurial and visionary character of the Televerket managers, like Tony Hagström, etc., are central. They influenced the whole company culture with their early international market vision. Also the engineering culture and in-house educational system which brought up important technological (Telescolan) and managerial knowledge (in the field of internationalisation due to a working unit and training center with the topic on international management in Swedtel) during this time was important in Sweden.
- As Switzerland did not have such superior national institutions during the 1-2G pre-liberalisation times, they were laggards in the field of company internationalisation and mainly followed the international industry trends, highlighted by opinion leaders (lead players, consultants, financial analysts). They imitated lead players as well as scenarios highlighted by international opinion leaders, like the financial investment community (see: the internationalisation into Asia).
- Even though Switzerland had a lot of potential in superior market institutions (quality, high- value customers) as well as entrepreneurial people (such as Walter Heutschi), the management of the Swiss

PTT was not able transform this potential into sustainable, endogenous, international activity during this time. This is because the regulatory system (especially state representatives, who did not believe in mobile technologies for a long time) put a lot of restrictions on the company, and broader international expertise was lacking in the management team.

- Finally, timing is very important, as in national institutional path dependencies, since these developments took place in Sweden several years before (early competition; build up of in house capabilities). This led to first-mover advantages as well as early learning effects from inter-nationalisation and international contacts. It also resulted in the diffusion of national Swedish institutions on the international sectoral level (NMT, GSM).
- However, first-path dependent aspects, in the form of formal and informal management contacts from former international friendships, also had an effect on the internationalisation performances of both countries (Unisource; Hungary).

Altogether, differences in the internationalisation performances of both companies during the first internationalisation phase (1-2G pre-liberalisation time) was highly influenced by the co-evolution of the companies with national institutions within the mentioned systems. Switzerland, however, due to a lack of superior national institutions (e.g., no internationalisation experience and slow national regulation) could not make use of its endogenous internationalisation potential (high-quality customers, good international reputation, innovative potential in GSM A), while Sweden could (global consulting, early expansion and focusing on Nordics and Baltics). The Swiss PTT was instead forced to imitate an international industry-segment-specific trend (Unisource, Asia, Eastern Europe).

5.2 Corporate internationalisation in the 2G boom period (approx. 1995-2001): an institutional perspective

5.2.1 Sub-sectoral internationalisation trends out of similar international institutional influences

The international technological system during the 2G boom period

Amid the 2G transition, wireless revenues were still marginal and ancillary to most telecom giants, which focused on corporate markets and high-end consumer markets. It was recognised that with the increasing competition that followed liberalisation of the markets, research and development became a very costly affair and could no longer take place in an ivory tower. On the other hand, producers of end devices had already acquired certain **R&D skills** during the monopoly era, and they later used these skills in the period of mass markets. The technological basis of knowledge was transferred from the former monopoly company to the producer (Fransman 2002: 219p.). While operators dominated the relationship throughout the monopoly stage, competitive vendors (manufacturers) captured the bargaining **power** after the great transition. This led to the early liberalisation of the infrastructure markets. At the beginning it was particularly the manufacturers that internationalised very early. With new technologies came new policies and strategies, which subjected the entire value system to transformational industry forces (INTSwe-18). The former monopoly enterprises now saw their core competencies above all in services, marketing and controlling (INTCH-11).

> "(…) since all of the network operators are very dependent on specialist technology suppliers, much of their learning takes the form of learning to use, rather than learning to produce, technology" (Fransman 2002: 51).

Thus to a large extent, operators sourced out their technology needs to specialised suppliers. After liberalisation, this facilitated the entry of new service providers who no longer had to trouble themselves with acquiring technological knowledge. This also led to an increasing role for financial

markets (Fransman 2002: 54). Without financial sources and without a widely liberalised financial market, new actors could never have entered this investment-intense sector. The new technological- and service-actors' enormous growth rates were predicted by the financial-analyst community, which helped them to attract investors (Fransman 2002: 55-59).

In terms of **technological standards**, TDMA dominated the 2G digital cellular business with three different versions: North American TDMA or D-AMPS, European TDMA (GSM) and Japanese TDMA (PDC/PHS). GSM permitted Europeans to catch up and win in the 2G era, which for now remains the leading cellular technology. By the mid-1980s, the success of the Nordic NMT encouraged the EC's efforts to break up the old European PTTs to make room for more nationally competitive telecom industries and to strengthen these businesses region-wide (INTSwe-2). The rise of digital cellular technology coincided with new public policies, but rested on the EC decision to promote competition while making GSM mandatory in Europe. These directives exploited wireless technology to crack down on the old European monopoly PTTs, even as they unified the fragmented market. This development path was based on US lessons (America's unitary AMPS standard), but employed different instruments to bring about change (mandatory standards to create markets rather than innovation-driven markets to make standards). The ensuing political directives solidified the expansion of the Nordic vendors and gave rise to a new generation of network operators, which were more entrepreneurial and internationally oriented. For many laggards, developments took longer, ending only around 1998 (the EC deadline for telecom reforms); these were primarily large-country PTTs (Steinbock 2003: 221). In contrast to large-country vendors, which operated in lucrative high-volume markets, small-country vendors coped with low-profit and small-volume markets. The more competitive they were, the greater their incentive to internationalise. For example, Ericsson first internationalised in telecom equipment markets at the turn of the 19th century, while Nokia reached a comparable point in the late 1980s, when it had to quickly internationalise to keep up with its rivals. To large-country vendors, foreign markets represented an incremental addition to core profit flows. To small-country vendors, these markets were the core profit flows. These companies could survive through scope only. For them, success in foreign markets was a matter of life or death. As a result, small-country vendors were the first to take advantage of global leverage in infrastructure equipment and handsets. In terms of wireless clusters worldwide, the Nordic region came up with winning operations, products, and internationalisation during the 2G era (INTSwe-16b). The globalization of activities enabled greater efficiency and higher volume, which compensated for rising R&D expenditures worldwide, and the need for increasing responsiveness within country markets. By 2001 all major equipment manufacturers had been totally globalised. However, significant differences existed among them. Whereas Motorola garnered 52% of its revenues from foreign markets, Ericsson and Nokia made more than 97-98% of their revenues in overseas markets (Steinbock 2003: 224):

> "To paraphrase Orwell's Animal Farm, all of these vendors were global, but the Nordic vendors were more global than others" (Steinbock 2003: 224).

Thus one of the trends stemming from the sub-sector's technological system requirements during the mid-to-late 1990s was the total internationalisation and globalisation of equipment manufacturers. This led to international purchasing alliances with lead manufacturers like Motorola, Nokia and Ericsson and to internationalisation into lead markets in the Nordic countries during this time.

New network-operating competitors broke the monopolistic structures and increased competition by using **foreign producers**, who in turn reacted to the new opportunities with direct investments. This liberalisation was needed since it opened up access to international markets, which was necessary to offset the enormous costs of developing new telecommunication systems. At the time, the new

network operators particularly searched for producers who did not yet serve the established phone companies. They could gain an advantage over the former monopolists only through innovative technology and services developed in close cooperation with the producer. In the US, for example, MCI, the first competitor, entered a close partnership with Nortel. In Germany, Ericsson und Nokia settled in after they became main providers for the new private mobile network operator (Beise 1999: 125 see also: INTSwe-5; INTCH-8; INTCH-11; INTCH-14).

Additionally, different technological standards produced internationalisation trends. One of these was the opening of markets to internationalise in the same standard area. In Japan, for example, government power helped create a standard based on a proprietary system developed by the national carrier NTT, thereby deterring other countries and showing no potential to become a global standard. In Japan, then, competition intensified as the number of carriers began to proliferate. Yet the old monopoly structure proved relatively strong. Foreign players, including Motorola as well as Vodafone, struggled to access the Japanese market but were seldom successful. One reason was that NTT had launched a proprietary digital standard, but was confined to the national market. Additionally, because of regulatory obstacles, NTT itself could not internationalise (Steinbock 2003: 222). In the US, development of standards in the 2G era were based on power shifting from the government to competing service providers and manufacturers, thus creating a range of standards which outsiders would not adopt due to uncertainty about the future trajectories of these systems (Hess/Coe 2006). On the contrary, the success of GSM was based not only on the balance of power between the actors and the willingness to cooperate in Europe, but also on the openness of the standard, which allowed other interested parties to participate (internationalise). In this case, European operators found it easier to internationalise because of more options (more countries with the same standard requirements).

Thus, technology standards as international formal institutions definitely influenced the internationalisation strategies of the former monopoly incumbents. Furthermore, besides standard-based internationalisation and international purchasing alliances, the internationalisation trend to engage in emerging markets and to build up technological competences there continued during the 2G era. Also, the scanning of 2G lead markets (Nordic countries) was a leading internationalisation trend in mobile communications in the international technological sub-system during this time.

The international regulatory system during the 2G boom period

One of the most important trends in the telecommunication sector in recent decades has been the break-up of the European PTT system and **introduction of competition**. A number of terms, often vaguely defined, have come to signify this change process, e.g., de-regulation, privatisation and liberalisation (Lindmark, et al. 2004: 80pp.). The driving forces of liberalisation were a number of technological, political and economic factors interacting in a complex co-evolutive manner (Noam 1992: 44-45 see: figure 14)[22].

[22] For further information on the different driving forces, see Karlsson 1998.

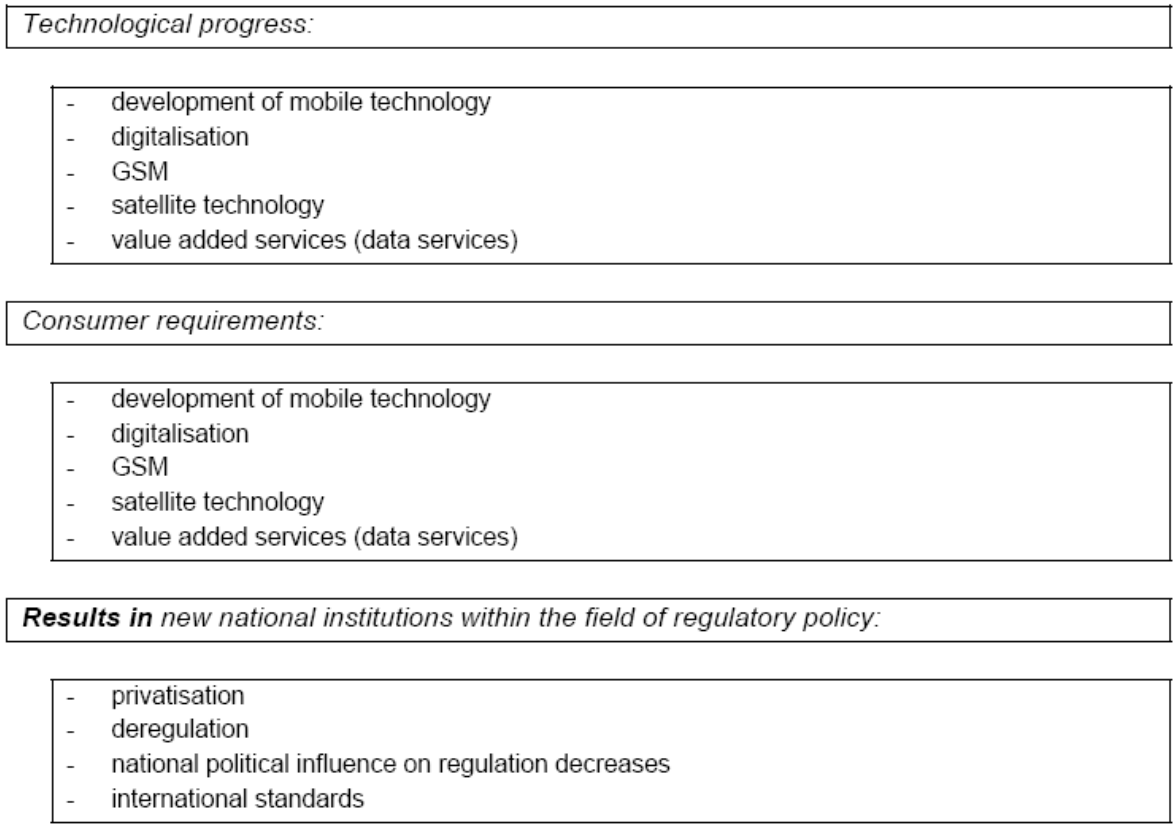


Figure 14 Major driving forces of re-regulation in telecommunications (Source: Author)

Weber (1999: 9) mentions that liberalisation describes an economic, market-oriented process as compared to **deregulation** and privatisation, which have a more judicial character. Regulation is usually taken to mean governmental control or restriction of private economic activity. Deregulation is then the process of reducing that control, e.g., by lowering entry barriers and by reducing government involvement (Lindmark, et. al. 2004: 80pp.). The term liberalisation is frequently used generically to describe deregulation and privatisation. In fact, deregulation is a concrete instrument within the liberalisation process and represents a process of striving for more competitive markets through the reduction of state regulations (Abegg 2005). Important concepts and processes in telecommunication re-regulation include: (1) the corporatisation of PTTs into publicly held companies, (2) their subsequent **privatisation**, meaning that the government divested parts of its shares to private investors, and (3) the separation and establishment of a regulatory authority (Lindmark, et al. 2004: 80 pp.). One especially famous instrument to make the former PTTs more competitive was privatisation (INTSwe-2). In general, liberalisation has been executed following similar patterns in the industrial segments of all countries. The opening of markets, for example, began with end-devices and was later expanded to value-added services and language services (INTCH-1). The development of changes in the regulatory area also followed a similar direction in all countries, and was partially promoted by certain nations and large regions (US, Great Britain), based on their early liberalisation and deregulation. This put pressure on other nations (INTCH-8; INTCH-22). In the US, competition evolved more quickly than in the triad nations for two reasons. First, AT&T was organized as a private-sector corporation under public oversight, whereas the national PTTs of Western Europe and Japan were typically public-sector entities (INTSwe-1). Secondly, in the US, regulatory powers were separated for 40 to 50 years before similar measures were taken in many other triad countries, where national PTTs enjoyed a natural monopoly and regulatory power well into the 1980s and 1990s

(Paterna 1996: 95). In the US, the break-up of the Bell System took place in 1984. It resulted in distinct local and wireless services and intensified the erosion of AT&T's market power in long distance. A year later, NTT was privatised in Japan. Despite privatisation and de-regulation, NTT DoCoMo continued to control more than 50% of the wireless market in Japan at the beginning of 2002. The Thatcher government privatised British Telecommunications as early as 1981. Nordic countries initiated de-regulation in the early 1980s. In Finland, for instance, vendors had competed for decades before the legal aspects of de-regulation were codified in other EC countries in 1987 (Steinbock 2003; Paterna 1996 see also: INTSwe-21)[23]. Under governments that opted for a piecemeal approach (other big European countries), privatization took years longer.

Besides political liberalisation and **re-regulation**, hot topics in the field of regulation during the 2G boom period (at the end of the 1990s after the liberalisation process) were national roaming, interconnection and licensing (INTSwe-19; INTCH-6). To some extent, these issues are traceable to the conflicts between regulators and competition-policy authorities. For instance, the idea of inter-country roaming came about naturally in northern Europe, where Nordic countries, with their similar cultures, promoted open exchange of capital, products, services, and ideas. However, these challenges also took place differently around the world. For example, roaming proved an extraordinary policy challenge in the US. In addition, America's wireless leadership has suffered from longstanding and unique spectrum issues (INTSwe-19). That is because unlike broadcasting in Western Europe and Japan, American broadcasters have not been heavily regulated, and broadcast interests have dominated large chunks of spectrum. The success of US networks has contributed to deficits in the US spectrum policy, as far as wireless interests are concerned. Moreover, America's military interests have played a substantial role in the nation's spectrum policy. These constraints have been almost nonexistent in Western Europe and Japan. Coupled with the post-war catch-up, these drivers - diffusion of wireless R&D, flaws in regulatory policies and limited spectrum allocations - all contributed to the erosion of US wireless leadership after the early analog cellular era (Steinbock 2003). As a result digitalization arrived very late in the US, where AT&T's new pricing policy in 1998 had provided a powerful boost in the marketplace. Developments trailed those of the leading Euro-Nordic country markets by almost four years. However, the lucrative home base and late digitalisation suppressed the globalization of US-based operators amidst the 3G transition. In Europe, according to the regulatory systems perspective, the 2G boom period was a time of further professionalisation and internationalisation among organisations in the field of telecommunications. European telecommunication policies are characterised by the interplay between EU and national policies. Hence the EU Greenbook of 1987, for example, influenced the postal-structure reform in many countries, like Germany, thus leading others to adopt these reforms. In 1988, the European Commission passed guidelines for the liberalisation of the market for end devices. In July 1992, the EC guidelines for the EC-wide market opening of data services and value-added services (service guidelines) and for the opening of network access (Open Network Provision) were adopted, and they were put into force in 1993 (Paterna 1996: 116pp.). Besides the global ITU, the ETSI, a European standard-setting body (former CEPT), was established, and European legislation was given increasing power over national legislation[24]. The

[23] For more detailed information on the liberalisation and re-regulation process worldwide, see: Steinbock 2003, Paterna 1996 and Karlsson 1998 as well as Lindmark, et al. 2004.

[24] International concerted efforts, e.g. in the ITU, were characterized by a laissez faire approach, weak influence on liberalization and a weakening influence on standardization. The legitimacy of the ITU was questioned in the late 1980s, which led to a fundamental re-organization in 1993. Other organizations, such as GATT, also challenged the regime, trying to define international telecommunications as trade in services. In Europe, CEPT was broken up; standardization activities moved to ETSI and operators' activities to ETNO (European Telecommunications Network Operators). Only regulatory affairs remained in CEPT, recently dominated by the EU (Karlsson 1998: 40). For further information on the development of international standard authorities see: Steinbock 2003.

liberalisation of all country markets in Europe until 1998 had been a binding proposition (INTSwe-12). This meant, for example, that competition would be permitted in public telecom voice service and on the network level, a situation that in 1995 existed in Europe only in Great Britain, Sweden and Finland (Paterna 1996: 116pp.). Also, European interconnection methods were established as well as ex-ante legislation among all countries. In the EU, however, the power within those regulative processes remained among the bigger countries, which still favoured their national champions' interests, such as in the case of German Telecom. Nevertheless, the national environment became more and more competitive due to co-evolutive **learning effects** on the part of regulators and new competitors, both nationally and internationally (INTSwe-12; INTSwe-14). To sum up the development of international regulatory systems, in keeping with Karlsson (1998:40) one can identify three different groups of countries: (1) the US, the UK, and Japan, which advocated and implemented radical regime reforms (it could be claimed that Sweden and in particular New Zealand later adopted this strategy); (2) continental Europe, with a cautious path to reform, mainly pushed by the European Commission, and (3) developing countries, initially very conservative, although with an increasing interest in liberalisation.

Out of these political, sectoral trends, an immense pressure arose for all former monopoly incumbents to go international in order to compensate for domestic market losses caused by new entries (for aspects of liberalisation, see also the next chapter). This was a general industry trend during the 2G boom period. The international targets were the countries that opened up their markets first, such as Great Britain and the US, but also the Eastern European countries and the Nordic countries. However, market entry itself was also highly restricted by regulation at the beginning, which allowed the possibility of only getting minority shares in incumbents in some countries. Additionally, most western European markets opened up rather slowly (at the end of the 1990s), and that made market entrance difficult thereafter, due to the superior monopolistic advantages of the incumbent. At the same time, national regulation was slowly eroded by international regulative aspects. This was especially true for operators in Europe (INTSwe-16a). That meant a beginning internationalisation of regulatory rules, which led to common industry trends based on a similar regulative area. This was true for the EU in the fields of interconnection rules (same interconnection method), pricing and roaming, as well as ex ante regulatory decisions, which were implemented from 1998 onwards. Also, internationalisation into a well known regulatory environment is easier than into a totally new regulatory environment, which could be fraught with insecurities, as in emerging Asian markets. In addition, standard-setting is a regulatory function now, and it influences the internationalisation of companies, because an operator may internationalise more easily into his "home standard area" (INTSwe-17; INTSwe-21).

Additionally, there was also an initial privatisation during this time, which was an important regulatory trend influencing internationalisation strategies. But this aspect will be further elaborated in the section about corporate governance in the 2G boom period (see page: 143).

The international market system during the 2G boom period

Another characteristic of the 2G boom period was the **liberalisation** of former national markets. The term liberalisation refers to a process of increased freedom often achieved through the removal of restrictions. In economic theory, this concept has come to signify a shift in market structure toward intensified competition (Lindmark, et al. 2004: 80pp.). This means that the **market structure** receives new actors on the supply end as well as on the demand side. From the point of view of the network operators, liberalisation led to the differentiation of two groups among consumers during the digital

boom era: mobile phone customers and service providers, or MVNO. One cannot speak of market transparency in this context. Conceptions about customer value had been underdeveloped during the monopoly period. Up to the mid-1990s, the market power of end consumers was very limited. There were only simple service offers like voice or simple data services such as SMS. However, already at the beginning of the competition era, the quality of offers and customer services was an important tool for companies to distinguish themselves with customers. Service providers (SP), the so-called MVNO, assumed a different position than that of net-capacity user. Based on the requested volume, they could exert pressure on the network operator and demand lower prices and improved terms. But they remained strongly dependent on the network operators, because no provider could afford not to have a network offer. Eventually the revenue was not satisfactory, especially in small markets, and the number of competitors, particularly service providers, strongly decreased (INTCH-2; INTCH-13). With this competition in the 2G boom period, the logic of co-evolution shifted from the upstream side of the value system (manufacturing, technology innovation in the field of equipment), where it had lingered for decades, to the downstream end (brand, segmentation, design of services):

> "In the 2G era, the cell had become a consumer tool; it was now a household commodity. Through these phases, an emergency function had turned into a business tool, and finally into a mass consumer device. Meanwhile, its significance had shifted from safety to basic needs, instrumental uses, and finally expressive functions" (Steinbock 2003: 230).

In general, **customer relations** became increasingly important, and this in turn was reflected in the internationalisation strategies of the telecom companies at the time. Coinciding with the digitalisation of the telephone network and de-regulation, the telecom operators' market structure started to break up in the 1980s. Business clients, and later also residential segments, became more and more globalised and demanded worldwide services. This ever- increasing influence of customers, especially business customers, even led to first-hype scenarios in international strategic-alliance making. Famous examples of strategic alliances during this time were Global One (Sprint, German Telecom, France Telecom), Concert (AT&T, MCI, Portugal Telecom, Telefonica and BT), World partners (AT&T, KDD (Japan), Telstra (Australia), Unitel (Canada) and Unisource (European Alliance: Telecom Italia, Telia (Sweden), Swiss Telecom, KPN (Netherlands)) (Chan Olmsted/Jamison 2002: 325; Oh 1996; Joshi/Kashlak/Sherman 1998). Every key player in the industry was involved in those alliances during the start of the 2G boom period in the mid-90s. The aim of the alliances was mainly to build up infrastructure in the wire line and wireless segments or to provide MNCs with attractive business packages (Stienstra, et al. 2004: 275 see also: INTSwe-20).

Concurrently, small-scale and high-end corporate markets were increasingly replaced by large-scale and low-end mass consumer markets (Steinbock 2003). Furthermore, the market for devices in the mass **consumer segment** was booming during the GSM era. By 1999, 113 million devices had been sold (Steinbock 2003: 216). While private household and smaller business customers were primarily using voice transmission, the use of data transmission was also steadily increasing in this segment; larger companies were using the option of international data transmission primarily for communication between geographically separated business units (Paterna 1996: 77). In particular, at the time of the mobile communication boom, operators did not have to spend a lot of energy on gaining customers. It was more important to provide the market with the necessary infrastructure, of proper quality, and to stay competitive in pricing. In general this period was characterised by heavily falling tariff structures. In this regard, most monopoly providers had an advantage, since they could resort to existing infrastructure. The new **competitors** had to deal with partially unfair interconnection and national-roaming contracts until they were able to build up their own infrastructure (INTCH-11). This also had impact on internationalisation strategies. At the beginning of the market opening, many

monopoly companies felt pressure to act internationally, since they did not know how much their market shares in their domestic markets would fall. As a reaction they had to go international themselves. Furthermore, the market share of the national PTTs eroded as these former giants re-focused from broad markets to narrower segments, which often led to market-driven break-ups and new IPOs. The introduction of digital cellular was often coupled with the introduction of more licenses and thus further opportunities for internationalisation. Some operators with strong home-market revenue generators (e.g., Vodafone, Bell South and Airtouch) were able to pursue an aggressive internationalisation strategy within the 2G boom period. An example of a first-mover in internationalisation during the mass market boom era was Vodafone:

> "In the early 1990s the company acquired shares in cellular operators and formed consortia in a number of countries. However, it was in the late 1990s, under the leadership of Christopher Gent, that Vodafone took the No. One position through a number of spectacular deals: the mergers with Bell Atlantic/Verizon Wireless and Airtouch and the hostile take-over of Mannesmann Mobile communication. So there are two trends working simultaneously: (1) lowering entry barriers and (2) internationalisation. Introduction of new licenses and new technologies have provided opportunities for new firms to enter. In addition, technological barriers have decreased as infrastructure suppliers such as Ericsson are able and willing to take over more and more of operations. Adding to this, more and more markets have opened up for service providers without infrastructure. Counteracting this trend are the economies of scale (in operations, procurement, innovation, marketing, etc.) and synergies involved in being large operators. It could be difficult for local operators to compete on an increasingly international market, and Vodafone just might be one prominent sign of the long anticipated consolidation of the operators' market" (Lindmark, et. al. 2004: 263p.).

The central objective for a company in the 2G boom period was to garnish as much sales as possible based on the advantages of its previous market position. The previous incumbents especially realised that they had monopolistic advantages (in the field of customer knowledge, marketing; infrastructure, etc.) over the new competitors and wanted to tap the full potential of this situation. Based on the market perspective, their focus was initially more on the domestic market and the creaming of the monopolist profit than on investment in large internationalisation projects. But at the end of the boom era, concentration was increasingly on international projects in order to find new opportunities for growth (INTSwe-11). The scanning of and presence in lead markets was also a common practice among all operators. As already stated in the previous chapter the lead markets of the 2G boom period were the Nordic European markets. Now, investments in lead markets within the triad nations are especially favoured, because of the first "negative" learning effects from difficulties in entering foreign market environments (Asia, etc.) (INTSwe-1).

The international corporate governance system during the 2G boom period

The question of ownership is combined with liberalisation and re-regulation, and brings us to the topic of corporate governance. Most PTTs had been transformed into corporations, and privatisation was going on in some countries during the 2G boom period. **Privatisation** led to new corporate governance structures at this time, according to the corporate governance (CG) rules of stock companies. Mostly there were management (operation activities and strategies) and supervisory boards. This also favoured the personal influence of management figures on the business, as state interests and control structures became less and less important, and the company strategies of powerful industry players influenced the whole sectoral environment (INTSwe-5). Changes in property relations, however, led to a marked increase in environmental insecurity, since government price controls and subsidies were dropped and competitive pressure rose. An ability to respond to the needs of customers quickly and flexibly, a swift and transparent decision-making structure, autonomy,

delegation, personal initiative and entrepreneurial spirit were required to meet the demands of the new situation (Ramaswamy/Glinow 2000: 306p.). In terms of strategic management, it was no longer possible to build on previous experiences at this point: *"The old rulebook quickly becomes irrelevant because the scenario for which it was created has changed"* (Ramaswamy/Glinow 2000: 306). The strategic organisational principles which guaranteed "company success" during the PTT era changed drastically with the move from state enterprise to private communication firm. There was an enormous change in company strategic management after privatisation, and it was primarily expressed in the following areas (Ramaswamy/Glinow 2000: 306 p. see also: INTCH-10; INTCH-11):

- New mission statement, values and approaches
- Change of power structure
- Basic transformation of organisational systems und processes
- New managerial talents at the top, especially in the person of the CEO (corporate culture change, new leadership and new strategy)

The cost-based model with state guidelines was reconfigured into a value-based and value-creating model. This led the **organisation** toward a stronger market-orientation in order to meet customer needs, to identify unsatisfied needs, to invent products and services and to push forward value creation. Initially, important finance, management and marketing knowledge had to be purchased in the form of new human capital from the former incumbents. Furthermore, a structural transformation from central units to divisional structures (profit centres) took place, and decision-making power was outsourced to different company units. This resulted in the formation of independent mobile communication departments, which grew into a booming growth segment for the previous monopolist companies (INTCH-11). The interests of top-management coalitions in the company became as significant as those of the majority shareholders Furthermore, knowledge about internationalisation and certain learning effects in management became important as well. Within these new corporate governance structures, there can also be power relations or conflicts that explain the ensuing strategies outcomes, as the following statement of a financial analyst on the topic of international strategy making shows:

> "Internationalisation decisions are always made by top management. It is usually the case that the CEO and the head of finance in a company act together. It never happens from bottom up. Take for example Telefonica, where the CEO surprised the company with the purchase of 02. There was only a period of roughly two weeks from the initial idea to implementation, the finance analysts say. This means that there could not have been any earlier information to other members, since this would have led to rumours going out, the knowledge becoming relevant to the stock-market and prices would have risen. Even if this would not have happened, one would have known that X wanted to buy Y and it would not have worked; X would have been discredited (…) [but this] could not happen because there were preferences and power games on the personal level; the boss of Mannesman also acted stupidly at the time, since he simply did not want to be taken over. Such a internationalisation decision is mostly made in alliances and small groups at the senior management level. Trust plays a big role here. On lower levels, a lot is discussed and rumoured about how things could be done. At the end of the day, there is in fact a small and elite circle of people who sit together and execute this sort of strategy" (INTCH-2).

During the boom in mobile communication at the end of the 1990s, the **power** in companies at the personal level moved into the mobile segment of telecommunications. The CEO was usually recruited from this segment and people in the fixed-net field lost internal company power, decision-making strength and reputation (INTCH-13). The character of the **CEO** as leading decision-maker and media, or marketing figure achieved increasing importance. For example, in Japan the leadership of Kouji Ohboshi influenced company strategies to a large extent. In the competitive era, NTTDoCoMo thrived on de-regulation. Instead of NTT's high tariffs and low volumes, Ohboshi implemented low tariffs and

high volumes. While deregulation intensified competition, DoCoMo's market share increased, and the operator became best positioned for the mobile Internet. Ohboshi's vision contributed to the market explosion in Japan in the latter half of the 1990s. Unlike Euro-Nordic leaders, the Japanese operator saw wireless and the Internet as complementary sides of a unitary vision already in the 2G period. By the end of the 1990s, it began to push its i-Mode service internationally by purchasing minority stakes in the triad core clusters and lead markets (Steinbock 2003 see also: INTSwe-6). Mostly, two types of CEO figures can be identified - one has industry vision and follows this in the long run, and the other pursues more **financial goals** and is a cost-cutter:

> "(…) but I think that is really different from CEO to CEO (…) some just want to create results for their shareholders in a very short term, make a big bonus and then go to the next company, and they don`t care how the company is in 5 years. Other CEOs are there for the long-term and long horizon" (INTSwe-8).

Privatisation is one regulatory aspect among many, but it is especially important as new shareholders, like financial investors or investment funds, gain more power in the corporate governance structure of former incumbents, and it can contribute to more of a shareholder value-driven change in corporate strategising (INTSwe-4). By 2003, a majority of OECD operators had no foreign-ownership restrictions, while several maintained a "golden share" or some other type of control, usually aimed at ensuring that the dominant telecommunications operator did not come under the control of a single investor (Lindmark, et. al. 2004; see also: INTCH-2; INTSwe-2). As a consequence, restrictions on foreign ownership varied widely between countries, ranging from no restrictions at all as in the UK to 20% in Japan. These restrictions could also differ between service categories, and special rules were often applied to former PTTs (Lindmark, et. al. 2004; see also: INTCH-2). The financial aspects of shaping company strategies became more important in general, especially for companies with smaller state ownership shares (INTCH-1). A CEO with purely industrial-focus could have problems in an increasingly finance-dominated corporate governance system (INTCH-1). Thus the relationship of company management, especially the CEO, to the investment community has increased in importance.

Telecommunication management's limited **experience** in a free market environment, however, led to a lack of qualified human capital and high uncertainties at the beginning of the 2G boom period. This plus the pressure of financial investors, who wanted to generate fast Retrun on Investment, favoured the imitation of lead-player strategies and the intensified use of consultants in the strategy making process, which led to strategic hype scenarios. The result was heavy minority investment in emerging markets at the beginning of the 1990s, and later majority investments in central Europe. Investment in UMTS also resulted from these speculative sectoral hypes.

International alliance cycles with lead players also emerged at this time. Fuelled by faulty expectations, huge investments were made by both incumbents and new entrants from 1990 to 2000. The incumbents needed to grow, and so they took opportunities in Asia and Eastern Europe as well as in UMTS countries like Germany and Italy (INTCH-10):

> "Then came the gold rush mood of the mid-90s combined with the mobile communication boom, where there was a lot of money available for projects in these areas. With world-wide liberalisation, there was hype about putting money into projects in emerging markets in order to see it multiply quickly. They wanted to make money even in India and Malaysia, like at home. Later on they saw that things went a little differently there, and so they tried to do something with UMTS in the large markets close to home, like Germany, France and Italy. This was still supported by the investors. All players took part in this as a so-called good practice" (INTCH-1).

A combined lack of experience and of qualified human capital led to the imitation of opinion leaders' strategies (such as those of Vodafone, financial analysts and consultants) at the time, and resulted in sub-sectoral hype scenarios. The current strategy manager of Swisscom Mobile states:

> "There were similar developments in the aftermath, based on the same technologies and problems. (…) But generally it was obvious that strategy departments in other companies came up with similar ideas. I believe they read the same research reports as we did. I think there are always new trends and that they are justified by the available information. And I also think that analysts determine trends. Privileged information! When you hear from 17 analysts in the same year, and you see that one guy sees it like this and another sees it similarly, you begin to believe in a trend" (INTCH-11).

Trends in corporate internationalisation due to international institutional environments: A dynamic perspective

Altogether this reveals a very complex process of similar national institutions (see: table 15) unfolding internationally and leading to similar sub-sectoral internationalisation trends again in the 2G boom period:

Technological system	Convergent institutions	Sub-sectoral internationalisation trends
Standards	Internationalisation of standards but fragmentation among triad nations (US; Japan, Europe)	Internationalisation into markets in the same technological standard area
"user-producer" interaction	Globalised lead supplier (Nokia, Motorola, etc.)	International purchasing; economies of scale Internationalisation and R&D in lead markets (Nordic countries and US)
Regulative system	**Convergent institutions**	**Sub-sectoral internationalisation trends**
International regulators	Further professionalisation of international telecommunication regulation (EU) and other organisations (ITU, ETSI)	Facilitated internationalisation into same regulative area (EU operators have an advantage)
Formal laws	Liberalisation, deregulation, privatisation	Pressure to go international because of competition and shareholder value
Pricing and market entry/access/ quality of infrastructure	Interconnection disputes	Monopolistic advantages of incumbents – low internationalisation pressure for incumbents
EU regulation:	Ex-ante regulation Unbundling of local loop	More pressure on incumbents under EU regulation to go international
Market system	**Convergent institutions**	**Sub-sectoral internationalisation trends**
Market entry	Open markets; competition among all players Falling market shares (incumbents)	Oligopolistic reactions (strategic alliances in the mid-90s)
Market shares	Mass market boom period	Pressure to go international
Market penetration		Low internationalisation pressure
Pricing	Declining prices	Strategic alliances to serve international clients and build up infrastructure Scan of lead markets
Customer habits	Internationalisation of all clients Lead markets in Nordic area	Investment in Europe, US, Japan
Monopolistic advantages	Former incumbents	Low internationalisation pressure
Leader	Vodafone as famous lead player	Economies of scale due to internationalisation as success factor
Corporate Governance system	**Convergent institutions**	**Sub-sectoral internationalisation trends**
Formal CG laws	Privatisation – more influence of other shareholders (financial investors)	Pressure to go international
Informal belief system	Orientation toward market economy belief system	
Experience	Strongly fragmented knowledge base - high insecurity Learning-by-doing in management – Insecurity and imitation of lead-player strategies, involvement of consultants	International hypes based on consultant advice, investor's pressure or analysts' advice - M&A cycles - minority investments all around the world - purchasing alliances
Power	Finance aspects more significant	More financial and less industrial logic behind internationalisation
	Character of CEO more important	Specific internationalisation strategies can be traced back to management character
	Mobile communication section gains influence	

Table 15 Sub-sectoral internationalisation trends stemming from similar international institutional configurations in the 2G boom period (Source: Author)

Again, these drivers do also have a dynamic component. That means a steady co-evolution occurred among the interests of powerful actors in the different systems. New entrants were very important to the market system at this point. However, at the beginning of the 2G boom period, the residential customer still possessed little power, because the market was evolving more or less on its own (mass-market boom). The pressure came more from price and internationalisation wars, with new competitors like Vodafone and Tele 2, which had an early advantage from economies of scale due to their rapid internationalisation. The incumbents were also forced to grow by pursuing international activities. But this was only true at the beginning of the 2G boom period, because of management uncertainties and falling market shares. Later, however, with the rapid take-off of the mobile market, the incumbents realised they had to dedicate all their resources to harvesting on their monopoly advantages from the analog period. This is why shortly after liberalisation the incumbents often stopped their international expansion and concentrated most of their human resources on the home market. At the end of the 2G boom period, however, they realised that expansion was again necessary due to saturated markets. However, most non-incumbent competitors were faster at acquiring attractive assets, and the incumbents took mostly what was left over or what was highlighted by the investment communities to satisfy their shareholders. This led to heavy (majority) investment in central Europe, because the financial community stressed UMTS during this time. Additionally, some learning effects arose in the management communities.

Minority investments in emerging markets did not prove to be a solid financial or industrial investment, as the management and regulatory conditions there seemed mostly too insecure, and the resources needed to control the business bore no relation to the profits gained (INTCH-1). Common standards as well as regulations further contributed to internationalisation trends in special areas like the US, Europe or Asia (China). However, they could also be a market-entry barrier for non-native companies from another standard area, or could make entry only possible for highly flexible and financially strong companies. Due to privatisation, financial investors have more power within communities today and company management is more important. The CEO's character is especially notable in telecommunications. Because most former incumbents lacked management experience shortly after liberalisation, they were forced to listen to the advice of consultants and opinion leaders in the sector. This led them into a laggard position and they imitated sectoral "good practices," especially those companies that transformed into market-oriented entities very late (like some European incumbents). Additionally, those players were not very pro-active at internationalising during the 1-2G pre-liberalisation times, and due to a lack of endogenous strategies, they could not create any sustainable strategic international advantages. Again, they were mostly forced to divest (usually with big losses). The management of those companies still lacked industry vision. The leaders, however, especially the lead players of the 1-2G pre-liberalisation era, profited from their international experience and could further focus their strategies based on endogenous potential. Additionally, most of them were successful and could further strengthen their international lead position. But it was not easy for them either to compete against new flexible businesses (new market entries like MVNO) which emerged all around the world, especially in Asia. It requires much vision as well as financial power these days to be among the opinion leaders who set the important sectoral trends, e.g., industry standards. In smaller countries this is only possible because of superior-user producer interaction. However, at the end of the 2G period, as the equipment manufacturers all became globalised, these coalitions withdrew and the power clearly shifted to financially strong companies with economies of scale and further growth potential (see: Vodafone, etc.). The only smaller players still successful internationally are those that managed to convert their nationally rooted first-mover advantages into sustainable international strategic ones in the form of economies of scale.

Path dependencies	International institutions	Sub-sectoral internationalisation trends
Co-evolution	Growing competition on the international level by new entrants (Vodafone, etc.)	Alliance hypes in the mid-90s (Unisource, Concert) because of consolidation of bigger players
	Pressure from technological and regulatory development in lead countries (EU) and international organisations like the ITU	Common regulatory challenges – similar internationalisation pressures Common standard areas facilitate internationalisation
	At the core of the period, monopoly players harvest on their advantages out of 1G era	Low internationalisation performance of incumbents in the middle of period
	Globalised equipment manufacturers	International purchasing alliances are necessary
	Expectations of financial investment community and character of the management	Highlights investment in UMTS countries; whether these risky strategies are taken or not depends on the character of the top management
First mover	Superior institutional configurations in all systems in North European countries lead to the development of GSM; later in Asian countries, early 3G applications (i-mode); also new actors like Vodafone and Tele 2, big European incumbents which were liberalised early like Telefonica and BT, Asian players (more flexible and market oriented)	Particular internationalisation potential for equipment manufacturers in these countries, but also for operators (consulting business)
		Competitors of the first liberalised markets are successful due to clever market-oriented strategies – incumbents too slow; they manage to convert their first-mover advantages in the 2G pre-liberalisation period into further advantages (financial and reputational powers) in 2G
Learning	Due to early international experience – positive learning effects and build-up of human capital (international management cultures) in lead countries Problems with management cultures in emerging markets	Positive increasing returns in the international development paths of leader companies – more commitment (focus on special markets) Divestment of minority shares in Asia, etc.
	Laggards in the 1-2G pre-liberalisation period	Lead operators help those countries to build up their GSM infrastructure - imitation of opinion leaders strategies (UMTS; M&A)
Imitator	Lacking experience about endogenous internationalisation	Most strategies of 1-2G prelib. period were not successful because only imitation (of short-term financial logic), not following own endogenous internationalisation potential
Laggards	Big European incumbents which were liberalised late and incumbents like German Telecom; AT&T; laggards in the 1-2G pre-liberalisation period	Only slow international activity – successful only due to enormous financial powers

Table 16 International institutional path dependencies in the 2G boom period (Source: Author)

5.2.2 The role of national institutions in understanding divergent inter-nationalisation in Switzerland and Sweden in the 2G boom period

Once again, we need to look at the internationalisation performance of both companies during the 2G boom period to ascertain the institutional influences:

TIME	Telia Mobile	Swisscom Mobile
1994	*Broad minority investment in emerging markets*	*Malaysia (30%)*
1995		*Czech Republic (27%)* *Latin America*
1996		*India (32.5%)*
1998	Unsuccessful attempt to merge with Telenor (Norway)	International distribution of prepaid technology Roaming agreement with Vodafone
1999	Finland (100%) Denmark (100%) Ireland (67%) Minority investments in: Slovenia and Poland Minority Investments: Uganda, Brazil and India (etc.)	Divesture India, Malaysia and Latin America Later: Divesture Hungary and Czech Republic Majority Investment: debitel (Germany) (100%)
2000	Norway (100%) Divesture: Unisource International R&D collaboration (Lead markets) – Especially in the field of data services (Seedy Tomato etc.)	Divesture: Unisource Strategic Alliance with Vodafone (25%)
2001	Attempt to market Speedy Tomato in Europe (Partnership agreement with Olivetti in Italy) Selling of Swedtel Divestment: Tess (Brazil), Slovenia and other overseas investments Focus on Nordic and Baltic Area Minority stakes in North West GSM (Russia) are transformed after the merger with Telekominvest into the company called MegaFon	

Table 17 Internationalisation performance in the 2G boom period of Telia Mobile and Swisscom Mobile (Source: Author)

In **1997**, the goal of Swisscom was to be an *"(...) innovative, customer-driven and internationally competitive company*" (Swisscom AR 1997: 5). *"The strategy consisted of expanding the domestic market with subsidiaries and/or joint ventures in the neighbouring regions. These strategically relevant regions represented a potential market of around 24 million inhabitants"* (Swisscom AR 1997: 33). However in **1998**, Swisscom's annual report stated: *"Swisscom intends to also claim the market lead in Switzerland in the future based on a clearly formulated strategy as well as positioning itself in a targeted manner abroad" (...) "With a continuous expansion of activities, Swisscom shall become the preferred provider in the heart of Europe"* (Swisscom 1998: 5). In Switzerland, a clear shift in focus from global player to European emphasis can be observed. In the same year, AT&T left the Unisource Alliance, which ended shortly thereafter. Furthermore, the Natel prepaid card, developed in Switzerland, was marketed especially toward resellers internationally as the following statement shows: "*Thanks to international appreciation of our innovative solutions in the international mobile business, it was possible to offer the Natel product to service providers worldwide in 1998 under the brand GSM Card"* (Swisscom 1998: 40). In March **1999**, all Asian and Latin American holdings were relinquished. According to the 1999 annual report, the handover of the two holdings led to a "high loss," and Swisscom decided *"(...) to focus*

on the national level after a comprehensive evaluation of other opportunities" (Swisscom AR 1999: 13). Holdings in Hungary were also sold based on this re-orientation (PTT Netherlands to KPN). On July 9, **1999**, the take-over of the German re-seller debitel was decided on. Debitel at this time is the largest network-independent telecommunication provider in Europe, with around 7 million customers, and is active primarily in the rapidly growing field of mobile communication. Debitel purchases overlapping network capacities from other operators. Its strengths are primarily in the distribution channels and in professional customer management: *"In our growth strategy, debitel is at the centre of attention, supported by other foreign subsidiaries and holdings*" (Swisscom AR 1999: 20). In **2000**, a strategic partnership with Vodafone was begun, with whom cooperation had previously been established in the form of a roaming contract. Additionally Vodafone at that time decided to hold 25% of Swisscom Mobile shares. At this point, the partnership involved strategic purchasing as well as the joint marketing of the "Vodafone live!" portal in Switzerland.

During the same period in Sweden, Telia's share in Esti Telecom was increased in **1998** to 60%. Furthermore, Telia possessed 67% of Eircom as well as minority holdings for the build-up of infrastructure in Uganda, Slovenia, Brazil (Tess), Poland and India. Since then, the consulting business Swedtel has been active in almost every part of the world in the field of fixed and mobile services. However, the main part of **1999** was devoted to development work to prepare for the forthcoming merger of Telia with Telenor (Norway). As a result customers suffered from a lack of human resources in the consulting field, and Swedtel lost quite a lot of its market confidence. As a consequence, Swedtel's resources in mobile business competency were transferred to Telia Mobile (Swedtel 2000: 7). In the year **2000**, Unisource was sold. Telia acquired Norway's Netcom ASA in the same year, with a 100% holding. Furthermore, other 100% subsidiaries were founded in Denmark and Finland. Besides these sales and distribution activities, the Swedish R&D department became quite active on an international level: "*Telia Research operates on an international level in order to be at the forefront of development and increasingly cooperates with end-customers to be sure our initiatives are on target"* (Telia AR 2000: 13). The Internet portal for mobile communication Speedy Tomato was an attempt to create an internationally sustainable mobile phone application. A partnership agreement was signed in February **2001** with the Italian company Olivetti Tecnost for establishing Speedy Tomato in the Italian market (Telia AR 2000). Additionally, it was quite obvious that Swedtel would need a new owner who would pay more attention to value growth. Swedtel therefore requested to be listed for sale. It participated in a comprehensive due-diligence exercise and delivered a substantial amount of information to the Telia team handling the selling-off of non-core businesses (Swedtel 2000: 1-9). In 2001, the remainder of Swedtel was sold, and Telia's internationalisation strategy became clearly focused on the Nordic and Baltic regions that formed core markets. The result was divestment in Brazil (Tess), Ireland (Eircom) und Slovenia. Furthermore, the merger of Telia AB shares in North West GSM and Telecominvest led to the creation of MegaFon in Russia. This company holds a licence for the central Russian area and is the only company that spans all of the Russian market. In the year 2000/2001 also Telia`s portal business with the "Speedy Tomato" portal start. An internationalisation in this segment is planned as well (see: next section on the 3G multimedia period).

Altogether, the internationalisation performances of both companies during the 2G boom period has some similarities. Both companies followed the international financial industry trend to divest their minority investments in emerging markets and to invest in majority investments in the heart of Europe. Both companies had a light internationalisation strategy in the middle of the period in question. Thus the main similarities in international activity in the 2G boom period between Swisscom Mobile and Telia Mobile where:

- Similar needs out of the market system - harvesting on monopoly advantages - light internationalisation strategy in the middle of the period
- Expectations of international financial communities: divestment of minority shares in Asia and other emerging markets; majority investment in central Europe

Thus thesis 2.1.2 is true again at this point, in that financial institutions on the international level lead to a convergence of internationalisation strategies. However, there are big differences as well, as Telia's internationalisation performance is much broader then Swisscom's. Telia is still much more present in a lot of parts of the world during this time (Brazil, etc.), while Swisscom divested most of its investment in Asia (Malaysia and India) and Eastern Europe. Telia's focus on the Nordic and Baltic regions, as well as on Russia, is also much stronger than Swisscom's sole investment in Germany (debitel). Swisscom Mobile tries to be active in future mobile technologies internationally, too (see: marketing of prepaid card). However, this is only a marginal business compared to the core one. Also, while the upcoming mobile portal business in Sweden is just in the test phase, Sweden invests much more in R&D in the national and international markets than does Switzerland. The aim of Telia is to be an international lead player in 3G (see: portal business). The question now is whether these differences in internationalisation strategies can be traced back a historical examination of national institutions, e.g. the co-evolution of each company with national institutions as well as individual path-dependent learning aspects.

The national technological system during the 2G boom period

In Sweden, the total liberalisation of the market in 1993 completed the de facto monopoly situation that established Televerket's double function as regulator and operator (INTSwe-7). This led the company to full autonomy to go international earlier than in Switzerland, which was liberalised in 1998. Also, the manufacturer Ericsson could use this new situation. Ericsson, in collaboration with Telia since 1993, led international projects to build up NMT and later GSM infrastructure, due to superior technological and managerial **in-house knowledge** of both companies. Especially Televerket had build up genuine engineering competencies in the radio and mobile segments in-house. It had established an educational system and standard in this field (Teleskolan). The result was later also fruitful national **user-producer interaction** between Telia and Ericsson (which was at the beginning dominated and led by Televerket/Telia) which led among other circumstances (early competition in NMT - a large number (more then ten) of independent local, Nordic, European, Japanese and US suppliers entered the market in Sweden with a number of NMT models that indirectly marketed NMT even before liberalisation) to the early take of of first NMT and later digital GSM technologies in Sweden (INTSwe-18). That is why mobile prices were lowered rapidly in the Swedish market and performance improved (INTSwe-11). Together with the other Nordic operators and equipment production firms such as Ericsson and Nokia, which formed a "Nordic coalition" (Edquist 2004: 171), Telverket effectively led the Nordic Alliance (INTSwe-16b). By the mid-1970s, Ericsson and Televerket had jointly developed a digitally stored program control switch - AXE in their joint venture Ellemtel (the also page: 117). This switch became an essential part of Ericsson's cellular system offering almost by accident, and a key factor in the company's emergence as the leading cellular

system supplier in the 1980s and 1990s (Lindmark, et. al. 2004: 266). Ericsson later developed and tested an early prototype of a full GSM system together with Telia. The Axe switch was developed on the urging of Telia, but later in large part led to Ericsson's success (INTSwe-18). Since Telia's competitors, Comviq and NordicTel, were restrained from buying Ericsson equipment by an agreement between Ericsson and Televerket (which gave Televerket a monopoly on AXE switches in Sweden), they had to search for other system suppliers (Lindmark, et. al. 2004: 282-290; INTSwe-16c). This fruitful user-producer interaction between Telia and Ericsson, which had emerged rather by accident (see page: 117p.) at the beginning of the 2G boom period also led to the take-off and international diffusion of GSM and later to the international success of Ericsson (INTSwe-14). This also meant that Ericsson and the Swedish innovation system were given a great advantage over other equipment producers (Edquist 2004: 179). The internationalisation of NMT and GSM provided opportunities for the internationalisation of Telia, also. The leading role in NMT and GSM gave them reputational advantages which made it possible to acquire other Nordic companies and the needed licences (INTSwe-11). Initially, this opportunity was mostly used by the supplier industry. It was not until the late 1980s and early 1990s that Televerket, through Swedish Telecom International (STI), began applying for licenses in other countries. The focus was then on the countries around the Baltic Sea (Estonia, Lithuania, Latvia, Poland, St. Petersburg in Russia, etc.), but later STI looked for and obtained licenses further abroad, as in Italy, India, Namibia and Ecuador. Their early efforts were often made in partnership with the Nordic neighbours. However, when Televerket, PTT Netherlands and the Swiss PTT formed the Unisource partnership, the Nordic cooperation ended abruptly (INTSwe-12). Televerket also put itself in a position of internal competition when Unisource formed a daughter company for mobile services, Unisource Mobile. Since then, Televerket has revised its international strategy on a number of occasions. Obviously such a lack of strategy and focus led to lost international business opportunities during the NMT period (Lindmark, et. al. 2004: 270). However, the early collaborations among the Nordic operators and suppliers gave Telia good insight into the different Nordic cultures and markets. This was essential for their successful internationalisation into those markets (INTSwe-11).

Thus two **national innovation systems** have emerged in Sweden (mobile technologies and mobile data)[25]. But in the later 2G boom period, because of Ericsson's globalisation, power in the national sectoral complex clearly shifted from Telia to Ericsson. While there were exclusive purchasing agreements between Telia and Ericsson in the first phase of GSM, Ericsson got so much more powerful during the boom period, and Telia was no longer important as a client. There were bigger clients like Telefonica, Vodafone and German Telecom which were of immediate interest (INTSwe-18). Furthermore, there was no longer a national innovation system in the field of mobile telephony at the end of the 1990s, as Ericsson didn't exclusively produce and invent its new products in Sweden. At first for Telia this meant early internationalisation opportunities and consulting contracts. However, Ericsson was better at turning the internationalisation potential into sustainable, successful global ventures at the end of the 2G boom period. This also meant a shift from a formerly national or regional (Nordic) innovation system to a sectoral, worldwide system (INTSwe-14). Thus during this time period, international institutions within the technological system in Sweden became more dominant than national ones. Therefore the end of the 2G boom period marks a clear tipping point from national to international user-producer interaction.

[25] For further information about the national innovation system in mobile data in Sweden, see Lindmark, et al. 2004: 373 p..

In contrast, Switzerland was not yet liberalised in the first phase of the mobile boom period. In Switzerland, liberalisation and de-regulation occurred relatively late compared to the Swedish first mover in 1998. However, the equipment market had also been liberalised at the beginning of the 1990s (INTCH-3). When the Swiss market opened up for competition, ASCOM and the other suppliers could not maintain their dominant position. On the contrary, it was necessary to import foreign knowledge (from Ericsson) in order to establish NMT 900 and GSM in the country (Trachsel 1993: 304). Switzerland in fact served as a test market for Nokia and Ericsson in the beginning, due to its good infrastructure, interesting topography and multilingualism. This has been put into a different perspective in the meanwhile (Swisscom AR 1999; see also: INTCH-13). On the one hand, there had been a joint venture with LM Ericsson in the transmission area already in the digital era through the foundation of ASCOM Ericsson Transmission AG (AET), which became active in 1992 (INTCH-16). This experience established the first international contacts with Sweden and later contributed to closer cooperation between the two countries in the Unisource community and in Eastern Europe (Hungary and Czech Republic). International roaming could be introduced already in 1992 based on this cooperation with the Nordic countries (Denmark, Finland, Norway, Sweden and Holland) (Trachsel 1993: 156). During the boom period at the end of the 1990s, there was cooperation with a series of specialised international suppliers and no longer only with Ericsson. HSCSD, for example, was implemented in Switzerland in 1998 together with Nokia (INTCH-16). The test market function led to an early implementation of new technologies in Switzerland. However, this function decreased as economies of scale became more important in the business at the end of the 2G boom period. Thus Swisscom later had to search for an international alliance with a bigger player to make up for lacking economies of scale. The company conducted negotiations with T-Mobile as well as Vodafone and suddenly entered into an international strategic alliance with Vodafone in the year 2000. Prior to this, Vodafone had even been Swisscom Mobile's collaboration partner in the field of international roaming. It held 25% of Swisscom Mobile shares from then on and granted the company access to their purchasing platform. The result was that Swisscom Mobile received prior access to branded handsets and to "Vodafone life!" applications. Without this international alliance, further competitive advantages in the home market would not have been possible.

So the small market, a lack of lead suppliers in the home country and internationalised supplier relationships created this internationalisation pressure for Swisscom Mobile, which resulted in the international strategic alliance with Vodafone (INTCH-11; INTCH-16). Altogether Swisscom mainly followed the international sub-sectoral industry trend during this time.

Technological System	Sweden	Switzerland
Superior technological capabilities "User-producer" interaction	Superior knowledge bases in Telia and its suppliers (like Ericsson) lead to fruitful collaboration	International user-producer interaction with Ericsson in build-up of NMT and GSM (Switzerland as test market)
	National Innovation System in Mobile Technologies (GSM) and Mobile Data (Mobitex)	Later international purchasing alliances with all manufacturers (no exclusive agreements)
Standards	Lead country in NMT and GSM	Swiss PTT as laggard in 2G build- up
	Later (mid 90-ies) only Ericsson as lead player in National Innovation System	
Internationalisation potential/strategy	International consulting (Swedtel) International build-up of infrastructure all around the world	International contacts to Nordic countries - relational capital - Unisource/Hungary International strategic purchasing alliance with Vodafone (due to lacking economies of scale)

Table 18 Potential for internationalisation from the national technological system in the 2G boom period (Source: Author)

The national regulatory system during the 2G boom period

The telecommunications sector is an important part of the Swedish economy, and has been increasingly so during the 1990s (INTSwe-15). Its contribution to economic growth (measured as productivity improvements and value-added growth) has increased to almost half of the industry's contribution in 2001. The increase in value-added growth stems mostly from the telecom-equipment segment of the industry (Ericsson) - telecom-services contributions are more marginal. Sweden is one of the OECD countries most dependent on the telecom product sector of the ICT industry, second only to Finland (Lindmark, et. al. 2004: 154). This is why the state is extremely interested in supporting the mobile sector, directly and indirectly. Few nations besides Finland are as dependent on one firm (INTSwe-14). **Government funding** has been important for product development, not least of all for the inflow of competent personnel. However, at the end of the 2G boom period, Sweden could not supply Ericsson with the necessary resources, and the rapidly growing company was forced to internationalise its R&D activities (for other reasons as well). Thus the corporate as well as the national innovation systems became internationalised (Lindmark, et. al. 2004: 393; see also Granstrand 2002).

In terms of regulatory differences, both Switzerland and Sweden were de-regulated and privatised, but in completely different ways and over different time periods. **De-regulation** in Sweden occurred in 1993, five years earlier than in Switzerland. As a TeliaSonera manager describes it, a new regulative regime arose in Sweden because there was no previous de jure regulation in the sector:

> "Other European players had a very strong rule book, and we had nothing. We've regulated since then (1993). So when the rest of Europe de-regulated, we regulated. [That's why] we talk about a liberalised market here in Sweden with a need for some form of regulation" (INTSwe-16b).

In Sweden, the telecommunications equipment market was de-regulated first. By 1989, the equipment market was completely open to competition. This liberalisation was largely driven by the lobbying efforts of private equipment suppliers and large users, as well as by Televerket's management itself[26]

[26] An important driving force was the MP project, a strategic project related to market and product development. The group concluded (in 1978) that although there would be a strong growth in demand, it could not be taken for granted that Televerket would enjoy all the benefits of that growth. In particular, it was claimed that an expected convergence of computing and telecommunications technology would lead not only to new data-related services, but also to a convergence of actors utilizing

(INTSwe-7; INTSwe-9). The second aspect was infrastructure competition. In the area of telecommunications networks, Televerket had a statutory monopoly. One exception was mobile telephone networks, which had been operating in various parts of Sweden since 1964. The rights for these were mainly restricted by (1) a limited frequency spectrum and (2) automatic connection to Televerket's PSTN (Lindmark, et. al. 2004: 110 pp.). For these reasons, the sector became nearly monopolized. However, Comviq Skyport received a permit for an international business service in 1988, and Comviq GSM and Europolitan for digital mobile telephony in 1988 and 1990, respectively. In 1991, conditions for interconnection rights and rights to operate third-party networks were established, and finally in July 1993, new telecommunications legislation introduced a licensing system, and conditions for competing operators were regulated (INTSwe-15). In addition to the separation of regulatory authorities, the frequency administration was separated from Televerket and integrated with STN in 1992. The new agency was called the National Telecommunications Agency (Telestyrelsen). Here, the final step of separation was taken in July 1993 when the agency overtook responsibility for the telecom network, including, among other tasks, the licensing of operators (Lindmark, et. al. 2004: 110pp.).

Another very important aspect of liberalisation was the **corporatisation of Televerket**. The major political decisions involved in the process were taken in 1980 (to establish Teleinvest AB), 1981 (to introduce a new financing procedure), 1986 (to establish Teli AB), 1991 (to change the organisational status of Televerket) and 1993 (to establish Telia AB) (Lindmark, et. al. 2004: 110pp.). Additionally, on July 1, 1993, a new telecommunications act entered into force, which radically changed the Swedish telecommunications market. Prior to this there had been no proper legislation within the telecommunications field. The 1993 Telecommunications Act was meant to turn Swedish telecommunications into a modern marketplace, and several added amendments ensured this (Lindmark, et. al. 2004: 114). Parallel to the Telecommunications Act, a new Competition Act (Konkurrenslagen) was introduced on July 1, 1993. This law imposed very different terms on players with more 'significant' market shares than others, thus facilitating new entrants. In addition, the Marketing Act (Marknadsföringslagen) was introduced in the beginning of 1996, further enhancing the preconditions for efficient competition within the telecommunications sector. These laws together made up the most relevant legislation for telecom operators in the Swedish market (Lindmark, et. al. 2004: 114). The law was in fact quite tame, imposing very few restrictions on the market. Virtually unlimited access to the Swedish market was established without provisions for reciprocity, and there were no provisions to particularly protect Swedish interests. The purpose of the law was to ensure that operators met certain basic requirements in order to guarantee good service quality and durability. The basic requirements were that sufficient financing resources and technical competence were available, and that some public obligations - such as state defence or services for the handicapped - were fulfilled. Another aim was to prevent Telia from acting on its dominant position. This was accomplished through (1) imposing bundling restrictions (e.g., fixed and mobile services), (2) placing special requirements on operator interconnection for those with "significant market power" (although Telia was forced to negotiate with any firm wanting to interconnect), and (3) cross-subsidies were not

the globally available technology. Drawing from experiences in the US, the MP group anticipated that competition would intensify in the future, for instance through the growth of private data networks into public integrated voice and data networks. Since Televerket had no legal monopoly protection, these threats were believed to be particularly serious for Sweden, not only in new services but for the traditional business. The MP report became influential for Televerket's adaptation to a more competitive market, in particular since much of its content was embraced by the new director general Hagström, leading among other things to the gradual corporatisation of Televerket and liberalisation of the Swedish market (Lindmark et.al. 2004: 110pp.).

allowed and there was a temporary price cap on subscription fees for Telia (Lindmark, et. al. 2004: 114). The following formal organisations were created to support this process in Sweden:

- The Swedish Postal and Telecommunications Regulatory Authority (PTS) was established in 1993 in order to supervise the telecommunication-, IT-, radio- and postal-sector and to promote and encourage competition within their area of responsibility by supervising and enforcing the compliance of private and public organizations with the Telecommunications Act from 1993.
- The Swedish Competition Authority (SCA) was established in 1992 in order to promote effective competition in the private and the public sectors. It does so primarily by supervising and enforcing the compliance of private and public organizations to the Swedish Competition Act from 1994 (de Paula 2006: 5).

However, these legislative national institutions did not stay unchanged until the end of the 2G boom period. There was continuing, **co-evolutive development** in the regulatory institutions, especially because at the beginning the Swedes had no experience in regulation, and many learning effects occurred (INTSwe-9). The 1993 Telecommunications Act was revised in 1997, mainly to accommodate the commission's "Interconnection Directive 97/33/EC". In this second phase of the liberalisation process, the main regulatory task was to contain the former monopoly. Competition was gradually introduced, so that monopoly power could remain in some markets and act as a deterrence to market entry. In telecommunications, the emphasis during this second phase is on the existing network, in particular on the local-access part of the network - the "last mile" of closed-loop, copper circuit network, the so-called local loop (Knieps 2001). Full state ownership remained until 2000 in Sweden, when the state sold 30 percent of its shares to private investors. The government therefore remained in the dual role of being both the (majority) owner of the incumbent and the entity responsible for the regulatory system and for regulatory actions that would substantially influence the value of the company.

Usually, many **regulatory problems** that arise in this phase relate to **interconnection**. New firms have to connect to the existing networks. The vertically integrated incumbent can therefore manipulate the terms for interconnection in various ways, so as to deter entry and/or mitigate competition from other operators. In Sweden, before the Telecommunications Act of 1993, the parastatal was commissioned by the government to set interconnection terms on its own. From 1993 on, Telia was obliged to negotiate with any firm that wanted to interconnect. As in Britain, the regulator would mediate in case of disagreement; but the Swedish regulator was not empowered to decide on the terms. This resulted in an "ultra-light" rather than a "light-handed" regulatory approach (Hultkrantz 2002: 144). During its 13 years of existence, the Telecommunications Act was amended 15 times. As a general observation, it can be concluded that the Telecommunications Act was cautious, as it was based on limited market intervention. Regulation has since become more far-reaching, as PTS and legislators realised competition was not developing as desired. The Swedish example also shows that if a reform aims to grant new entrants access to incumbents' networks and the actors have conflicting interests, PTS must be given the authority to decide on the terms to apply. This was not always the case there. Finally, timing is of crucial importance (INTSwe-20). The "ultra-light" regulation of interconnection was abolished in 1999. Since then, operators have been required to keep separate accounting for interconnection traffic and to make interconnection charges public, and the regulation authority was given the right to decide on interconnection terms:

> "It was hard to build up regulation from scratch! (…) I think there were great learning effects, both in terms of implementation and also legislation. I think that the Telecommunications Act was changed 25 times over the first 10 years" (INTSwe-20).

Thus, since 1993, the legislation and the agenda of the regulatory agency have been amended several times. The legislation has been adapted to the emergence of a common European regulatory

framework for the industry since 1995 in Sweden as well. One milestone in this development was the Interconnection Directive of June 30, 1997, that laid the basis for full liberalisation in most member states from the beginning of 1998; another was the legislative package for a new regulatory framework for all electronic communications services put forward by the commission on July 12, 2000. This framework was integrated into the member states' legislations before the end of July, 2003 (Hultkrantz 2002: 145).

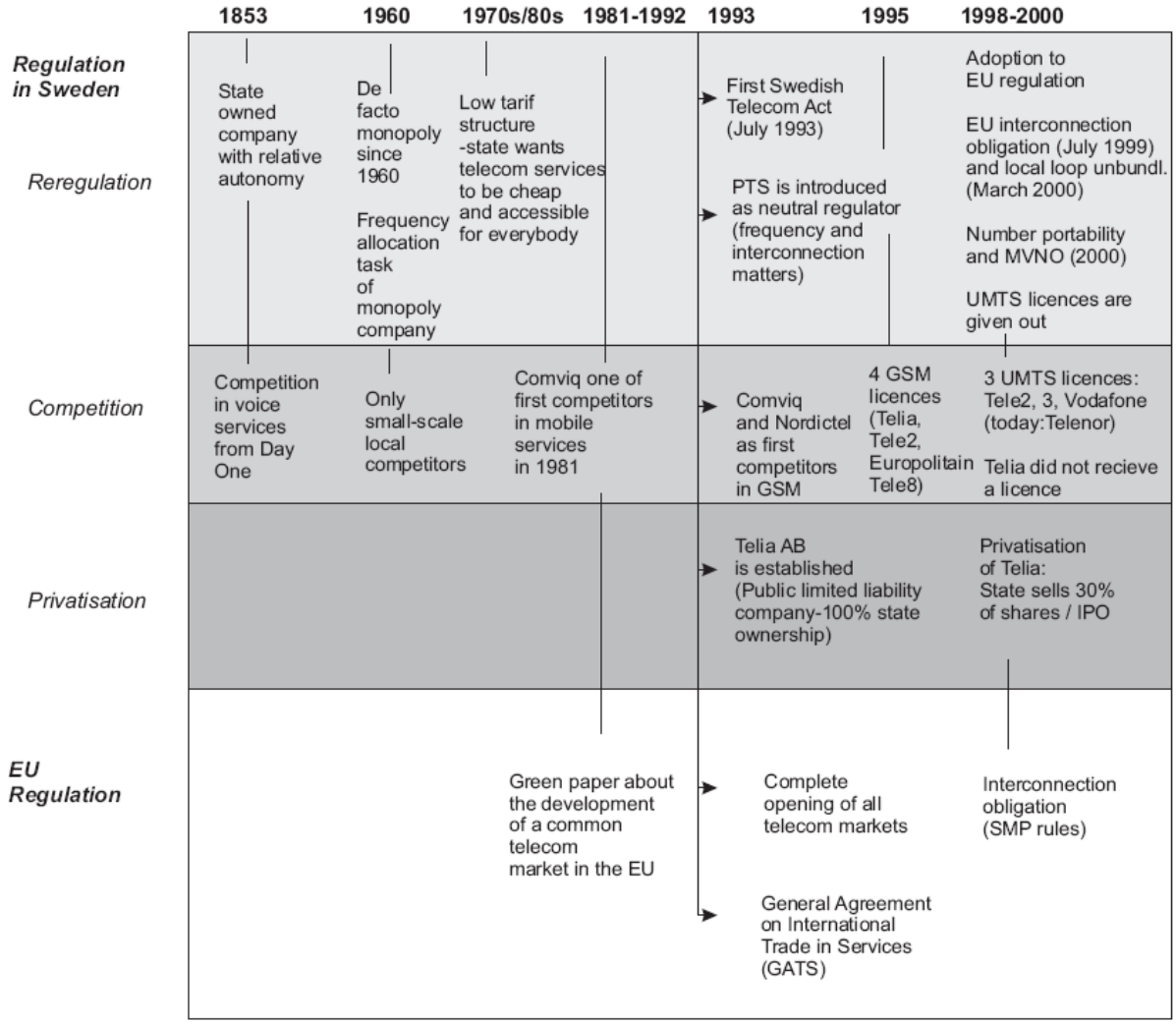


Figure 15 Main formal regulation during the 1G and 2G times in Sweden (Source: Author according to ARs of Telia and TeliaSonera 2000-2002, as well as PTS 2003b)

Altogether, the whole re-regulation and liberalisation process occurred earlier in Sweden than in most other European countries, and thus its telecom industry felt pressure to go international sooner than Switzerland's. This may for example explain their heavy investment in the Nordic and Baltic countries and in other countries around the world durint the 2G boom period. A first partial privatisation of Telia, however, only happened in the year 2000. However, the company's management had been quite autonomous before privatisation, and state shares did not hinder internationalisation in Sweden (INTSwe-16a).

In Switzerland, the telecom services segment accounted for 2% of the entire GDP in 2003. In comparison to 1990, this share had doubled (ICT Switzerland 2004a: 5). Politically, however, the

sector was not as important as it was in Sweden, since the export rate within the sector was very low in Switzerland. Thus at this time there was no sectoral promotion of ICT on the national level (INTCH-6). In Switzerland, the liberalisation of the market occurred at the last moment (1998). There had been a clear change in the company belief system and among the political players toward more market-oriented values like efficiency, cost control and competitiveness, which was the result of international pressure and pressure from business customers (INTCH-8). The liberalisation of the telecommunications market was first decided upon informally, as per the nature of Swiss politics. A first formal step was taken with the creation of the Telecommunication Act (FMG), which became effective on 1 May 1992 (OFCOM 2003b: 4). The result was the **liberalisation** of the equipment market. Because of the quick economic, technological and institutional development that followed, the FMG was already outmoded within a short period of time. The FMG was revised in 1998, largely due to EU pressure, and a big step was taken toward opening the entire telecommunication and services market in Switzerland. Law makers particularly expected lower telecommunication expenditures with this revision and an additional boost in innovation for the economy. The goal was also to create the economic and technological conditions for healthy development of the telecommunication branch in Switzerland (Swiss Federal Council 1996: 4).

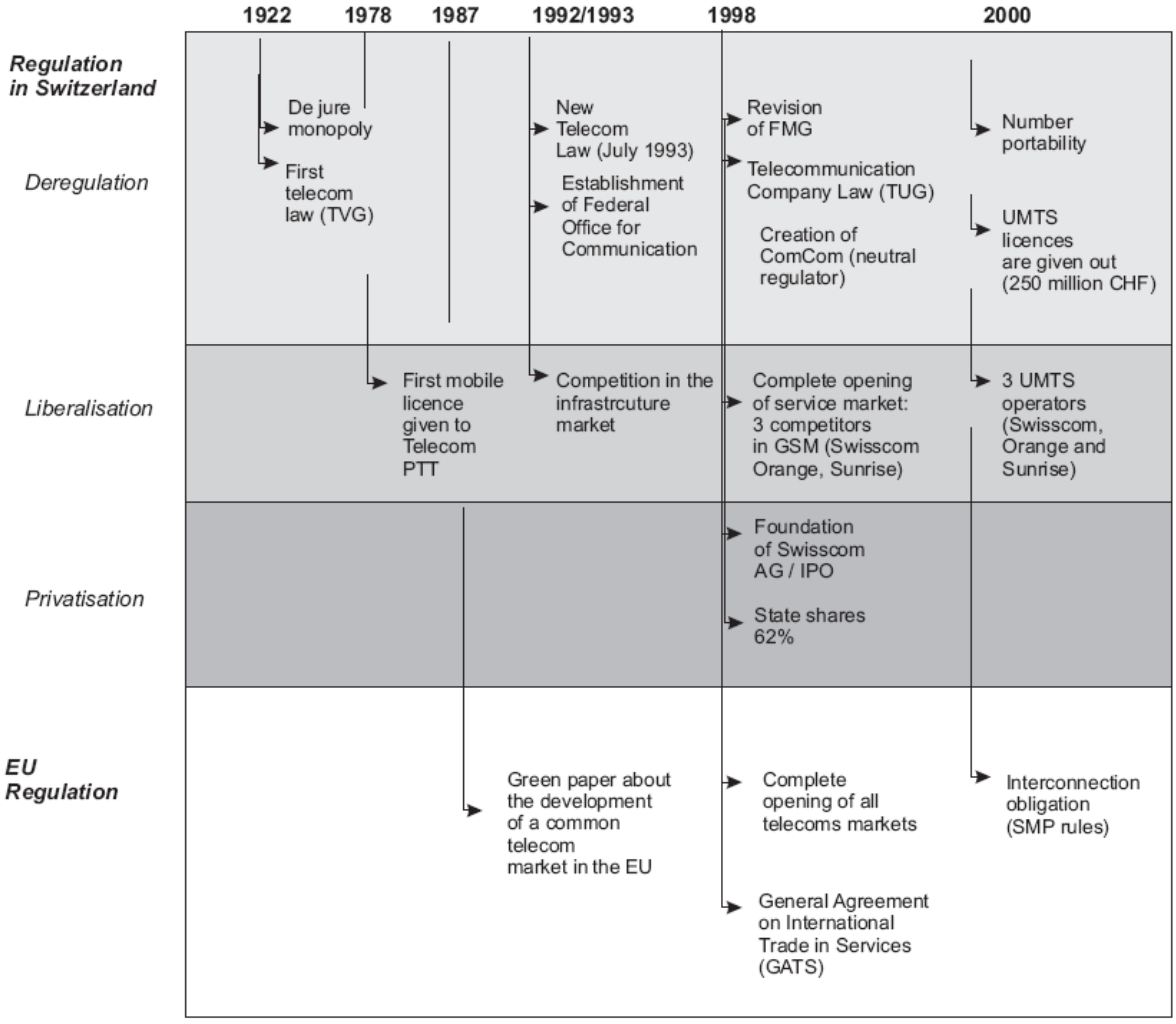


Figure 16 Main formal regulation during the 1G and 2G times in Switzerland (Source: Author according to Abegg 2005: 76)

The Federal Law was adopted on 30 April 1997 (FMG), and came into effect on 1 January 1998 (the same date as the European Telecommunications Legislative Framework). With the liberalisation of the market, the legal monopoly of the Swiss Telecom PTT in the field of telecommunications was broken (OFCOM 2003b: 4). Parallel to the new telecommunication law, the Telecommunication Business Act (TUG), which regulated the transformation of the PTT companies into two independent enterprises, went into effect on 1 January 1998. The national telecom provider had been separated from the postal division and made a public limited, traded company on 1 October 1997, and had changed its name to Swisscom AG (OFCOM 2003b: 4). It is stipulated in the TUG (TUG, Art. 6) that the federal government must be a majority stakeholder of Swisscom in both capital and voting power. The government sets its strategic objectives every four years, and the achievement of these objectives is examined yearly (Abegg 2005: 77). The Department of Finance owns 62.7% of the company while the remaining shares are publicly traded. Generally it can be said that the opening of the telecommunications market in Switzerland happened in two phases. First, on 1 April 1992, the market was opened for end devices; then on 1 January 1998, the monopoly for the provision of phone services and the operation of the wire-based infrastructure was ended. The instruments crucial to the process were a relatively lean concession regime, the portability of phone numbers and the obligation to provide cost-effective interconnection. Basic service provision within a certain range and maximum prices are regulated by law in Switzerland as well. In contrast to EU regulation, there was no obligation to unbundle the "local loop" until 1 April 2003 (Dönni/Schwab 2004: 276pp.).

Liberalisation led to a complete restructuring of the institutional framework and the establishment of a specific regulatory regime in Switzerland. The central element was the separation of regulatory and business activities, which assured the same conditions for participation in competition to all. With the FMG revision, all of Telecom PTT's regulatory duties were transferred to the Federal Office for Communication (OFCOM), created in 1992 to accompany the regulatory process. Since the federation itself is a market participant through its majority stock holdings, an independent communication commission (ComCom) was introduced in 1997 (INTCH-8). Located within the Federal Department of Environment, Transport, Energy and Communications (DETEC), OFCOM is regarded as the Swiss NRA; but in the end, ComCom makes decisions on telecommunications matters and OFCOM implements them (OFCOM 2003b: 11). Its duties have in fact been expanded; they include, among other things, the securing, control and financing of basic service provision as well as the regulation of interconnection. The Federal Council holds an important supervisory control over DETEC and OFCOM, which are consequently both cut off from independent regulation (OFCOM 2003b: 14)[27]. Another important actor is the competition authority. Swiss competition policy is based on the Federal Act on Cartels and Other Restraints of Competition. Its aim is to promote competition by opposing the possible harmful effects of restraints (OFCOM 2003A: 15). Thus in Switzerland, OFCOM, ComCom and the Competition Authority together regulate the market (INTCH-7). However, there were even bigger uncertainties about who was responsible for what after the market opening of 1998. The service providers took advantage of this legal uncertainty, especially during the period of Swisscom's monopoly, by claiming confusion over the authorities' jurisdiction, and in so doing gained a lot of time. Furthermore, ComCom's authority and decisions were challenged in law suits, some of which were decided against ComCom. This situation contributed to the initiation of liberalisation, not to increased legal and investment security for competitors. Moreover, many former PTT employees who possessed an affinity (belief system) for the monopoly company sat on the different regulatory boards and made their beliefs clear to the competitors. The result was very low internationalisation pressure on Swisscom, and this makes their reserved internationalisation after the opening of the

[27] For a detailed description and international benchmark of the Swiss regulation, see: OFCOM 2003a page: 12.

market more understandable (INTCH-8 see also OFCOM 2003a). Further characteristics of the Swiss regulatory model included:

- ex-post regulation, in contrast to the Swedish and EU-wide ex-ante regulation
- high safety requirements in the antenna area (NIS ordinance)
- legal insecurity in relation to the corresponding regulatory authority, and limited power to execute decisions
- Advantages for the ex-monopolist in the areas of local loop and interconnection (INTCH-1; INTCH-5; INTCH-6)[28]. For example, formal interconnection fees in Switzerland were much too high in the beginning (INTCH-1).

The regulatory authorities experienced some **learning effects** during this time as well: *"The importance of political decisions has not been considered enough. Liberalisation was done way too late. Swisscom Mobile already had a market power that presented a huge challenge to the others"* (INTCH-8). Until now, the build-up of sites in some areas has been impossible for competitors, which has created an enormous monopoly advantage for Swisscom. Additionally, the Swiss public has been extremely conscious of and concerned about electromagnetic radiation, which overall has hindered the construction of competitive infrastructure, as sites are limited:

> "There are disadvantages here in Switzerland, especially in the area of antenna location. There are huge market-entry barriers for new competitors. It can take partially two to three years to erect an antenna because of objections by citizens. And for country-wide provision, you need 1,500 or more. The advantage the historic competitor has lays clearly in that fact that they had properties everywhere and thus also the locations" (INTCH-6).

The traditional ex-post regulation in Switzerland makes juridical cases low, and regulative powers are small by comparison internationally.

Altogether, these factors accounted for lower internationalisation pressure on Swisscom. Furthermore, Switzerland's traditional state neutrality led to first-relationships with India and Malaysia at the beginning of the 1990s. Internationalisation into other emerging markets would have been possible, but could not be accomplished because of low human resources and concentration on the home market. Plus, the mobile sector is far more important for Sweden as a country than it is for Switzerland. Switzerland is an average-user country, and to this day the government hasn't needed to issue any special sectoral policies. In Sweden, however, mobile technologies are the industrial heart of the country, as Ericsson's success during the 2G boom period proved significant for the whole nation (INTSwe-18).

[28] For a detailed description of the Swedish and Swiss regulatory institutions, see attachments pages: 276pp..

Regulatory System	Sweden	Switzerland
Date of liberalisation	First liberalisation of equipment market Re-regulation and liberalisation rather early in 1993 1981 competition in mobile starts (Comviq)	First liberalisation of equipment market and services only in 1998 Late liberalisation and de-regulation iof services segment in 1998
Privatisation	Partial privatisation in 2000 (30%)	Partial privatisation in 1998 (33%)
Laws	Light national regulation, first in Swedish tradition 1998 implementation of EU regulation	A new telecommunications law (LTC)
Regulatory bodies	PTS as regulatory body, no real sanction power (see: interconnection disputes, local loop)	OFCOM was implemented in 1993 ComCom with only low sanction powers in the field of interconnection
Regulatory learning effects	No decreasing prices after liberalisation	Long Ex-post regulation
	Monopoly advantages for Telia after liberalisation (interconnection disputes)	Not clear which authority is responsible (ComCom, OFCOM or competition authority)
	With implementation of EU regulation in 1999, more pressure on incumbent Privatisation occurred in 2000 after the merger with Telenor failed, also due to political reasons	Also after privatisation, state as majority owner involved in company strategy-making High monopolistic advantages in local loop, ex-post regulation, interconnection methods High lobbying powers - SICTA; Economie Suisse
Internationalisation potential/strategy	Early liberalisation and opening of services market - early internationalisation pressure In the middle of 2G boom period, however, low internationalisation pressure before implementation of EU regulation, due to monopolistic advantages and light national regulation	Falling market shares after liberalisation - high insecurity leads to internationalisation pressure (debitel) Low internationalisation, however, in the middle of the 2G boom period because of monopolistic advantages

Table 19 Potential for internationalisation stemming from the national regulatory system during the 2G boom period (Source: Author)

The national market system during the 2G boom period

The market situation in Sweden differs from the general market trend because Sweden was among the first markets to be **liberalised** (INTSwe-16b):

> "Sweden was a special case because there never was regulation on the market, and only the licences and the spectrum were regulated. Competition came quite early, which forced Telia to be more competitive and more market-oriented. And they also did the market for handsets and for terminals quite early on" (INTSwe-3).

The GSM mass-market boom in Sweden started in 1994, thanks to handset subsidising and falling prices (INTSwe-10). Telia Mobitel, with a market and distribution presence that competitors had difficulties matching, was the operator that benefited most from this boom, capturing almost half the market, closely followed by Comviq (INTSwe-11). By May 1995, seven applying consortia had indicated their interest in licenses to operate a mobile telephony network in the 1800 MHz band. In late 1997, Telia launched its GSM 1800 network as the first worldwide operator. By the following year, there were three working GSM operators in Sweden: Telia AB, Europolitan AB and Comviq GSM AB (Stelacon 1997: 42). Tele 8 also appeared later, but was never fully active on the Swedish market. The core competences of the **Swedish players** are the following in the 2G boom period:

Telia AB (GSM 900, GSM 1800, NMT 450/900) (Telia Mobile/DOF)

- Telia is by far the largest telecommunications operator on the market in 1998. Telia is also the only mobile operator to offer services based on NMT (an analog network). Telia offers services to the entire market and aims to be able to provide comprehensive solutions. During 1997, Telia launched

services such as Unified Messaging, and developed facilities for voice-controlled dialling. During 1996, Telia was granted a licence for GSM 1800 as an independent network and in November 1997 became the first operator in Sweden to put this frequency band into service. After a re-organisation of Telia at the beginning of 1998, the mobile services are then operated by Telia Mobile AB (AB Stelacon 1998: 31).

Europolitan AB (GSM 900), Europolitan PCN AB (GSM 1800) (Comviq GSM/Tele2Mobil)

- Europolitan AB is a wholly-owned subsidiary of Europolitan Holdings AB. In 1991, the company was granted a licence to offer GSM-based mobile telephone services. Europolitan concentrates on high-usage customers and consequently aims mainly at the business market and at residential-market individuals who generate high volumes of traffic. Over the past year, Europolitan has focused its efforts more on this sector. An example of this is the launch of the prepaid card at the end of 1997. Europolitan's aim is to be early on the market with new GSM-based value-added services and to broaden the fields of application of the technology, for example in the form of wireless access to the fixed network. Europolitan Holdings AB has a subsidiary company, Europolitan Stores AB, which sells mobile telephones. In 1999 they have 21 outlets.

Tele2 AB (GSM 900), Netcom Systems AB (GSM 1800)

- Until 1997, Comviq GSM AB was a wholly-owned subsidiary of NetCom Systems AB. During 1997, organisational changes within NetCom resulted in the major company market for mobile telephony being transferred from Comviq to Tele2. At the beginning of 1998, Comviq's activity was integrated with that of Tele2 and Kabelvision, and now comes under the subsidiary company Tele2. Tele2 has offered mobile telecommunications services in Sweden since 1981. On 1 September 1992 they launched one of the first privately owned GSM networks in the world. Tele2's strategy states that they should offer customers the lowest price. In practice, Tele2 is not cheapest for every customer, but their prices are relatively low and they are the mobile operator that offers the greatest variations in rates over the day and the greatest geographical differences in pricing. During 1997, Comviq became the first operator in Sweden to launch the prepaid card. They focus on good indoor coverage and coverage in urban areas, and expand their network accordingly. Tele2 has also been granted a licence for GSM 1800, combined with GSM 900 (Pricewaterhouse Coopers 1999: 30).

Tele 8 Kontakt AB (GSM 1800) (later Telenordia)

- Tele8 Kontakt AB, the smallest player, is licensed to offer services based on GSM 1800, and the company has a licence to offer these services on an independent network (AB Stelacon 1998: 32). The company was bought by Telenordia at the end of 1997 after a period of attempts to find financiers to enable Tele 8 to build a mobile network (Pricewaterhouse Coopers 1999: 30).

On January 1, 1996, Telia had a **market share** of about 82%, which fell to 71% over the course of the year. Telia was the major player during the digital boom period under review (1994-1998) due to its monopolistic advantages from the NMT times, and this was also the case if we consider only the GSM market. Europolitan and Tele2 were broadly equal in both 1994 and 1997, but there were some differences in 1995 and 1996:

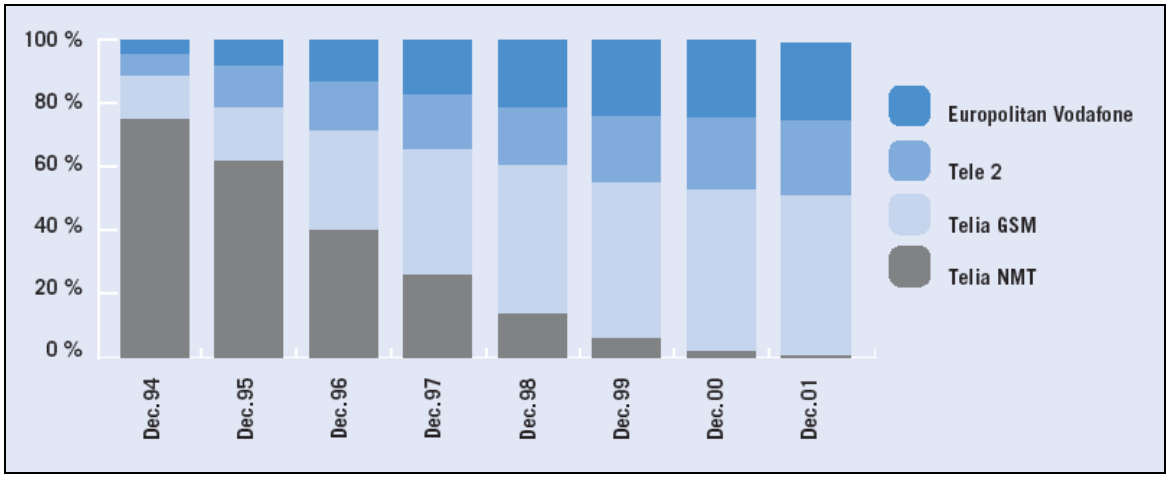


Figure 17 Market shares in mobile telephony 1994-2001 in Sweden (Source: PTS 2002: 26)

One of the NMT networks (NMT 900) was closed by the end of December 2000, and the number of NMT customers continued to decline in 1998. Additionally, the prepaid cards continued to take market shares, and by the end of 1998 accounted for 25% of the total number of subscriptions (Pricewaterhouse Coopers 1999)[29]. The year 1998 saw a certain change in market shares in comparison with 1997. Telia's combined share of the market value fell from 66% to 63%, Tele2 retained an unchanged share at 17%, whilst Europolitan increased its share from 17% to 20% (Pricewaterhouse Coopers 1999: 32). The relative increase in subscriptions measured in Sweden was greatest during the year 1995, when the growth rate was 45%. There were about 2.5 million subscriptions for mobile telephony there in January 1997, which is an increase of about 500,000 subscriptions (25%) during 1996. These 2.5 million included subscriptions for both NMT and GSM (AB Stelacon 1997: 42). The frequency of mobile telephone ownership in Sweden is one of the highest in the world; according to the Cellular Telephone Suppliers Association (Mobilteleleverantörerna), it was 28% in January 1997, which placed Sweden third in the world after Finland, with 30%, and Norway, with 29%. But in January 1996, Sweden had the highest degree of mobile telephone ownership in the world (AB Stelacon 1997: 42). The mobile telephone started to become a consumer product in the mid-1990s, when GSM took off. The network was expanded and modernised frequently. Also, user-friendliness in respect to new technologies continued. The situation in 2000 was described as follows:

> "The Nordic mobile market is one of the most developed and innovative in the world, with significant user readiness to try new applications. The Nordic market is the leading European market in terms of the use of mobile phones, the Internet and PCs, and Sweden tops the world market for IT maturity in both the consumer and business markets. This gives Telia a unique advantage for developing the mobile services of the future" (Telia AR 2000).

Also at the beginning of 1998, there were 3.17 million subscriptions for mobile telephony services in Sweden based on NMT and GSM, including prepaid cards. This corresponds to a **market penetration** of 36% of the population of Sweden. According to Stelacon's survey, "The Internet Bus," 55% of homes had access to at least one mobile phone in April 1998 (AB Stelacon 1998: 33). As for the GSM market, the greatest growth took place during the year 1997 and 1998, when the number of subscriptions increased by 843,000. The fastest growth rate in GSM in percentage terms was in 1995, when the market grew 145% (just over 600,000 GSM subscriptions) (AB Stelacon 1998: 33). Additionally, in 1998 a new market for operators without infrastructure emerged, which further stimulated competition. Such operators were at first labelled service providers and later, mobile virtual network operators (MVNO). The trend was begun by the Norwegian Sense (INTSwe-16b). However, there was no regulation in place to force Telia to comply with the new market entrants, and so they had no major impact in the Swedish market, though they had in other markets (INTSwe-13).

Telia Mobile has a very strong position within the large corporate **customers segment**. This includes the 1,000 largest business customers and organisations in Sweden (INTSwe-2). It is estimated that just below 60% of the 700,000 new subscriptions during 1997 were residential. Of the total of 3.2 million subscriptions at the end of 1997, the market was made up of 1.9 million (60%) residential and

[29] The revenue per prepaid card customer is lower than the revenue for other types of subscription, which means that operators with a high percentage of prepaid cards have a lower turnover per subscription than operators with a small percentage of prepaid cards. However, Tele2 has invested heavily in prepaid cards and this is a partial explanation for the company's market share being lower for turnover than for percentage of subscriptions. The advantages of prepaid card customers include the fact that they pay a higher call charge than many of the other customers, which yields a better margin for the operator. Prepaid cards also generate prepaid revenues, small credit losses and have low distribution costs. A high percentage of prepaid card customers can also be expected to choose to stay with the operator from whom they acquired their prepaid card if they shift to a different type of subscription (PWC 1999: 34).

1.3 million (40%) business subscriptions (AB Stelacon 1998: 39). The business segment is also responsible for small- and medium-size business customers, which in Sweden totals nearly 900,000. Telia has a strong position in this segment, too. However, the competition there is higher:

> "Being an incumbent in Sweden is an issue on the residential side, but definitely not on the corporate side, because corporations are always following their incumbent more, since this is equivalent to a certain quality of service, a good price, etc. Vodafone could not get a high enough market share, so they lost in both the residential and corporate markets in Sweden" (INTSwe-2).

Declining manufacturing costs combined with handset subsidies enabled the 2G boom in Sweden. **Prices** for service also decreased, but not as fast as those for terminals, and not in recent years. Meanwhile, mobile telephony continued to further penetrate the business- and public-organizations market. However, as recently as the late-1990s, strategies for mobile telecommunications were not well thought out among business users, with only a minor part of the options being utilised. This was (and still is) a weakness and an opportunity for the Swedish sector (Lindmark, et al. 2004: 291p.). At the beginning of and during the boom period in Sweden in the mid-1990s, coverage became a main competitive differentiator between operators, a fact that led to a rapid build-out of the networks. At the time that NMT 900 was introduced, Televerket had obtained a near-monopoly position on the Swedish cellular market. Thus at the beginning of the 1990s, Televerket could enjoy harvesting on investments in NMT. The NMT sites were beside the customer base, a **monopolistic advantage** the competitors did not have and which helped Telia in the fast role-out of further mobile infrastructure:

> "Oh yes, I think they had infrastructural advantages. They could use some of the NMT 900 sites before. So the characteristics of the infrastructure were quite similar. Also, it is a digital system. And I think they could have the advantage of an existing customer base, the advantage of an established brand name. They had a lot of advantages. Yes, and I think that you can see those advantages also in the market shares, where Telia had some 50% of the market" (INTSwe-15).

In fixed telephony, Telia's position was even stronger (INTSwe-13). Thus a major topic between Telia and its competitors at the beginning of the digital boom period was interconnection (INTSwe-19). However, Telia`s monopolistic market power was also visible in the national company associations during this time:

> "I would say it comes by size. I would say of course TeliaSonera is one of the most powerful. They pay the highest fees within IT Företagen (Swedish Telecom Association). (…) And I would say yes, Anders Igel (CEO of TeliaSonera until 2007) has the biggest reputation" (INTSwe-4).

Approaching the 1990s, however, first Comviq (Tele2) and then NordicTel obtained licenses to operate GSM networks in competition with Televerket/Telia - a competition on more equal terms than the earlier limited competition in the field of NMT. Already by 1996, all three operators had achieved the coverage obligations stipulated in the licenses (all towns with more than 10,000 inhabitants and all major roads) (INTSwe-7). Coverage build-up strategies also differed somewhat between the operators; while Comviq aimed for strategic areas, Europolitan and Telia aimed for large area coverage (Lindmark, et. al. 2004: 282-290). However, even today Telia has the most extensive network infrastructure in Sweden. Furthermore, technology also follows a pattern of differentiation. GPRS was introduced by Europolitan/Vodafone in late November 2000, followed by Telia and Tele2 in the fall of 2001 (INTSwe-16b). A further differentiation in services in Sweden was made by Comviq, which launched prepaid SIM-cards in March 1997, soon followed by the other operators. This innovation further boosted the GSM market by activating new market segments. Over one million cards were sold in 1998, of which more than 60% were Comviq/Tele2 Mobil. Voice mail and SMS, for instance, were introduced in 1998 over prepaid cards, the latter being important for the take-up of SMS (Lindmark,

et. al. 2004: 282pp.). Additionally, the emergence of a mass market for mobile telephony in 1997 was facilitated by the fact that the operators started to subsidize the GSM phones[30] by paying retailers when they signed up new subscribers (Lindmark, et. al. 2004: 291). Since 2001, it has been possible for consumers to switch operators while keeping their old mobile number. Even though the actual number of portings is relatively low, they have risen sharply since their introduction (PTS 2006: 34). The stiff competition has of course had an effect on the tariff levels as well. Price competition has occurred in both subscription charges and call tariffs. According to a study conducted by the PA Consulting Group in Sweden in 1995, tariffs for GSM telephony fell by 30% in the first two years after they were introduced. Since that time, the rate has fallen by a further 10% - 20% (AB Stelacon 1997: 49). However, Sweden traditionally had a very low price level for mobile telephony but could not retain it internationally after liberalisation. Furthermore, there was no price change at all between 1996 and 2001 in Sweden, compared to international levels, even though the other countries experienced falling fees (Vaterlaus, et al. 2003: 78). It is worth noting that there are certain geographical differences in pricing, with companies in northern Sweden, for example, able to obtain cheaper call charges through Comviq's (Tele2) subscriptions, "Norr" (PWC 1999: 40).

In Sweden, the take-off of GSM occurred three to four years earlier than in the average EU countries and in Switzerland. Due to this early competition and resulting early market take-off in GSM and also NMT, mobile penetration rose quite a bit, and internationalisation pressure arose earlier too, as margins were falling on the home market and further growth was limited due to rapid market saturation. Falling market shares since the mid-1990s, the close-down of NMT and the new MVNOs put more internationalisation pressure on Telia, as the limited home market and the first small minority investments in the Nordic and Eastern European area could not make up for upcoming competition in Europe. The opening of the German and French markets in 1998 especially worried the small player, and thus Telia tried to merge with Telenor in 1998 (INTSwe-8). However, this was unsuccessful and exerted even more pressure on Telia to internationalise, causing the company owners' decision in 1999 to invest heavily in growth opportunities in Finland (100%), Denmark (100%) and Norway (100% in 2000), as well as Poland, Slovenia and Ireland. Minority shares all around the world followed, with the main ones in Uganda, Brazil and India (INTSwe-16b). Thus Telia pursued an intense internationalisation strategy during the 2G boom period, due to falling margins (because of saturated home markets) and heavy competition on the home market. Moreover, the competitors Vodafone and Tele 2 were very demanding challengers (INTSwe-4).

Here we can compare the development of formal and informal market institutions during the 2G boom period in Switzerland. The commercial start of the digital GSM network first appeared in the Swiss urban areas and along the most important traffic axes in March 1993 as NATEL D (Swisscom AR 2000). In the ensuing years it was continuously built up by the monopoly company. By 1997, the Swiss PTT already possessed one million mobile communication customers and used dual band technology for the first time (GSM900/GSM 1800) (OFCOM 2005a). This was quite late in comparison to other countries like Sweden, and explains the late GSM boom toward the end of the 1990s in Switzerland. In Switzerland, the month of April 1998 (**liberalisation** of Swiss market) saw

[30] Ordinarily operators subsidised handsets for customers with a lock-in period as a condition. This lock-in period could range from 6 to 24 months, with 12 to 18 months being most common. Later, a number of operators chose to launch handsets at a discounted price "without a lock-in period". However, these agreements have a minimum cancellation period that is normally 3 months (PTS 2006: 34).

the Commission issue two new licences for mobile telephony: the first to diAx mobile (a common enterprise of SBC Communications and 50 Swiss electricity companies active in the fixed and mobile markets), and the second to Orange Communications, a 100% daughter company of France Telecom (ComCom 1999: 16). However, the two new operators encountered difficulties in achieving the levels of population and area coverage given them by the Swiss regulator (ComCom 1999: 18). It is nevertheless interesting to note that in terms of market share, while Swisscom had 100% up to the beginning of 1999, by December of the same year its share was about 75%, diAx's was approximately 15%, and Orange's around 10% (ComCom 1999: 27). This is high above the EU average of an incumbent's **market share**, as figure 18 shows:

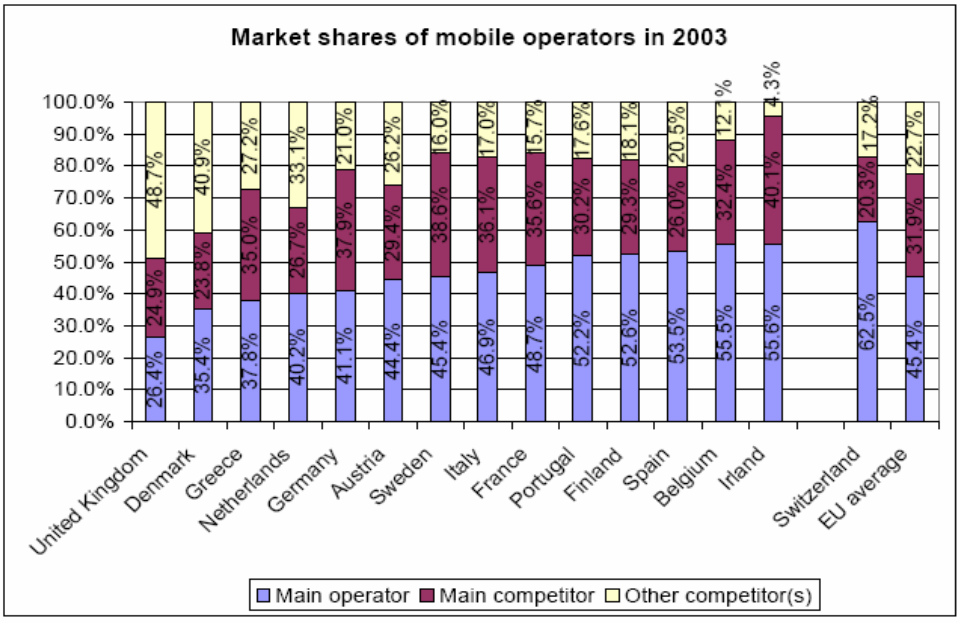


Figure 18 Market shares of Swisscom Mobile in international comparison (2003) (Source: ComCom 2003: 30)

Swisscom remained by far the most important operator in terms of market share in the year 2000 as well, still holding 67% of the mobile telecommunications market:

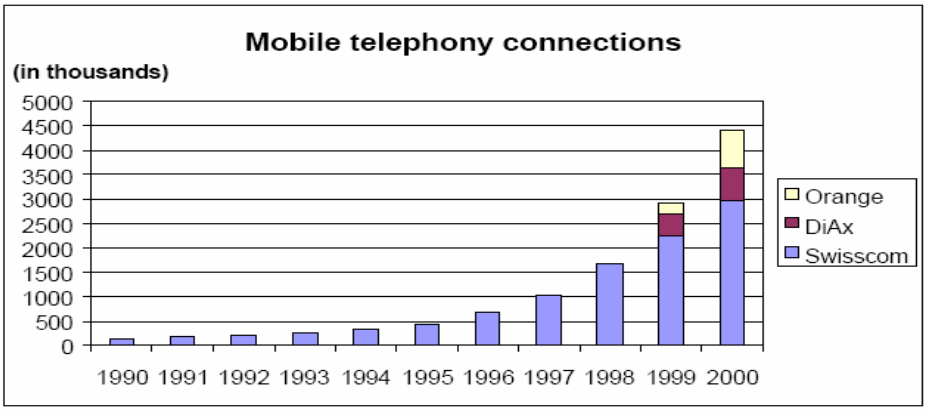


Figure 19 Mobile telephony connections in Switzerland: development and market shares (1990-2000) (Source: ComCom 2000: 32)

In 2000, diAx's GSM licence was transferred to the company TDC Switzerland, following the merger of Sunrise (a 100% affiliate company of TDC Denmark) and diAx. The GSM services and all other products of the new company TDC Switzerland are now provided under the Sunrise brand name (ComCom 2000: 21). Within the Swiss mobile telephony sector, there were 22 subscribers per 100 inhabitants in 1998, but already 40 in 1999 (among altogether 2,935,000 subscribers), i.e. a growth of almost 75% in one year. This exponential growth far exceeded many forecasts (ComCom 1999: 27). The dynamism of the mobile telecommunications market continued until the year 2000. However, the very high growth rate of 89% in 1999 has slowed down somewhat to a mere 40% in 2000. But the rate of **penetration**, already high in 1999 (40%), continued to increase in 2000 to reach a figure of 60.9 connections per 100 inhabitants (4,415,000 subscribers) in September 2000 (ComCom 2000: 32).

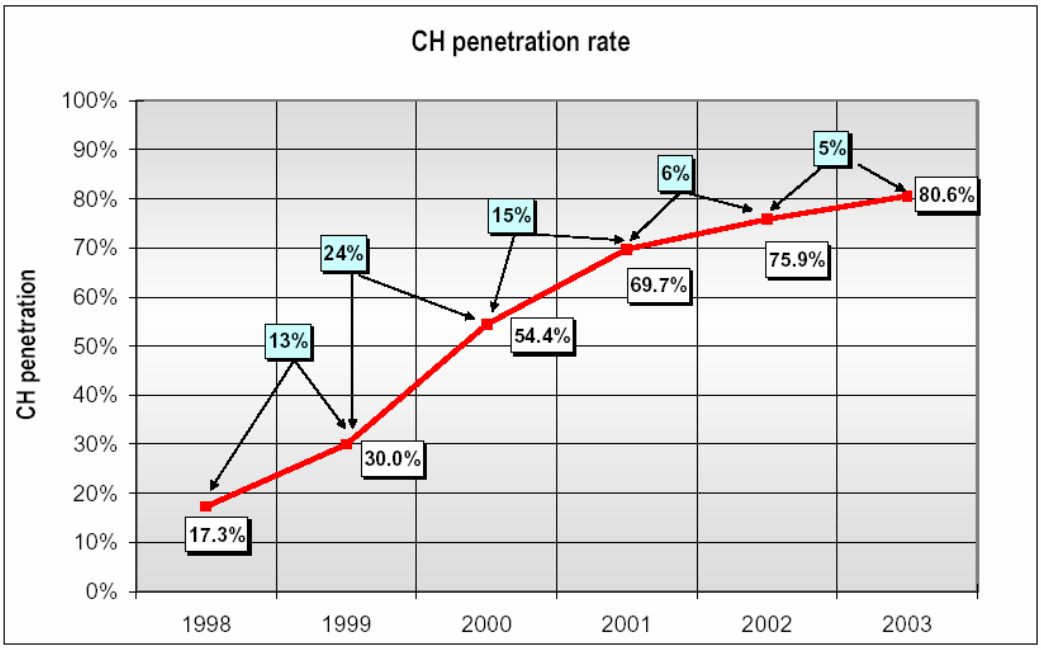


Figure 20 Market penetration rate 1998-2003 in Switzerland (Source: OFCOM 2004: 49)

The mobile boom period in Switzerland occurred after the year 1999 with extremely high growth rates, mainly within the EU average at the time. Moreover, the prepaid card had already been launched in 1996 under the name Natel Easy. Its inventor was Walter Heutschi (at the time, director of the mobile section in Swiss PTT) (INTCH-12). Prepaid subscriptions were introduced to the residential sector in Switzerland in 1998. It must be noted, however, that following a period of strong growth for all mobile telephony connections, the share of prepaid subscriptions was eroded to the tune of 2.5% to the benefit of post-paid contracts (OFCOM 2005a). Additionally, Swiss clients benefited from the high quality increase that followed liberalisation in 1998 in Europe, since Switzerland has above-average availability in **telecom infrastructure** (cable- and broad-band access, DSL snd CATV) (ICT Switzerland 2004: 3). In the area of GSM infrastructure, Swisscom Mobile had the lead compared to Sunrise's and Orange's positions, because it had already built up its infrastructure during most of the pre-liberalisation period:

> "Liberalisation in mobile communication came relatively late onto the Swiss market - approximately five years later than in Scandinavia or in Germany. Swisscom therefore already had a relative advantage, a high market share and a completed network. Customers in Switzerland also have enormously high quality expectations. In the beginning it was difficult for Sunrise to satisfy customers. This initially damaged the reputation of the company tremendously. In Switzerland

> there is also enormous national pride, which led to a natural bond with the previous monopolist. It had a tremendously good reputation, like the monopolist in Norway, and therefore a higher market share. With three players, the competitive share in Switzerland is relatively small. In other countries there are four or five competitors and a lot more re-sellers" (INTCH-5).

Besides high customer loyality in Switzerland, competitors had a hard time building up their infrastructure in Switzerland because of the country's high regulative requirements connected to electromagnetic radiation laws. The population also felt a great need for safety, stirred up by increasing mobile telecom competition and the implementation of new infrastructures (UMTS) at the end of the 1990s and early in 2000. Since Switzerland's bottom-up political system allows its citizens to appeal decisions at the community level, the expansion of GSM and UMTS networks was continually delayed by antenna moratoria (arising from the population's fear of damage from mobile communication emissions) (INTCH-14 INTCH-22):

> "In the beginning Swisscom had a bonus. The population was less worried about Swisscom antennas. After a while, though, it ceased to matter who built the 20th or 30th antenna. Everybody was under suspicion. But for a while it was quite important who was operating it" (INTCH-20).

Sometime later, Swisscom established Forum Mobil with its competitors, an institution which addresses these questions and tries to counteract public fears with the help of expert opinions. Eventually, the Swiss population's worries about safety caused lawmakers to increase levels of radiation protection ten-fold (NIS ordinance of January 2000) (INTCH-14). Apart from Forum Mobil, there were other formal branch associations in form of ASUT or SICTA, as well as Economie Suisse. As the largest Swiss telecom company, Swisscom had an unchallenged hegemony in these associations for a long time as well:

> "All these are pure Swisscom "events". The boss of SICTA was a former Swisscom employee. SICTA practically only does what Swisscom says" (INTCH-4).

In particular, innovative **pricing** policies also determined competitor relationships during the boom period. Since liberalisation, prices have generally decreased for both the private and commercial sectors in Switzerland: 8.6 % for private and 24.6% for commercial activities. Since 2000, however, prices have stagnated, though with a slight increase between 2001 and 2002 due to a change in the tariff structure (OFCOM 2003a: 19). Comparing prices internationally, Switzerland came in last in Europe in 1996, and its prices were significantly above the EU-average. This already changed by 2001, since Sweden could not hold on to its affordable pre-liberalisation prices. Switzerland then moved up to the middle position (Vaterlaus et al. 2003: 79). At the beginning of the 2G boom era, Swisscom's relationship with its competitors was important, since the company represented customers in the whole sales segment and hadn't yet built up its own area-wide network coverage (INTCH-7). From the outset there were intense disputes between Swisscom and its competitors about the pricing of **interconnections** and the calculation methods. The competitors felt unfairly treated until in 2000 a new interconnection regime was established following a serious of legal disputes (INTCH-5). From 2000 onwards, a new method of calculation, LRIC (Long Run Incremental Cost), was applied. *"This no longer allows Swisscom to force its competitors to bear the burdens inherited from the past"* (ComCom 1999: 15). Additionally, after the opening of the market till today, Swisscom has harvested on its **monopoly advantages** in the field of fixed lines (local loop) and in the fields of national roaming, interconnection and mobile sites (INTCH-4). Furthermore, Swisscom Mobile distinguished itself from its competitors by establishing a strong customer bond, which they tried to maintain with high sensitivity to traditional Swiss values in marketing and customer communication (INTCH-13). Swiss SME in particular, and private customers as well, still seek Swiss solutions. Swisscom's high

market share illustrates this significantly. *"The brand Swisscom is still very strong, and a lot of Swiss customers still rely on it, because it is their home-grown company. With foreign companies, they don't feel the same"* (INTCH-8). The company even developed the world's first environmental mobile phone (Orbit). This appeared as a clear response to the Swiss population's safety and environment concerns In 2000, the company acknowledged that international expansion was hardly possible, and that it would make better sense to focus more directly on positive dialogue within the domestic market and with groups of investors from the home country (Swisscom AR: 2000). The **customer** base was characterised by a high number of business clients with relatively high quality demands. However, the new providers Orange and Sunrise were able to gain a market share in the private-customer and youth segments with adept marketing and the launching of a price war (INTCH-5). But the ex-monopolist's knowledge of informal, cultural characteristics at home resulted in persistently high customer loyalty:

> "At the time, diAx also got a license but positioned itself poorly as far as branding and appearance was concerned. That hurt them a lot. Orange did it quite a bit better. Then there was a re-branding, which did not prove very advantageous at all, and then Sunrise came. Sunrise already had a better appearance, strongly in the direction of discounter and best pricing, and this is always a dangerous position, especially in Switzerland, of course" (INTCH-14).

Furthermore, Swisscom's quality of services was far superior to its competitors at the beginning of liberalisation, based on the above-mentioned monopolistic advantages and later market opening (INTCH-17):

> "We distinguish ourselves in the first place with quality, since we invested massively in network coverage and technologies. We can also afford GSM, EDGE and UMTS concurrently. We are perceived relatively well in customer service, in comparison for example to Vodafone or Orange. We are considerably more expensive than the competition and justify the price difference with this - the customers accept it as long as the service is all right" (INTCH-17).

Also in terms of **learning effects** within market institutions, Swisscom clearly learned that internationalisation into a culturally different market is not so easy. The Swiss PTT experienced the importance of cultural and customer knowledge in Asia, where it tried to establish a network in India and Malaysia. However, they failed because of cultural problems:

> "There was no dealing with the Indian culture at all in the business process. It is a completely different mentality. There was also no knowledge about the corruption. You could not pull out profits in cash (…) but one did not know all of these things. So a consultant was hired as a CEO in India, who was previously a service consultant. The CFO then came from Switzerland. Imagine in a corrupt country, the CFO being from Switzerland. That is a problem (LAUGHS). One didn't know any of these things. This was quite naïve" (INTCH-10).

All in all, Switzerland's high customer loyalty and slow competitive pressure resulted in market shares for the former incumbent. Those were very high (65%) when compared internationally. This meant little internationalisation pressure on Swisscom, and so the company only decided to invest in the heart of Europe in 2001 (debitel), where it was familiar with the business environment and the customers. In addition, pressure motivated the Vodafone Alliance to differentiate from national competitors and to offer their customers high-value services. Since the customer is very important in service industries, Telia also internationalised mainly in the Baltic and Nordic areas, where the management knew customer habits and the business customs with competitors. Telia had the added advantage that since the 1960s they had been working with Nordic players in the field of mobile telephony and knew the market situation in their neighbouring countries. However, Telia mainly experienced higher internationalisation pressure because of the early mobile take-up, demanding competitors in the home-market and saturation of their home market during the 2G boom period.

Market System	Sweden	Switzerland
Market entry	3 GSM players in 1993	Late liberalisation (3 GSM players)
Market shares	Average market shares; however, incumbent has highest;	Incumbent market shares high above EU average
Market penetration	Mobile services very early, high penetration; Early competition; Mobile Boom in mid-90s; Early saturation of market after boom period	Mobile services on the market marginal for a long time; Take-off of mobile services only in late-90s
Monopoly advantages	Monopoly advantages in NMT and local loop	High monopoly advantages (network, customer loyalty, branding, local loop) - competitors struggle to build up infrastructure
Pricing	Low tariffs before but stagnating tariff structures after the liberalisation Interconnection disputes	High prices before liberalisation/Falling prices shortly after, then stagnation Interconnection disputes
Customer habits	Good knowledge of Nordic and Baltic customer	Problems with culture in India and Malaysia
Marketing		Focus on Swiss customer (typically Swiss values are mentioned in marketing campaigns in the late 2G boom period)
Internationalisation potential/strategy	Low internationalisation pressure in the middle of 2G boom period due to take-up of market and monopolistic advantages in NMT; After boom period, pressure to go international; heavy investment in Nordic and Baltic areas (Finland, Norway, Denmark, etc.); attempt to merge with Telenor	Low internationalisation pressure in the middle of 2G boom period due to take-up of market and monopolistic advantages Vodafone Alliance offers customers quality services
	Further investment in emerging markets as growth opportunities	Divestment in India, Malaysia, etc.

Table 20 Potential for internationalisation stemming from the national market system during the 2G boom period (Source: Author)

The national corporate governance system during the 2G boom period

As mentioned above, the organisation of Televerket as a public enterprise was analysed several times prior to the 1980s, but no changes were carried out at that point (INTSwe-16b). However, following the successive reduction of the monopoly sector, it became clear that the co-existence of business and control in Televerket would hinder telecommunications-market development in Sweden. The Kinnevik Industrial Group (later Tele2) called attention to this several times, with reference to the question of fair competition. Hence the amalgamation of authority and business in Televerket became an issue in the political debate on the telecom industry, and the structural separation of these functions took place progressively during the 1980s and 1990s. In 1989, following many complaints regarding Televerket's bias in favour of its own interests, both in connection with equipment and infrastructure competition, the government decided to establish a national telecommunications council (Statens Telenämnd, STN). STN took over the responsibilities of the two above-mentioned agencies in 1990, and it assumed the function of frequency administration in 1992, when it was converted into the National Telecommunications Agency (Telestyrelsen) (Karlsson 1998). Finally, in 1993, when Televerket changed its organisational status to a state-owned limited liability company, the separation of business and authority was complete. Telestyrelsen was then placed in charge of the previous activities of STN, licensing activities previously administered by Televerket, standardisation activities and the general regulation of competition in the sector (Hauknes/Smith 2001: 14). Even though it was not privatised, Televerket seemed to be a "normal market player" regarding corporate governance:

> "The board in Telia AB already had the normal tasks from 1993. I mean, the board functioned as in any other country, even if the shares were owned by the government. The government appointed the board. It had its tasks and appointed the CEO, etc.. So it was a normal company from day one as far as I remember. Even in older days" (INTSwe-7).

Thus **privatisation** in the year 2000, when the Swedish state sold 30% of its shares, was organisationally "no big deal" (INTSwe-19). In that year, the Telia Group had 17,150 employees, 13,365 of whom worked in Sweden (Telia AR 2000). Since then, Telia has become a Swedish public company and is governed by the Swedish Companies Act and the company's Articles of Association. Its corporate governance thus consists of a board structure and a management team. The annual general meeting and the shareholders as decision-makers are especially important to the **formal corporate governance structure** in Sweden. According to the Companies Act, the shareholders' general meeting is the highest decision-making forum, where owners exercise their shareholder power. At the general meeting, one share is equal to one vote. The board of directors is responsible for the company's organisation and the management of the company's business, which means that the board determines the group's general strategy and makes strategic decisions of greater importance. The board also appoints the CEO and issues guidelines for the management of the group. Additionally, the CEO is responsible for the company's business development, and leads and coordinates day-to-day operations in accordance with the guidelines and instructions of the board (www.teliasonera.com _corporate governance as of: 08.2007). During the year 2000, Telia's board of directors grew from four to six members. The employee organisations were represented by three members (INTSwe-16b).

Also in 2000, operations were organized into five business areas. Each business area had total responsibility for its respective products, from development to sales in all markets in Sweden and internationally (INTSwe-8; INTSwe-16b). Within the **organisation** during the 2G boom period, there was an "international" division under the leadership of Kai-Eric Relander. The business area of Telia Mobile was responsible for the mobile network, all mobile services and for the development of integrated fixed/mobile services. The mobile business area also offered network capacity and mobile services to consumers and businesses in the Nordic countries on the wholesale and retail markets, and mobile portal services in Europe during this time (INTSwe-16c).

Marianne Nivert became president and **CEO** of Telia in October 2000. She was responsible for the group's strategic development, internationalisation strategies and business control. Nivert had been CEO during the Telia AB era as well, and she was known as an elected representative of leftist political orientation: "*I guess Marianne came from the ground up. She worked her way through the company this way. She had been active in the union and so forth. It is probably true that she was more of a leftist (...)"* (INTSwe-19). The following statement also shows that the character of the CEO is very influential on company strategy (this was especially true during the mobile boom shortly after liberalisation): *"I think most of these people, in my view, were empire builders who believed they would become a global power horse in this new industry. Marianne Nivert as CEO, for example, had no vision about how she should expand the business, and that is why international investment was quite low during her time period (...)"* (INTSwe-8). Nivert's company vision was relatively stable, and that did not lead to many risky investments in international UMTS ventures for Telia during that time. Additionally, the company was 100% state-owned until the year 2000:

> "When there is government influence in the company, it is normal that they have a say about the important things. I mean, for example, if Telia wants to merge with Telenor (which I have noticed in the last 2 weeks), it is not a decision of Anders Egel. It is a decision of the financial ministry of Sweden and the financial ministry of Norway, ultimately. The planning and the getting together of the numbers - that is probably the CEO's and the CFO's work. But the last signature, that is the government's" (INTSwe-1).

Thus Marianne Nivert was appointed by the government and represented the government's interests. She had no big industry vision and was averse to risk. This led only to limited and diffuse internationalisation for Telia at the beginning of the 2G boom period, and to a focus on the Nordic and Baltic areas at the end. Only when the merger with Telenor failed in 1999 for political reasons did the Swedish government realise that a 100% ownership structure could hinder successful international business. Previously, the company's management had all the advantages of a reliable shareholder. This gave them a lot of freedom to pursue their own vision, and it is why Telia had a relatively broad internationalisation strategy even before privatisation in 2000. Until then, the company had been active in the Nordic and Baltic countries as well as in emerging markets around the world (INTSwe-16b). Learning effects also occurred with internationalisation in Sweden, which can be traced back to different management cultures:

> "There were very problematic tendencies in the origin of this business. And maybe they [Telia] have not been able to get rid of that. They made some bad agreements already in the 80s. In MegaFon there is Russian management, and Russian management is very different. If you are not able to play with the oligarchs, Abramovich and others will make a lot of troubles for you (…)" (INTSwe-14).

In contrast, Swisscom was **privatised** to some extent earlier in 1998. The successful placement of Swisscom's "blue shares" in Oktober 1998, the largest public offering Switzerland had ever seen, was also the most important in Europe that year (http://www.swisscom.com_Investor_Relations as of: 08.2007). Because of Swiss legal requirements, the board of directors plays a key role in connection with corporate governance there and acts as supervisor of the executive board. In this function, the board lays down the strategic, administrative, budgeting and accounting guidelines for Swisscom. With the exception of the government representative, the board of directors of Swisscom AG is elected at the general meeting of shareholders (Swisscom AR 2005). According to the chief strategist of Swisscom Mobile, radical **strategy decisions** like internationalisation are prepared and decided on within a relative small circle of people:

> "This is generally only known among a relatively small circle – five to ten people in the company plus the board of directors. (…) This is top management plus chosen employees, and proceedings are not discussed in the employee newsletter" (INTCH-11).

The circle of employees around the chief strategist conducts analyses on certain markets. National factors make up roughly 50% of their focus, but also growth prognoses and financial data need to be right. Also informal relations and **power** within the "management circles" play a certain role:

> "I always try to make a quadrant sketch. On the one side is ease of entry and on the other is potential in dollars. Ease of entry means it is easy to enter into a market. If you quantify this with hard and soft data and the potential is high, then you get a rating somewhere. If the rating is relatively high, then I know I need to do something. Ease of entry could be things like, is the technology exportable, can I take over the lessons learned, can I just enter the market, do I have the right skills. These would be the soft factors. Is the technology affordable enough, etc.. (…) Regarding potential, I ask questions like what is the market, who is in it, what is the market size (…) this you can estimate relatively exactly. And then you get, let's say, five to six opportunities" (…) "The final decision is always taken by the board of directors. But the team needs to go to the board and say, yes we want this because (…) and then the board will ask if you have considered this and that. Therefore it is necessary to include the board early on, since they are the final decision-making and supervising entity. You need to tie them into the definition of the cluster and into the process relatively early, because such transactions happen relatively quickly and you cannot wait two months until the board meets again (…) You need to convince the others, but if the CEO says no because the risk appears too high to him, then the issue is dead. Such decisions

> are frequently taken based on informal relationships. Relationships are relatively important in such deals“ (INTCH-11).

Swisscom’s company **organisation** has changed a few times since liberalisation and has always been re-adapted to meet new technological and market needs. The most important event in this context was the change from parent company to group structure in 2000. This was intended to strengthen the accountability of the groups in order to make the corporate group more flexible:

> “The group structure leads to smaller, largely independent units which can act quickly and perform efficiently and with differentiated strategies on the market. Furthermore, the group structure increases our chances of entering strategic partnerships in individual branches. Successfully realised alliances like Swisscom Mobile with Vodafone with different content suppliers are examples of this“ (Swisscom AR 2000).

The challenge of transforming from a state enterprise to a stronger market- and customer-oriented service company was a core issue at the beginning of Swisscom’s privatisation. This could be seen in its attempt to establish a more market-oriented **company culture**:

> “Liberalisation was a huge shock, of course. What happened was that there was a huge army of consultants coming in and creating all kinds of workshops. I think there was no one who could have come up with a strategy alone in a room with one or two consultants. There was this and that, and why not try this. (…) This was the time of the mobile boom, of course. And that naturally meant huge changes. The customer became more important. Before you were a petitioner if you wanted phone access“ (INTCH-10).

From an international perspective, the old Telecom PTT’s company culture could already have been considered relatively progressive. Trail-blazing mobile innovations like the prepaid card, Mobile Unlimited or LAN solutions already took place during that era. Aside from these pioneering performances, Telecom PTT also made important contributions to European standardisation entities (GSM) under Walter Heutschi, the mobile division director at the time. The company already enjoyed an excellent international reputation among customers and “international competitors“ in the monopoly period, based on their solid engineering performances and the high quality of its network infrastructure and services (INTCH-18). However, these peak performances were achieved only by a small portion of the staff, whose enormous motivation and “entrepreneurial spirit” were exceptional (INTCH-13). The remainder of the workforce was characterised by a strong bureaucratic mentality which had to change after privatisation. On September 28, 1997, at the dawn of the new privatised era, all Swisscom employees and their families were invited to a Telecom festival. Employee motivation, team spirit and attunement to the upcoming change stood at the centre of this event. In addition, around 20,000 people attended workshops addressing „mind-set change” and quality management (Swisscom AR 1997: 42pp.). Compared to large players like German Telecom, Swisscom had a manageable workforce to deal with (roughly 21,200 employees in 1997). It also had enormous starting advantages as it transformed itself into a flexible competitor, and thanks to well-thought-out training models it became a market-oriented company relatively quickly (Swisscom AR 1997: 42). Swisscom’s **corporate identity** sprung from the visualisation of its character and inner values. The company’s new appearance marks the attempt of a new beginning and underscores the new company culture. The importance of international presence is stressed in its key advertising slogan in English: “Let’s keep in touch.“ This is meant to refer to a single market that crosses language barriers and to portray Swisscom as an international, if not even global, player (Swisscom AR 1998). With a focus on the environment and sports-event sponsoring (tennis, skiing, etc.), basic Swiss values like respect, environment, homeland and security are targeted (INTCH-14). Tele 2, for example, has a completely

different company culture characterising its strategic behaviour. This competitor of both TeliaSonera and Swisscom has a traditional, rather flat hierarchy (INTSwe-11).

A slight deficit in **qualified personnel** and top managers existed in Switzerland at the end of the 1990s, and Swisscom had to compete internationally to secure a good workforce, which was possible due to Switzerland's relatively high salary levels. The **CEO** during the change from state monopoly to competitive company was Tony Reis, who had already worked for Telecom PTT for a long time. Plans for internationalisation were even formally institutionalised in the group structure with the formation of an "international" division under the American J.A. Hedberg. Hedberg was made chief of international operations at Swisscom (formerly PTT) in 1994. Under Hedberg and Reis, Swisscom's internationalisation was extended to Asia already before the opening of the market. Generally speaking, this was a period of "trial and error" as well as of **learning**, since management had no previous experience with internationalisation. A customer-relations management system (CRM) was imple-mented in 1999, modelled after the recently acquired subsidiary debitel (Germany). To allow a fast exchange of know-how in this area, the German Carsten Schloter (debitel) was added to the Swisscom management team. Jens Alder was appointed CEO of the company in 1999 (INTCH-15). This decision was intended to underscore the shift from the old PTT Telecom culture, which was shaped strongly by Tony Reis. Alder had previously been active at Siemens and Alcatel Switzerland, and was known as a "cost cutter" who would very much exercise a financial logic in his management and leadership behaviour:

> "For me, there are two types of managers: the business enabler who ensures that there are deals made, and the cost cutter. I would characterise Jens indeed rather in the category of cost cutter. Just follow his career or his business development. He restructured everywhere. This is why he was hired at TDC also" (INTCH-9).

This change was demanded by the board of directors as well as by the market-oriented shareholders after the "foreign debacles" (problems with regulation and culture in India and Malaysia). Jens Alder was successful with his belt-tightening (he divested all investments abroad except debitel, sold superfluous real estate investments and economised the work-force), and thus improved the company balance sheet. From roughly 21,200 employees in 1997, 18'900 remained in 1999, and only 16,432 in 2000 (INTCH-13). The international department disappeared from the organisational chart altogether in 1999, and thus from the company. This highlights the internationalisation strategy's increased focus on the domestic market and on the neighbouring European countries. The goal was also to maintain the "goodwill of the population," especially through more environmental sponsoring, appeals to environmental values and, in comparison to the competitors, progressive social conditions and basic provisions (INTCH-17).

To sum up, the lack of knowledge and industry vision led to a mere imitation of lead players' strategies during this time in Switzerland. There was some industry vision and entrepreneurial spirit within the Swiss PTT shortly before liberalisation, especially within the mobile sections. This led to inventions like the prepaid card and mobile unlimited. However, when Jens Alder was appointed CEO, he had a clear financial focus besides the venture in Germany (debitel). Industry vision no longer existed in the middle of the 2G boom period in Switzerland. All international investments in Asia and Eastern Europe were divested, and human resources were devoted to harvesting on monopoly advantages in the home market. Alder only kept debitel. He managed to rationalise successfully, and his personal strategy focus at the end of the 2G mobile boom was totally on the Swiss home market, where he heavily lobbied to preserve monopoly advantages like the local loop (INTCH-8).

Switzerland also experienced substantial learning effects from its first international ventures into emerging markets, which ended in divestment there, especially at the end of the 2G boom period. For Swisscom the learning effects mostly arose from their operations in Asia, and for Telia from their operations in Russia (see: table 21).

Corporate Governance System	Sweden	Switzerland
Privatisation	Relatively late privatisation in the year 2000 (30%) After liberalisation, financial issues become more important	Privatisation in 1998
Corporate governance regulation	CEO appointed by the government: Marianne Nivert ("left wing")	CEO appointed by the board of directors
Character of the CEO/ Power relations	Risk-averse CEO: Nivert No big industry-vision in the field of mobile internationalisation; diverse projects overseas	After liberalisation and privatisation fixed-line business more powerful – Jens Alder, former CEO fixed line, becomes CEO of Swisscom with aim to rationalise Schloter comes into the company (debitel)
Human capital	Early expertise in international business	Low expertise and resources in the field of international ventures; at the beginning a lot of consultants involved; influence of financial investment community is also high
Company organisation	Group structure	Group structure Section Swisscom International,
Company culture (values, etc.)	More market orientation as well as shareholder orientation	In pre-liberalisation time, especially in the mobile section, entrepreneurial spirit; privatisation in 1998 (prepaid card, mobile unlimited) - good reputation Management changes to more market orientation; customer is more important (CRM)
Learning effects with internationalisation	Not easy to deal with foreign cultures (customers and management)	Not easy to deal with foreign cultures (customers and management)
Internationalisation potential/strategy	Investment in emerging markets as well as focus on Nordics and Baltics Attempts to merge with Telenor Investment in international portal business Divestment in emerging markets at the end of the 2G boom period	Informal contacts out of team mobile (Walter Heutschi and Tony Reis) lead to opportunities in India, Malaysia, Eastern Europe and Latin America - however great insecurities among the management team - a lot of consultants involved - imitation of industry trend Same with debitel - no real industry vision In the 2G era Jens Alder clearly focuses on harvesting GSM in home market - financial logic Divestment of all international assets besides debitel

Table 21 Internationalisation potential stemming from the corporate governance system (Source: Author)

Conclusion – Internationalisation in the 2G boom period

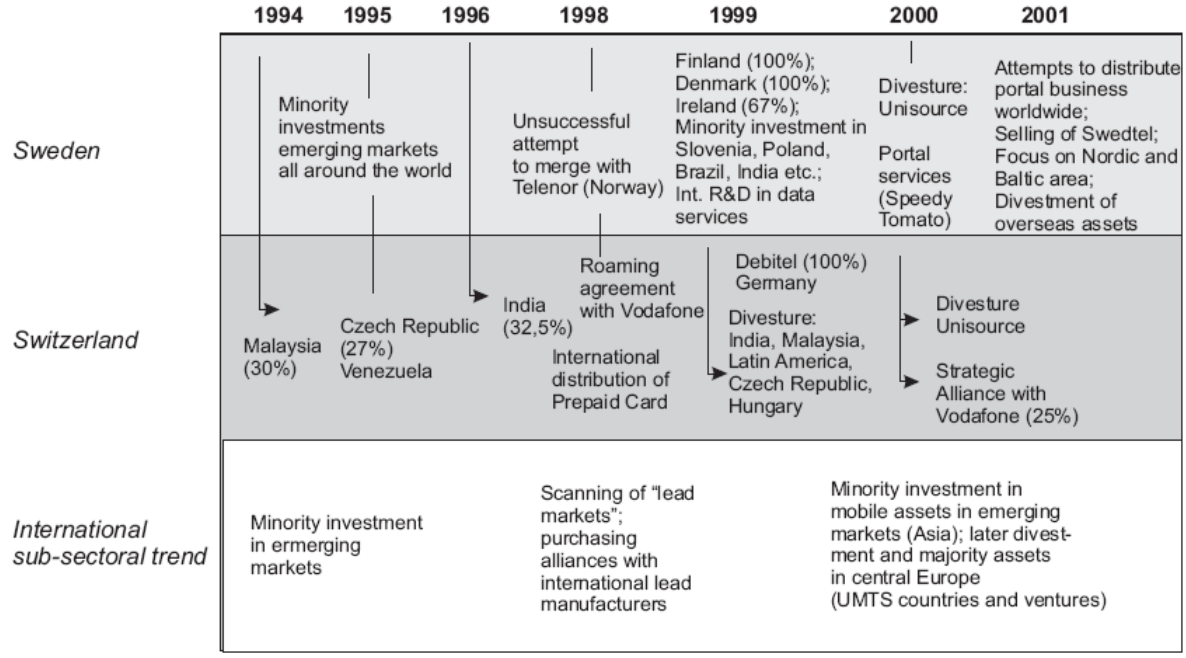


Figure 21 Internationalisation strategies in the 2G boom period of Telia Mobile and Swisscom Mobile (Source: Author)

An understanding of financial industry conventions as well as international market development contributes to an understanding of the convergence in internationalisation strategies during the 2G boom period. On the other hand, a look at national institutions mainly contributes to a broader understanding of differences in internationalisation strategies in Sweden and Switzerland, which for Telia Mobile meant further strategic focus in the Nordic and Baltic regions during the mobile boom period, broad overseas activities all around the world and a joint venture with Sonera to Russia (MegaFon). Switzerland, in contrast, only followed the international industry trend to divest all minority shares in emerging markets and to invest in a UMTS country (debitel). Also, the strategic alliance with Vodafone was a "best-practice" strategy among smaller players during this time. To re-iterate, these differences may be explained by the co-evolution of both companies with their national institutional environments, as well as by path-dependent learning effects from the prior inter-nationalisation phase, the 1-2G pre-liberalisation period:

SPACE:

- Mainly the national market system - with its informal customer habits similar to other Nordic and Baltic countries - and the light regulatory system explain the broad internationalisation strategy of the 2G boom period in Sweden and the focus on the these two regions.
- Monopolistic advantages from the NMT period as well as the 2G boom did not put too much internationalisation pressure on Telia during this time. The same was true in Switzerland, but the regulatory characteristics there (regulation in favour of Swisscom, lobbying power) and market specifications (customer loyalty, high price structures, high market-entry barriers) contributed to more focus on the national market and to a total divestment of international projects aside from debitel, which was part of an international industry trend to invest in a UMTS country like Germany.
- Corporate governance structure is also instrumental in the internationalisation process, especially through the character of leading managers like Marianne Nivert and Jens Alder. The risk-shy character of Nivert prevented Telia from getting involved in any risky UMTS investment, though the company had relatively broad global presence by the end of the 2G boom period. However, privatisation in the year 2000 and financial investors' growing influence on Telia's management led

to an internationalisation strategy solely focused on the Nordic and Baltic assets. Alder's financial logic as a cost cutter for Swisscom led to an emphasis on the Swiss home market and to a divestment of all international assets, besides debitel. These actions were taken in the interest of the majority shareholders, the Swedish and the Swiss state, during this time.

- In addition, the favourable home market structure did not put a lot of internationalisation pressure on Swisscom Mobile during this time.

TIME:

- Furthermore, national path dependencies contribute to an explanation of divergent internationalisation performances during this time. Again there were superior national institutional configurations in the 2G boom period, which were partially the result of the previous period (1-2 perliberalisation time), that led to first-mover aspects in Sweden and a four-to-five year jump on the take-off in mobile telephony in the mid-1990s. As a result, internationalisation pressure arising from saturated home markets came earlier there than in other European countries, which translated into a broad global presence overseas and a focus on the Nordics and Baltics, later.
- Telia's relatively autonomous management, with their high international expertise, also contributed to successful internationalisation performance during this time. Due to the positive learning effects in the 1-2G preliberalisation time the focus on the Nordic and Baltic region continued in the 2 G boom time.
- In Switzerland, the 2G boom occurred later due to the slow and light regulatory system (late market opening and regulation in favour of the former incumbent). Learning effects took place at the company level (from different cultures and regulatory environments, lack of expertise and resources) that prevented Swisscom's management from further investing in emerging markets at the end of the boom period. Thus its position as international imitator and laggard with no sustainable organic internationalisation strategy during the 1-2G pre-liberalisation era left few path-dependent possibilities for Swisscom.
- This trend in Switzerland was exacerbated by Swisscom management's low international expertise and limited vision for the industry, as well as by the dominance of the Swiss state as a majority shareholder.

At this point, with liberalisation in both countries and international market and regulatory institutions gaining increasing importance, internationalisation strategies were still predominantly influenced by national institutions (that is, aside from the technological system, which was totally internationalised by the end of the 2G boom period). In terms of Strobel's (2004) "path theory", this means that no real tipping point had occurred to indicate a change from national institutional influences to a majority logic of international institutional influences. However, a minor institutional path logic characterised by international institutions was already influencing company strategies in Sweden, and to a minor degree in Switzerland also (see: EU regulation and international standard-setting bodies, financial investment communities). This changed over the next time period, the so-called 3G multimedia era (2001-2008).

5.3 Corporate internationalisation in the 3G multimedia period (approx. 2001-2008): an institutional perspective

5.3.1 Sub-sectoral internationalisation trends out of similar international institutional influences

The international technological system during the 3G multimedia period

Technological change in mobile communications has been dramatic, with rapid improvements in functioning, performance and cost reductions opening up new market segments, new services and products along the globally fragmented value network (Lindmark, et. al. 2004: 5). The structure of the value system after the 2G boom period was influenced by the Wintel-system, which represented the convergence between the computer and mobile industries. For the manufacturing business as well as

the computer industry, that meant a big challenge. The mobile world was not a replica of the desktop one, in which the bargaining power of Wintel emanated from the control of three horizontal levels: Intel owned chips, while Microsoft ruled over operating systems and application software (INTSwe-8). It was a **power**ful combination. But the wireless Wintel was initially more talk than substance. Intel had rapidly built-up a remarkable presence, but unlike the specialized European producers, it was not a major player in wireless chips. Microsoft had been building its strategic position over a longer period. It had a role in the handheld sector and was building one in mobile phones, but it owned neither mobile systems (OS) nor software (INTSwe-18).

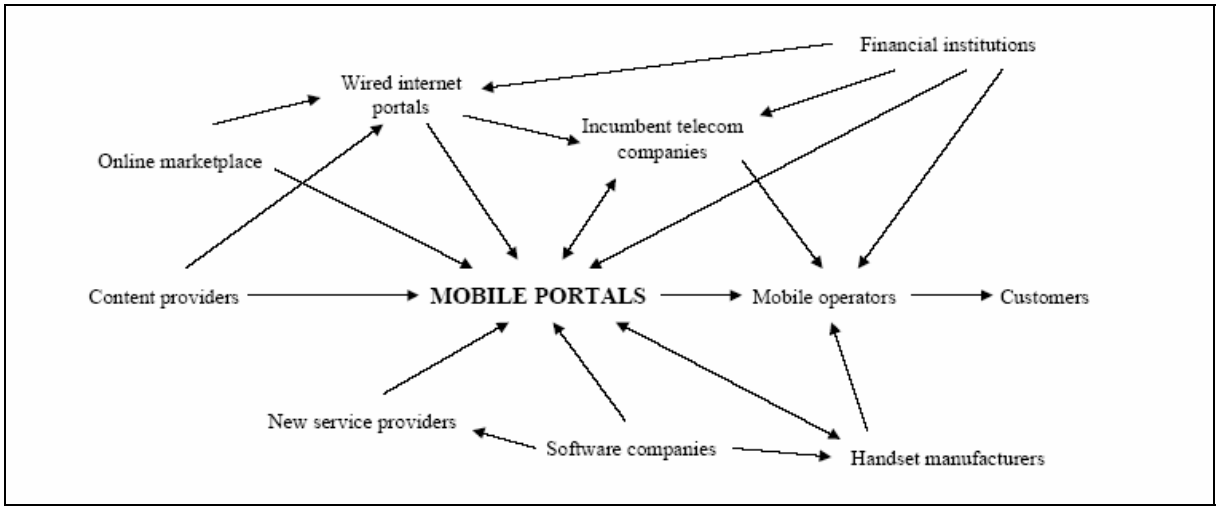


Figure 22 The value network of mobile portals (Source: Li/Whalley 2002: 268)

Because of this **technological convergence** of computer and mobile industries, the value system is far more complicated today (see the example of the mobile portal sub-system in figure 22). It includes many different actors, like contractors (components), subcontractors, equipment manufacturers, platforms, enablers, content aggregators, retailers and network operators. Moreover, the system is rapidly specializing and globalizing. Because of accelerating financial stakes, the control and coordination of the value network has become an issue of international competitiveness, particularly in the most developed markets (Steinbock 2003: 210p.). Currently in 3G, the most **dominant actors** are equipment suppliers and access providers (operators). Systems vendors (base stations, switches, etc.) are not likely to be threatened, since economies of scale and entry barriers are very large. There is more competition in the handset business, especially in very cheap mass-market phones or high-quality phones. This mainly impacts the manufacturing industry, e.g. companies such as Sony Ericsson, Nokia and Motorola. Also, the number of access providers is increasing, and operators without networks are appearing. The 3G period has also seen the supply of mobile internet content. Content **providers** that are independent of access providers are becoming more important, offering such options as music, news, information, financial services, etc.. Currently, operators still dominate this sphere. However, 3G cannot become successful without content that really attracts lasting customers (Edquist 2004: 178p.). Thus mobile-phone content and access to innovative and customised handsets are critical factors in the 3G era, as well as a cost-effective bundling of the different elements of the value chain. Business customers demand full-service packages, and as new technologies cause growth in voice communication to decrease (VOIP, etc.), different service-packaging and innovative service models are becoming very important (INTCH-13; INTCH-16; INTSwe-16a).

In Western Europe, vendors and operators were best positioned along the GSM path to multimedia cellular. Some of this lead positioning was lost, however, through misguided efforts to sell

new technologies instead of new service offers (the early WAP debacle). At the end of the 1990s, Euro-Nordic players seemed to enjoy absolute and relative superiority in the business, thanks to what many termed the ‘‘twin drivers of mobility and the Internet’’. By 2002, with consolidation in the US technology sector and 3G growing pains in Europe, this superiority rapidly eroded. On the one hand, US-based IT leaders were eager to capture sizable chunks of worldwide markets. On the other, NTT DoCoMo, which had sold multimedia cellular by pushing services rather than technologies, was about to ‘‘transitionalise’’ the 3G era. As market-driven innovation swept through the sector, technology development was no longer internal but external (tech coalitions, venture capital, corporate innovation, global R&D networks). In the short term, that system worked for the Euro-Nordic leaders, which were more familiar with cooperation than American-style competition. In the longer term, these wireless leaders would find that outsourcing technological strengths would reduce their impact, and it was bound to result in the diffusion of competencies and capabilities. In the 1950s and 1960s, the old Bell labs had diffused their tech leadership with an open publication policy. Now European operators and vendors were promoting diffusion through networking. What made perfect sense in the short-term amounted to digging one’s own grave in the long run. And as license taxes contributed to the industry slowdown in 2000 and 2001, old first-mover advantages rapidly disappeared as well (INTSwe-14;. INTSwe-15). Unlike Euro-Nordic leaders, the Japanese operator saw wireless and the Internet as complementary sides of a united vision. By the end of the 1990s, it began to push its i-Mode service internationally by purchasing minority stakes in the triad core clusters and lead markets. Amidst the 3G transition in late 2001, NTT DoCoMo still held more than 50% of the wireless marketplace in Japan. This market dominance allowed it to continue to build on the old cooperative ways of doing business. In the long run, even the Japanese system was subject to substantial changes as a result of increasing foreign investment from international players and NTT DoCoMo’s accelerating internationalisation. Unlike the Euro-Nordic players, DoCoMo has been inclined to treat the multimedia cellular business as a transitional stage. Today, though US players are also best positioned in computer and 4G technology, they have not totally managed to internationalise this potential (Steinbock 2003 see also: INTSwe-8).

Today there are 2 different **standards** in 3G: UMTS (also known as WCDMA, broad-range CDMA) and CDMA 2000. Both refer to the coding of CDMA-One, the US standard. CDMA 2000 and CDMA-One are thus technologically compatible. The European WCDMA (on which UMTS is based) is no longer compatible with any existing technology. WCDMA accommodates GSM-based actors. CDMA 2000 supports the CDMA-One actors in the US. It has been partially implemented there and in parts of Asia. Japan, on the other hand, partially adopted the WCDMA technology-NTT DoCoMo took WCDMA, and KDDI took CDMA 2000 (Steinbock 2003: 212).

In Europe, although UMTS (WCDMA) is a standard supported by ETSI, it also has the official sanction of the ITU, an organisation with truly worldwide coverage and authority. The ETSI and ITU decisions made WCDMA a global standard. The UMTS alliance includes the European Union and some national operators, such as Japan's NTT DoCoMo, as well as multinational equipment firms, such as Ericsson and Nokia. The choice of WCDMA was a blow to supporters of other standards, like TDMS and CDMa 2000. In addition, there have been some intermediate solutions based on GSM, like WAP and GPRS. GPRS brings the IP into the GSM network and thus enables data to be sent in small packages. GPRS has also made the first real multimedia services possible. The first operator to put UMTS into action was NTT DoCoMo, which initiated the service in 2001. Thus Japan is a natural first-mover, since the company has been operating the i-mode mobile Internet system since February 1999 (Andersen/Essler/Roseqvist 2006: 57). In Europe, on the other hand, UMTS licences were auctioned, and in many cases operators agreed to pay enormous fees. The US are also laggards in regard to UMTS, because other users such as the military tie up the relevant radio frequencies (Edquist 2004: 176p.). There are also alternatives to 3G systems that are based on much higher speed, like WLAN, which has been installed in public areas. A 4G mobile telecommunications system can be an integration of a 3G mobile telecommunication system with WLAN access to the traditional fixed Internet, combined with other wireless options such as GPRS and Bluetooth. Currently, the US is most advanced in PWLAN installations. At the same time, 3G technology is delayed there, since no radio spectrum has been allocated. WLAN is more important in the US than in Europe; in Europe, 3G licences are awarded and have to be installed. The country most committed to 3G technology, however, is Japan, where 3G operates much faster and there is very little discussion about WLAN (Edquist 2004: 178). Thus in the third mobile communication technology generation, two different standardisation models have prevailed in the US and in Europe (Gandal, 2003: 329). The extent to which a dominant standard will emerge in the 4G era is still unknown. These segment-specific, technological industry sub-systems act as barriers to the internationalisation of service players in Europe, Asia and the US. It was especially hard for competitors to adapt to the new technological requirements after liberalisation. Until now, this has led to market-entry barriers for players from each technological sub-system:

> "In Japan they have their own standards. There are hardly any devices which have a one-to-one compatibility. They are customised for Japan and this affects everything, including the coding. It was quite interesting when Vodafone was in Japan. But they did not make it there. Services could not be leveraged in the same way, because they had a central purchasing department in Europe and were thinking that the devices would be used as well in Japan, which proved not to be the case. Therefore it is very important to adapt oneself to the technological particularities in a country" (INTCH-16). "The Asians believed in the convergence already a lot earlier (…) it was clear to them this would be coming. 1999 with their IMT 2000 standard and the 3G UMTS systems. Already then they had HTML-based applications and browsers on the mobile phone with i-mode. The European WAP could not keep up because it was too technical and not user-friendly enough" (INTCH-3).

Overall, Braithwaite and Drahos (2000: 335) summarise the emerging situation in the following way:

> "No public or private organization now has a natural monopoly over the setting of standards. In one of the paradoxes of globalisation, standard-setting has become a more democratic affair. The ITU can no longer pronounce from Olympian heights what the standard shall be. Motorola, IBM and other players cannot just sit back and set standards as they did in the good old days. They have to guard against standards that can rob them of international markets, they have to attend the meetings of standard-setting bodies because their competitors do. (…) there is a networked complexity about standard-setting in telecommunication today."

The globalisation of the sector, driven by de-regulation and technological change, has seemingly led to a more pluralistic model of standard-setting shaped by complex networks of state and corporate entities interacting on different spatial scales (INTSwe-14). Japan in the residential sector and the US in the business sector are the lead markets of the 3G era (INTCH-14). As a result, the new international industry "trend" in 3G is a scanning of lead markets in the US as well as collaboration with powerful key suppliers, such as computer manufacturers and software providers in Asia and the US (e.g., Microsoft, Google, Yahoo) (INTCH-15). The concentration of company R&D activities in so-called competence centres corresponds with this lead-market-function. Altogether, international sub-sectoral institutions in mobile communications, like formal technological standards and user-producer interactions (supplier-operator), have contributed to the following internationalisation trends:

- Internationalisation within a company's own standard area
- Internationalisation into lead markets (like the US in the 1G era, the Nordic countries in 2G, Japan for the residential sector in 3G and 4G, and the US for the business segment in 3G and 4G)
- International purchasing alliances with lead suppliers in the triad countries (Nokia, Ericsson, Motorola, Samsung, Google, etc.) - enormous global fragmentation of the value network

Furthermore, because of these different technological standards, there is no supplier fully established in all triad markets (Beise 1999: 125).

The international regulatory system during the 3G multimedia period

Basic learning effects occurred among the regulatory bodies at the time, particularly in the field of **re-regulation** and telecommunication laws. These learning effects led to a change in the adaptation of the regulatory framework. Most the time this was a **co-evolutive process** between companies and state regulators, in which companies and company associations engaged in lobbying to support their interests (INTCH-8). The common interest for regulatory bodies and for new entrants was to decrease the monopolistic birth-rights of the former incumbents and to install a system of fair competition. The experience of the regulators showed this was only possible with stricter international regulation. Thus the EU's international regulatory framework for telecommunications changed several times, and the same occurred on the national level. Once the markets were liberalised, governments found they had to redesign regulatory frameworks in order to sustain and stimulate competition, lower entry barriers and stop dominant operators from abusing their market power. The following are some of the regulatory safeguards of the 3G period (see OECD 2003a: 41-57 for a detailed regulatory overview of the OECD countries):

- Inter-connection: This has been an important issue from the start. In recent years, fixed-to-mobile interconnection has been of increasing concern to regulators, since mobile operators terminating calls are viewed as having a bottleneck position. Within the EU, the designation of some operators as having significant market power in the mobile termination market has led to the imposition of cost-oriented termination charges, price-caps, etc..
- Carrier selection: Most OECD countries implemented carrier selection and pre-selection methods by 2003.
- Number portability: Most OECD countries introduced number portability in the late 1990s and early 2000s.
- Local loop unbundling: Local loop unbundling (the process by which incumbent carriers wholly or partially lease the local segment of their telecommunications network to competitors) was a key regulatory issue in most advanced markets. Japan in particular displayed a rapid increase in unbundling, reflecting a demand for unbundled loops for high-band-width applications.

- Internet and regulation: Voice-over IP (VoIP)[31] has been the subject of debate, wherein an increasing number of regulators have taken the position that it should be treated as voice-over PSTN.

In the US, it was not until 1996 that Congress finally legislated a sweeping overhaul of the more than 50-year-old Communications Act. The Telecommunications Act of 1996 refocused federal policy after years of confused, multi-agency and intergovernmental attempts to regulate and make sense of the industry. The bill relied on increased competition for the development of new services in broadcasting, cable, telecommunications, information and video services while it re-asserted Congress' leadership role as the dominant communications policy-maker. Its effects have been widely discussed since then, but this debate is beyond the scope of this thesis. The EC had established a framework by 1998, based on a number of earlier directives aimed at creating a single telecom market, with the EC as central policy actor. In some respects it failed to meet its objectives (e.g., local loop unbundling and 3G licensing). A new framework was adopted in 2003, and member countries were given until July 2003 to incorporate it into national legislation. It comprised a package of directives covering all electronic communications networks (e.g., fixed, mobile, television broadcast, cable TV) and associated services and facilities (e.g., conditional access systems), with the exception of broadcast content and e-commerce. The new framework was aimed to link the degree of regulation to that of competition, and in turn to keep regulatory intervention to a minimum. It included a listing of 18 markets in which specific regulation (such as price controls) could be called for (Lindmark, et. al. 2004: 87). Furthermore, the WTO played an important role in opening the telecommunications market. Negotiations in the telecom sector ended in 1997 with a general agreement on trade and services (GATS), in which many OECD countries, the EU, the US and also Switzerland agreed to open their telecommunication markets by 1998. The most important goals of the EU's 1998-2003 regulation package were as follows:

- Securing a functioning, competitive market
- Adapting regulatory terms to technological development, as well as to market development
- Abolishing unnecessary regulatory interventions
- Fortifying the common market of the EU
- Strengthening consumer protection (Dönni/Schwab 2004: 255).

Furthermore, technological neutrality in the regulatory complex was emphasised as an important requirement in 1999. In December 2000, the EU-wide unbundling of the "local loop" was demanded, as well as ex ante interconnection rules in March of 2002. In addition, a series of approval, access, universal-services and privacy-protection guidelines had to be introduced, embedded in the general guidelines of the EU and the SMP regulations. The general guideline states that suppliers of telecommunication services with a significant market power (SMP) are subjected to certain and already pre-determined (ex ante) measures to secure effective competition. The criteria determining SMP status are very broad and require considerable administrative work by the regulatory authorities. They must permanently observe and analyse activity in the relevant markets in order to determine the possible SMP status of a company. National regulatory authorities are obligated to report to EU authorities (Dönni/Schwab 2004: 260pp.). Additionally, the ever-changing regulatory environment is very demanding, and as the UMTS situation showed, it is also very dangerous for the former incumbents. It also indirectly influences internationalisation strategies, as new rules and regulations make national competition in the multimedia period even harder and leads to a loss of all monopolistic advantages. It is very difficult even for state-owned companies to continue in the role of "national champion." This has led to an ever-increasing pressure on the former incumbents to internationalise:

[31] VOIP indirectly also affecting the mobile voice business especially because WLAN is getting more and more important.

> "Regulation today is a challenge (…) a big challenge also in the field of internationalisation (…) There is platform convergence, services convergence (…) [that is], TV and mobile are a kind of services convergence phenomena. How to regulate that (...) the media meets the electronic communications sector and different legal frameworks clash. For instance, if you have a TV set in country X, do you have to pay a licence fee to watch? What if you watch TV on your mobile? Do you have to pay that fee? What would happen with the sales of those terminals if there was a fee of several thousand SKr just to watch it? So there are many regulatory challenges when it comes to convergence (…) also next-generation network issues, new technologies, new interconnection agreements. You really have to know the regulatory environment you are going into" (INTSwe-19).

Sometimes international regulation is even stricter than the national one (see: German Telecom), and this in turn puts a lot of internationalisation pressure on the incumbent:

> "German Telecom today generates as many sales abroad as in their domestic market. This of course works well. It is desirable from the point of view of market competition in that profits from the domestic market are declining, and therefore the market situation and the political system have become more difficult for the incumbent. In the other markets they are rather in an attacking position, which is exactly the opposite of this competitive trend, and they can take advantage of the regulations" (INTCH-22).

This is true in the fields of interconnection rules, pricing or roaming, as well as ex ante regulatory decisions. Internationalisation into a well known regulatory environment is easier than into a totally new one that might be ridden with insecurities, such as in emerging markets in Asia. Also, standard-setting is a current regulatory function that has a clear influence on the internationalisation behaviour of players in the mobile sector. A player can more easily internationalise into a similar standard area. Moreover, further learning effects occurred among all regulatory players (especially in the EU), and the old regulative frameworks had to be adapted to new technological requirements in the 3G period. A technologically neutral formulation needed to be developed as well, as the Internet brought computer and media segments into the telecommunications field.

Having liberalised the market, governments had to redesign regulatory frameworks in order to sustain and stimulate competition, lower entry barriers and stop dominant operators from abusing their market power (Lindmark, et. al. 2004: 7). As a result, heavy competition and regulatory changes combined led to an enormous pressure on the former incumbents to defend their home-markets, as well as to search for new growth opportunities internationally. Regulation in its own home market puts a lot of pressure on a former incumbent, but regulation in guest-country markets can be an opportunity for them to internationalise successfully:

The international market system during the 3G multimedia period

In the services area, re-sellers und mobile discounters (MVNO) have become important **competitors** in the domestic market during the multimedia period. The term "mobile communication discounter" denotes the type of mobile communication provider which offers comparably cheap calling time without subsidising devices and without providing their own mobile communication network. They operate as virtual network operators (MVNO - Mobile Virtual Network Operator)[32], accessing the infrastructure of large mobile network operators (MNOs). Considering the fact that a high level of market saturation was already reached by the end of 2004, growth rates were primarly made possible by squeezing competitors out of the market (using cheaper tariff scales). In order not to endanger existing sales figures, many traditional service providers created their own MVNO in the form of

[32] In contrast to the classic mobile communication providers, MVNO do not distribute through specialised retailers or specialist retail chains, but through regular super markets or even without stores, i.e. by Internet and telephone.

subsidiaries, leaving very little opportunity for new competitors (INTCH-18). Even the long-time relatively safe bastion of application-software producers and operators has lately been threatened by Microsoft and by other actors, such as Google. These players, with their existing customer networks from the Internet field, do not limit themselves to production but also actively penetrate the service areas of the providers: *"This Monday Google will present its new operating system for mobile phones. (...) The Google operating system is free of charge for the mobile phone producers and is intended to transmit Google programs and Google advertisements onto the mobile Internet. The first mobile phones which work with the operating system of Google are expected by the middle of the coming year"* (www.faz.de as of: 06.11.2007).

Nowadays, the customer is of a certain importance, particularly at the systems level. In contrast to the monopoly structure and the mass markets of the 1990s, which allowed private telecommunication customers only limited market power, today a primarily market-oriented business model is prevalent, due to saturated markets at the systems level: By the end of the 2G era, low cost and high-volume markets dominated the scene. In the process, the industry had shifted from national industrial services to global consumer mass markets. Toward the end of the 2G era, the SMS option (short message service) had sold the idea of data messaging to early adopters in the most developed markets. At the beginning of the new multimedia era, the MMS (multimedia messaging service) was likely to be the ''killer application'' of the wireless Internet - rather as email had sold the pioneering Internet services to American consumers in the latter half of the 1990s.

But by 2001, for several reasons, the new environment was far more complex and dynamic than the early 2G phase around 1991 and 1992. By the latter half of the 1990s, the dynamics of wireless competition had shifted from technology-driven, high-growth rivalry to market-driven, slow-growth rivalry, first in the most advanced markets and later in less developed markets. In this rivalry, the very nature of demand shifted as well, from new demand to replacement demand. In the most developed markets, the stagnation of the monthly ARPU had ended by the mid-1990s, while the average handset price continued to decline relatively rapidly (INTCH-1). Consequently, the very composition of market demand shifted as well, from the dominance of business users (the most important market of the 1G and the early 2G phases) to consumers, and more slowly toward combination users (INTSwe-16b).

In the developed and most lucrative markets, **penetration** was rapidly saturating. Original demand faded into history. Because the market is now driven by customers and replacement demand, new and attractive value offers are more important than new technology per se. Interestingly, in the late 1990s only NTT DoCoMo was able to draw the right conclusion -'it's the service!' - even if its solution had weaknesses as a global strategy (e.g., difficult to export, imitation potential, geographically limited developer community, operator's high market share) (INTCH-1). With proper 3G technologies, users will enjoy still higher-speed and even better 'always-on' capabilities, just as operators will exploit even greater **pricing** flexibility and better capacity. From the standpoint of customer value and perception, these are incremental enhancements, because insights on market development build less on technological innovation than on marketing innovation (INTCH-14; INTCH-16).

All in all customers have seemingly increased in the developed markets, and therefore their market power and the company's understanding about national and regional consumer patterns and life styles are becoming more important in this 3G period. Market saturation is a factor which especially exerts enormous pressure for internationalisation on the providers in developed markets like Sweden and Switzerland. Furthermore, the number of customers and the growth of the market in itself represent important quantitative variables in examining customer relationships in this era. Yet the demand for value-added services is culturally very fragmented. This became obvious when financing analysts had to estimate market demand for the 3G era; enormous revisions to their own data after 2001 reflect this difficulty (Fransman 2002).

Thus understanding different **customer habits** is important for internationalisation in the mobile business today:

> "More than anywhere else, the Italians want to go flash up with fancy phones to show people that they have one. Hutchison in Italy is more successful than anywhere else, and I think that is part of the Italian way of life. The same is true for value-added services. They are especially successful in Italy but nowhere else in Europe" (INTSwe-8).

Over the course of time, offers developed on the Internet as well as in trade publications to help customers make sense of the jungle of tariff structures in the 2G era. Because of increasing market saturation, the providers themselves began to simplify offers to differentiate themselves from their competition. They frequently advertise this even today: *"Our services have to be easy to understand"* (advertisement from TeliaSonera). This not only alludes to the service but also to the fee and contract structures involved. Even in the 3G era, there are more possibilities to stand out in the area of value-added services that are actively used. Today, some providers limit themselves exclusively to offering innovative 3G services (see: "3" in Sweden) (INTSwe-16b). The tariff scheme is kept purposely simple; the companies focus on one-price-around-the-clock fees. There is only one standard, low price-per-minute for any time of the day. Furthermore since 2004, more and more mobile communication discounters have pushed their way onto the markets (www.wikipedia:de_mobile communication-discounter as of: 07.2007).

As competition intensifies, companies need to seek out synergies and economies of scale. We can expect to see a consolidation of the most expansive growth areas (triad and emerging markets) in the coming years. The small-scale and high-end corporate markets of the monopoly times have been increasingly replaced by large-scale and low-end mass consumer markets in the multimedia era. The shift from traditional voice communication to data communications has intensified this change. In the past, regulation ensured bargaining power to operators who "owned" most customer relationships. As upstream activities have evolved into a function of operational effectiveness, and a single firm can no longer control industry-wide technological development, strategic differentiation has migrated to larger downstream activities. Industry leadership is turning into a matter of market leadership (Steinbock 2003: 228).

Thus the major internationalisation trend in the multimedia era has been to strive for service differentiation (scope) aimed mainly at advanced markets. This has included superior international collaboration models with actors along the value chain. Today, triple-play and attractive international service packages in the field of total mobility are important for the business customer. This includes 4G services like WLAN combined with business applications (mobile office), too.

But the residential customer is also highly internationalised today, which means that attractive roaming contracts have to be established. Roaming alliances like the Freemove Alliance, where the major European players are present, are the international trend in this field. But also international content-enabling or other niche services along the value chain form a business model for smaller players in the multimedia period. However, economies of scale are even more important and highly interesting today because of stagnating markets and high market penetration in advanced markets, results in internationalisation into growth markets (emerging markets). A further consolidation between the bigger players in Europe is also underway. Additionally, there has been scanning of development within lead markets again, which is interesting for all players. In the analog period, the US was a "lead niche market" in mobile telephony. During the 2G era, the Nordic and Baltic regions were important, and today it is Asia, which is rapidly moving into 4G applications: *"The Far East, China, Korea and so on are lead markets and the operators are interested in seeing where the market will go"* (INTCH-22); *"Japan is quite important in that aspect. Japan and Korea are important for the residential area. The US is more important for the business customers"* (INTCH-14).

However, **cultural differences** lead to major problems in the internationalisation of European operators to Asia, but on the other hand may create internationalisation potential in similar cultural markets (see: Telefonica):

> "The local markets cannot be worked with uniform standards. One also needs to look at the local specifics. The demand has been recognized, but the customers really are quite different. It makes quite a difference whether you have Vodafone customers in Japan or in Great Britain. There are different value-added services in demand" (INTCH-3).

> "That is like Telefonica [Spain] going to Latin America (…): natural markets. They know a lot about the customers. Of course, there is a cultural affinity. There are four or five hundred years of history between the two places. There are also flows of goods and services. I mean, of course, it is not normal for Swisscom or Deutsche Telekom to make some market investment in Mexico. They would probably have difficulties trying to find local partners" (INTSwe-1).

The international corporate governance system during the 3G multimedia period

In the multimedia era, the gap in technological knowledge between the service provider and the handset and infrastructure manufacturer has become even wider. However, organisational and strategic knowledge is more in demand now than ever. This has been reflected not only in internal **organisational changes** but also in the restructuring of the entire value-creation chain, as well as in relationships with external partners, suppliers, customers, governments and competitors. There is less and less demand now for technicians in telecom companies' top management, but more call for sales representatives and marketing specialists from the retail or media divisions. This can especially be observed in the area of new business models, like discount strategies and media content (INTCH-11). Particularly in the multimedia era, there is a renewed tendency to move away from specialisation in profit-centered or industry segments, and to instead focus on in-house mobile communication departments and uniform appearances and package offers targeted toward important customer segments (INTCH-14; INTCH-17). This trend, however, speaks in favour of re-integrating mobile communications departments, once outsourced during the 2G era, into the company as a whole. This has partially been accomplished, but there is hardly a company known where the mobile entity has entirely lost its independent structure. Through convergence, furthermore, there has been a re-valuation of the broad band area and also of the fixed net field in the telecommunication business. Only big players who have at their disposal enormous economies of scale, like German Telecom or Telefonica, can still cover many elements of the value-creation chain (e.g., own application software,

etc.) in-house (INTCH-16). When it comes to internationalisation strategies these days, international, managerial experience, learning and the company's previous development path play major roles.

Additionally, in the multimedia period most corporate governance systems are characterised by only limited state shares. The trend toward **privatisation** continued over the last decade (2001-2008). By 2003, only Turkey still had a monopoly structure in the OECD area. The general trend had been toward increasing private ownership, with a number of cases falling below the 50% level (Austria, Germany, Greece, Japan, Korea), while others were requiring majority ownership (France, Norway, Switzerland). Licensing during the 3G period was followed by some governments trying to intervene by assisting carriers with enormous debts. This triggered the issue of privatisation again, in order to avoid conflicts of interest. Another area of change involved the question of foreign ownership. By 2003, a majority of OECD countries had no foreign ownership restrictions, while several maintained a "golden share" or some other type of control, usually aimed at ensuring that the dominant telecommunications operator did not come under the control of a single investor. Lessening restrictions on foreign ownership was also part of a strategy to make the former PTTs more competitive (if tight ownership rules applied to a firm, it could be argued that it should not be allowed ownership in other markets). Other measures to make the PTTs more competitive were to: (1) combine formerly separate entities into a major national PTT (as in Australia, where Telecom Australia and OTC merged into AOTC, and in Denmark); (2) lift restrictions on international activities (e.g., NTT in Japan); and (3) encourage them to join forces, as was the case with the Unisource joint venture in Sweden, the Netherlands and Switzerland (Lindmark, et. al. 2004).

Privatisation is one regulatory aspect among many, but it is especially important as new shareholders - like financial investors or investments funds - enter the corporate governance of former incumbents and completely change company strategies and perspectives. A particularly high percentage of **financial interests** in the CG of a company may favour an international growth strategy (INTCH-1). With increasing privatisation, financial interests also became more important, and industry development became more unstable due to the speculative and expectative tendencies that came into the industry. The burst of the IT bubble in 2001 was an example of what unrealistic expectations in the financial community and the high uncertainties of intense industry dynamics could lead to:

> "You would meet investors who would ask you if you were getting those licences (UMTS), because they'd heard that there was so much revenue potential and value in them. If you didn't get them you were not protecting their investments" (INTSwe-8).

This could also influence the internationalisation strategies of the former incumbents and lead to convergent internationalisation "hype scenarios" in the industry segment (see: Stienstra, et. al. (2004)). On the other hand, different corporate governance systems have developed over time in Europe, Asia and the US. They are characterised differently by more or less influence from financial investors:

> "That has been the difference between the American and the European industries - that all Americans have been focusing on the next quarterly results. This really depends on what kind of bonus schemes you have (…) and this may also influence the company strategy" (INTSwe-8).

Through the increased influence of the investment community, industry-sustaining interests have lingered in the background. Additionally, in this marketing-and-media-led era, the responsibility of the **CEO** to establish stable relationships with all stake- and shareholders has been very high. This person is a marketing figure as well, and is important to the company's image among its clients, employees and investors (INTSwe-16b). The CEO should be able to build up trust among all stake- and shareholders:

> "The CEO should be able to build good relations with investors. He needs to have skills of persuasion and communication, and needs to be capable of building trust from the investors. If one couldn't trust him to direct the company, then he would not receive the trust of the analysts and the stock would fall" (INTCH-1).

CEOs today generally do not have a background in the telecommunications industries, only because of the convergence of technologies and the new marketing strategies which view mobile communication as a commodity and renders sales knowledge very valuable:

> "It is clear to see nowadays that many branch outsiders are entering the market. Many CEOs, like Mr. Jos of Vodafone Germany, have a background in the consumer goods industry. (Mr. Jos comes from Proctor and Gamble.) The result can already be seen quite a bit in the way that the telecommunications market is considered less technology-driven and heavily consumer-goods based, and marketing is incredibly important. Here the discounter strategy is discernable, and thus one needs people knowledgeable in this field. Brand experts are in demand today" (INTCH-3).

Altogether, these international industry trends indirectly influence internationalisation strategies and favour growth potential, like risky international projects in emerging markets, with high expectations. Achieving economies of scale is very important now. This can be done via aggressive marketing in the advanced markets and by acquiring licences and shares in the emerging markets (INTSwe-16b).

Trends in corporate internationalisation in 3G: A dynamic perspective

Altogether this reveals a very complex process of similar national institutions (see: table 22) unfolding internationally and leading to similar sub-sectoral internationalisation trends again in the 3G multimedia period.

Technological System	Convergent institutions	Sub-sectoral internationalisation trends
Standards	Global standards, open standards because of the Internet	Globalisation in niche segments along the value network possible
"User-producer" interaction within the value network	Convergence of technologies – new highly internationalised actors (Google, etc.)	Global/international purchasing – economies of scale
	Lead supplier (but less power then before - new actors)	Scanning of lead market in the residential sector - Japan/China
		Scanning of lead market in the business segment - US
Regulatory System	**Convergent institutions**	**Sub-sectoral internationalisation trends**
Licence procedures	UMTS-auctioning	Trend to internationalise into large-country markets (acquire UMTS licences)
Regulatory institutions	International regulation	Easier to internationalise in same regulatory area (Europe, etc.)
Co-evolutive learning	Re-regulation, interconnection, etc.	More internationalisation pressure
Ownership structures	Further privatisation	Further pressure by financial communities – "go international to grow"
Market System	**Convergent institutions**	**Sub-sectoral internationalisation trends**
Products and services	Lead markets in Japan and US	Scan lead markets
Customer habits		Internationalise in culturally proximate markets
Market penetration	Saturation of developed markets, MVNO	Investment in emerging markets in India, Asia, Middle East and China (if possible)
Price	Decreasing tariffs	Internationalisation pressure High pressure from competitors results in more pressure to go international
Monopolistic advantages	Fading away	
Corporate Governance System	**Convergent institutions**	**Sub-sectoral internationalisation trends**
Ownership structure	Reduced government participation; Increased influence of the investment community	Investments with high growth prospects, like internationalisation in emerging markets, as well as a strong focus on the company's own core business are preferred -higher ROI
Company organisation	Triple play and package deals lead to the re-integration of formerly autonomous business branches; standardised appearance for customers	New internationalisation potential in niche areas (content enabling)
Company culture	Domination of finance-driven and market-oriented belief systems	Investments in Central Europe in UMTS markets/ purchasing alliances
Power	Increased pressure from the international finance community	Internationalisation leading to economies of scale are of importance - emerging markets
Management	CEO personality is important – trust of financial investment community / convergence favours CEOs from related business segments (retail, media, etc.)	New knowledge fields from related business segments bring new internationalisation potential in segments along the value chain; economies of scale are important (emerging markets)

Table 22 Sub-sectoral internationalisation trends arising from similar international institutional configurations in the 3 G multimedia period (Source: Author)

Again, these drivers do also have a dynamic component, in that the interests of powerful actors in the different systems steadily co-evolved. Looking at the international market development in mobile communications over time, we see that the most advanced markets were saturated after the 2G boom at the beginning of the millennium. This put pressure on all actors (not only the incumbents) to search for new growth opportunities. These opportunities were mainly found in emerging markets all around the world, as well as in 3G segments in the advanced countries. The consolidation of businesses in the advanced countries was a strategy to win customers and to get the needed economies of scale. This was done mainly through new business models like MVNO and re-branding, as well as through other marketing strategies (attractive service packages). These measures especially favoured former incumbents, as they all had in-house access to triple play (fixed, Internet, mobile) packages. Additionally, there was pressure from technological advances: 3G development was internationally spurred by the convergence of different technologies, mainly those of the computer and media industries and mobile communications. That means new actors besides the established competitors emerged in the business. US IT and media players were especially powerful and tried to establish themselves in the service segments, which formerly belonged to the operators. New business opportunities seemed to arise in the complex value network. Today, due to open standards in the WLAN segments, for example, these businesses carry a lot of internationalisation potential for all players. This new competition puts much more pressure on the former incumbents to grow, and strategic international alliances with powerful players from the new fields (media, Internet, computer industry) have become an industry trend. This trend, however, most favours the biggest players, who have the most purchasing power due to their large customer base. Thus these players are today's first movers, managing to convert their institutional home-market potential into sustainable strategic advantages. Also, learning effects play an important role in this process, which favours players who did not solely imitate industry trends in the foregoing eras but based their internationalisation strategies on the endogenous potential of their own national surroundings. Players that were imitators in the earlier phases were mostly unsuccessful at distinguishing themselves internationally from their competitors, especially the small-country players (among the laggards) who lacked economies of scale. They were forced to cut back and concentrate on the home market.

Another very important trend in the industry involves the direct influence of the financial investment community on company strategies, which sprung from the state's ever-decreasing ownership in all countries. Financial investors are interested in seeing a high return on their investments, and therefore they need to see constant growth. This again favours investment in emerging markets as well as the consolidation of international businesses in advanced markets. Attaining majority ownership control in all markets is also very important at present.

Path Dependencies	Institutions	Sub-sectoral Internationalisation trends
Co-evolution	Saturation of all advanced markets	Emerging markets as growth opportunity; heavy marketing and PR in advanced markets
	Technological convergence - new entrants from other businesses - the value network splits up / standards are more and more open (WLAN)	New possibilities also for small operators to be active in new segments along the value chain; bigger operators compete via economies of scale; international alliances between powerful suppliers and operators
	Regulatory development mainly internationalised today	Easier internationalisation in the same regulatory area
	Financial investment community becomes more and more influential because most states are selling their shares	Growth segments in emerging markets; consolidation in advanced markets
First mover	Superior institutional configurations in all systems in the US lead to the development of open standards in the WLAN segment and in business applications (computer industry); close collaboration between US players and computer industry All players that managed to convert their geographical advantages into sustainable strategic advantages (economies of scale)	Pressure to grow (emerging markets, consolidation in advanced markets, economies of scale) Competitors in the first liberalised markets are successful due to clever market-oriented strategies - incumbents too slow -they manage to convert their first mover advantages from the 1-2G pre-liberalisation era into further advantages (financial and reputational powers) in 2G
	New entrants from other businesses (retail, IT segments like Google)	US players especially successful in the business segment Asian players especially successful in retail business (value added services
Learning	Due to early international experience – positive learning effects and build-up of human capital (international management cultures) in lead countries; problems with management cultures in emerging markets when there is no majority ownership	International strategic alliances between powerful players in all segments in the value network Majority investment in emerging markets
Imitators	Laggards in the 2G boom period	
Laggards	Operators without economies of scale. operators with high state shares and focus on the home market	Only international niche segments

Table 23 International institutional path dependencies in the 3 G multimedia period (Source: Author)

5.3.2 The role of national institutions in understanding different inter-nationalisation strategies in Switzerland and Sweden in the 3G multimedia period

Once again the question at hand is the degree to which internationalisation strategies were influenced by international industry-segment-specific trends in Sweden and Switzerland during the 3G multimedia period. In the following the main international activities of both companies are outlined:

TIME	TeliaSonera Mobile	Swisscom Mobile
2001	International Portal Business (Speedy Tomato) Merger in Russia North Western GSM Divestment: all overseas assets as well as Ireland and Slovenia Core Market: Nordics and Baltics	International strategic purchasing as well as distribution Alliance with Vodafone (25% shares of Vodafone in Swisscom Mobile) Divesture: Czech Republic
2002	Merger of Telia and Sonera Finnish and Swedish Businesses are consolidated: Finland (100%) Denmark (100%) Norway (100%) Estonia (49%) Latvia (60,3%) Lithuania (55%) Russia (43,8% Fintour (74%) Turkcell (37,1%)	
2003	Lithuania (55% - 90%) Fintour (74%)	Swisscom Eurospots (100%) (International WLAN Provision)
2004	Estonia (50.3%) Lithuania (100%) Denmark (Orange 100%) All overseas investment not core business any more – divestment of most overseas assets	Divesture: debitel Unsuccessful tries to invest in Holland (KPN) and Austria (Telecom Austria)
2005	Focus on Nordics and Baltics Reseller in Baltic Markets Ukraine (7%)	Unsuccessful attempt to invest in Czech Republic und Ireland (Eircom) International distribution of Mobile Unlimited technology
2006	Ukraine Spain (Yoigo)	Vodafone divests 25% shares in Swisscom Mobile
2007/2008	Afghanistan (12%) Uzbekistan (99%) Tajikistan (60%)	Investment in niche markets along the value chain; SICAP AG and Minick Holding AG; Investment in broadband in Italy

Table 24 Internationalisation performance of Swisscom Mobile and TeliaSonera Mobile in the 3G multimedia period (Source Author according to ARs)

In the year **2000**, as was already mentioned, a strategic partnership between Vodafone and Swisscom was entered into, and Vodafone has retained 25% of Swisscom Mobile shares since **2001**. Swisscom in turn receives low-cost access to end-devices and value-added services as well as to Vodafone knowledge:

"I would say that in that aspect, Vodafone is quite the international key cooperation partner for the Swiss market as far as mobile communication is concerned. To a large extent, applications and value-added services are determined through "Vodafone live!". This means that we still have the freedom to launch our own services, but the parameter is determined by Vodafone, i.e. the basic services are covered by Vodafone. We are also working in the area of innovation wih Vodafone teams. But this is more an informal exchange which keeps us abreast of the newest trends" (INTCH-13).

In addition, the option to market innovative Swisscom products through Vodafone channels world-wide was also granted. In the same year, Swisscom`s holdings in the Czech Republic were sold, since the contract with the Czech government to construct infrastructure had been completed. According to Swisscom management, the plan in **2001** was to concentrate primarily on the domestic market. The only exception was debitel. However, debitel was already in the red by 4.5% in 2001. This negative factor was exacerbated after the IT crash of 2001. Swisscom's goal of obtaining a UMTS licence through debitel was not successful either. In **2002**, therefore, internationalisation pressure on Swisscom Mobile again grew considerably heavier, also due to decreasing profits in the domestic market. WAP and other value-added services were not yet successful, and UMTS had not taken off. Thus the new strategic direction became: *"cross-border business markets as sub-markets of international development and activity, without organisational or technical integration; an example would be striving for network-independant services in mobile services"* (Swisscom AR 2002). In **2003**, Swisscom decided to form Eurospot, a Swisscom subsidiary based in Geneva and meant to be active in the European Public-WLAN market. Eurospots are offered in cooperation with roaming partners in eight countries, which corresponds to approx. 1,500 locations. Furthermore after failing to get a UMTS license in Germany through debitel, the decision was taken to sell debitel in March **2004**. In the same year, Swisscom was in intense negotiation with Austria's government-owned industry holding ÖIAG regarding a potential merger of Swisscom AG with Telekom Austria AG. Though both parties were in agreement over the advantages of a merger, it was not possible to find a solution that met all their different interests, and Swisscom declined to submit an offer to the stock-holders of Telekom Austria. Swisscom attempted more international activity again in **2005** (Eircom und Czechski Telekom), but again without success:

"Consistently following our strategy to search outside of Switzerland for value enhancement opportunities for Swisscom, we examined a variety of options in the reporting year and became involved in the purchase of Cesky Telecom and the Irish market leader Eircom - though without success. In the first case we were outbid, in the second we were told by the Swiss Federal Council in general to decline any participation with foreign telecommunication companies whose mandate is basic services. Whereby they [the Federal Council] revoked an essential element of the board of directors' prior foreign strategy" (Swisscom AR 2005: 30).

Strategic participation in Vodafone was also withdrawn in **2006**. With SICAP AG and Minick Holding AG as 100% subsidiaries, Swisscom Mobile tried to position itself internationally as a service provider in niche segments along the value-creation chain. But this business proved marginal as well, though the strategic collaboration is planned to continue. All in all, Swisscom Mobile currently focuses on its domestic market and no longer possesses a successful internationalisation strategy, with the exception of Eurospots, which occupy more of a niche position in comparison with the company's business scope as a whole (www.swisscom.ch as of: 01.2008).

The internationalisation strategy of TeliaSonera Mobile stands in contrast:

2002 saw the merger between Finland's Sonera and Sweden's Telia under Swedish majority holding. The company is now called TeliaSonera. A clear focus on the international business of the Nordic and Baltic regions as core markets remains, and it has

been possible to consolidate many markets, since Sonera had already been involved in numerous international projects (Esti Telekom, Latvia, Omnitel in Lithuania, Hungary and Russia). Altogether, TeliaSonera Mobile reaches 100% subsidiaries in Finland, Denmark, Norway and Sweden in the Nordic and Baltic regions as well as a 49% share in Estonia, a 60.3% share in Latvia, a 55% share of Omnitel in Lithuania and a 43.8% share of MegaFon in Russia. MegaFon was established in 2002 by merging North West GSM, in which Telia and Sonera held stakes, with Sonic Duo, in which Sonera was a partner, and several other regional Russian operators. There is an ambition to make the Russian market a part of TeliaSonera's home market in the future. Through the merger with Sonera, Finland's holdings in Eurasia and in Turkey became the property of the Swedes. This involves a 35% share of Fintour, a holding that administers mobile communication companies in the following countries with the following shares: Kazachstan, 51% of mobile operator KCell (614,000 customers); Azerbaijan, 51.3% of Azercell; Georgia, 83.2% of Geocell (198,000 customers); Moldovia, 77% of Moldcell (132,000 customers). In addition, 37.1 % of the Turkish provider Turcell, which is considered first as only a financial investment, went to the Swedes. Aside from this, stakes in India and Poland were sold in 2002. In **2003**, the focus was on the consolidation of previously established foreign-market emphases. This included investments held in the Baltic states as well as in Eurasia, Russia and Turkey. Foremost among the Baltic investments was the increase of shares from 55% to 90% in Lithuania (Omnitel). TeliaSonera now holds 74% of Fintour, and shares in Moldavia could be raised from 77% to 100%. In Russia, the number of customers doubled from 3 to 6 million. Turkcell is one of the largest mobile communication providers in Europe as well. Here the customer base could be raised from 3.3 to 19 million. In October **2004**, TeliaSonera acquired France Telecom's Danish subsidiary, the mobile operator Orange A/S, for a purchase price of 606 million Euro, based on which the market shares for TeliaSonera Denmark soared to 22%. In Lithuania, the company could enlarge its shares in Omnitel from 90% to 100%. The market share of Omnitel remains here at 47%. Moreover, the Eurasian markets represented approximately five percent of TeliaSonera's consolidated net sales in 2004, and these markets continue to grow. Also in 2004, customer numbers in Russia doubled again to 13 million. In general, overseas activities were treated as financial investments and, in this phase, did not belong to the core business of TeliaSonera Mobile any more. In **2005**, the strategic focus remained on the core regions of the Nordic and Baltic countries[33] as well as on Eastern Europe (Russia, Turkey and Eurasia). The mobile phone communication provider Life in the Ukraine was added on, where TeliaSonera holds 7% market share, which corresponds to 1.2 million customers. Altogether, 17 million new customers could be gained in the international business segment alone in 2005. The current inter-nationalisation strategy is referred to as international consolidation, which means cost advantages in the Nordic and Baltic countries through synergy effects and through the acquisition of new customers from resellers, or by not losing customers to competitors.

[33] In Sweden, TeliaSonera has a 52% market share with 4.4 million customers, in Finland a 47% market share with 2.5 million customers. With the acquisition of the re-seller Chess Norway, Telia Sonera reaches a market share there of 34% and around 2 million customers. In Denmark, TeliaSonera holds a share of 22% and 1.2 million customers. In Estonia, the market was extended by the two resellers EMT und Dill. Both are subsidiaries of TeliaSonera Mobile. The market share in Estonia is 47% (approx. 660,000 customers). In Latvia, Telia Sonera has a 45% market share (approx. 735,000 customers). In Lithuania, with Omnitel and Ezys (re-seller), the market share is 49% (approx. 1.9 million customers). In Russia alone the number of customers went from 13 million to 22 million. In Turkey, there was an increase from 19 million to 26.7 million customers, which corresponds to a market share of 67% (TeliaSonera AR 2005).

> These strategies are clearly defensive. The situation is quite different in the growing markets in Eastern Europe, where the intention is to capture missing shares (at least over 50%) in order to gain control over the companies and their services. Here too, consolidation and further synergy and coalition effects are the focus of attention. In addition, it is necessary to keep an eye on the emerging markets in Eastern Europe for interesting new acquisition opportunities to complement the existing portfolio (synergy effects). Furthermore, in the period of **2006/2007**, further international expansion was made to to Spain (Yoigo), and in period of **2007/2008** to the Ukraine, Afghanistan (12%), Usbekistan (99%) and Tajikistan (60%). Thus TeliaSonera Mobile attained a total of around 119.3 million consolidated customers in the first quartal of the year 2008 in the core markets of the Nordic and Baltic states as well as in the emerging markets of Russia, Turkey and Eurasia.

Thus an important aspect out of these empirical findings to add in 3G would be that there have been different trends between bigger and smaller players (based on the importance of economies of scale). Smaller players have become increasingly active in technological niche segments, while larger players have attempted to consolidate their assets in the developed world, to achieve control through majority shares in emerging markets, and to generate synergies in the area of service provision via economies of scale. Altogether the following trends in internationalisation can be observed in the 3G multimedia period in either one of the companies or both:

- Technological requirements: international purchasing alliances and collaboration along the value network (media, content, etc.)
- Pressure by financial investors to go international: growth strategies in emerging markets, for example, or focus on the company's core competencies

In general, there have been no obvious commonalities between the Swedish and Swiss players in this third phase. Swisscom's purchasing partnership with Vodafone reflects the international technological trend followed by many smaller companies that depend on such partnerships because they lack economies of scale and cannot offer value-added services and end-devices to customers alone. Furthermore, Swisscom's internationalisation strategy is no longer noteworthy. Swisscom divested itself of debitel after the UMTS debacle and subsequently focused on the domestic market and on smaller services in niche segments along the value-creation chain which are of little importance for the core business. In addition, TeliaSonera has access to international purchasing collaborations along the value network. This stands in contrast to its internationalisation performance after the merger in 2002, which focused on Northern Europe and on emerging markets and thus followed an international industry trend. However, TeliaSonera did not achieve the majority share in many companies like Turkcell and MegaFon, desired by the international investment community. The company is also active in roaming partnerships (Freemove Alliance) and in purchasing partnerships. This confirms thesis 2.1.2 for the 3G period, which states that the new technological developments and the expectations of the investment communities have contributed to a convergence of sub-sectoral trends in the area of internationalisation.

Differences in the internationalisation strategies of TeliaSonera Mobile and Swisscom Mobile are most clearly visible in their current internationalisation performances, reflected in their number of consolidated customers world-wide: 5 million for Swisscom Mobile versus around 120 million for TeliaSonera Mobile. Furthermore, the geographic difference is remarkable, with Swisscom Mobile focusing on its domestic market and TeliaSonera emphasising Northern Europe and the emerging markets in Russia, Turkey and Eurasia in an international two-market strategy. The following section

will describe the extent to which these differences are the result of a historic view of national institutions.

The national technological system during the 3G multimedia period

During the 3G period, Ericsson by far has been the most important actor in the Swedish telecom innovation system in terms of revenues, followed by large operators like TeliaSonera. In 2001, Ericsson attributed for more than 20% of total **R&D spending** in the country. Additionally, a vast number of companies supplying components and services have emerged around Ericsson. According to statistics on the 500 most important IT companies in Sweden, the industry generated revenues of between 300 and 400 billion Swedish Krona in 2002. But the recent telecom bust hit Ericsson hard - first in the mobile phone business and then in the infrastructure market. The effects of cutting almost half of its R&D spending have been immense. Historically, Telia also contributed much to R&D spending[34], but its importance in this area has decreased significantly as a result of changing competitive conditions (Lindmark, et. al. 2004: 158pp.). While the development of 3G technologies in Sweden did not differ from those in Switzerland, in Sweden as well as in Finland (which was important as a second national market after the merger), the development of application and data such as 3G portals appeared several years earlier. The convergence of computer and mobile systems was already part of Televerket's strategic vision during the 1980s. Later, another **national innovation system** called Mobitex emerged, which initially was publicly funded and contributed to Sweden's knowledge in the mobile data field (INTSwe-16c)[35]. Since Ericsson and Nokia are much more internationalised today, there is no national innovation system and superior national user-producer interaction any more. However as Anne Morris (2007) startes:

> "Sweden maintains its reputation as a technology hotbed" (…) "however this is mainly because of the fact that it is home of one of the largest telecommunication equipment manufacturers: Ericsson" (…) "Perhaps because of the dominance of Ericsson and TeliaSonera it's certainly true that entrepreneurialism is alive and kicking in Sweden" (www.totaltele.com as of: 11.2007).

There are some innovative SMEs around Kista, a high-tech cluster in Sweden, but all other technological functions are internationalised today and the situation today can not be compared to national "**lead market**" function in the 1-2G pre-liberalisation period. TeliaSonera has also lost its international standard-setting influence during this period due to its limited economies of scale. This **power** has gone directly to handset manufacturers, which are already taking over parts of the provider business as well, as Nokia's example shows:

> "New noises out of Helsinki: Nokia, re-strengthened market leader among the mobile producers, will become an 'Internet-driven adventure company' (…) In the future people will not only purchase music or download games, but also build picture and video communities and navigate through the world. `Simply producing devices is not enough anymore,` says Kallusvuo (CEO Nokia) about the change of strategy, even though after a period of weakness Nokia again sits unchallenged at the top of mobile phone producers. `Some network operators therefore will not like our plans,` comments Nokia's multimedia director Anssi Vanjoki" (www.faz.de as of: 03.09.2007).

[34] It is unlikely that Ericsson would have entered into cellular mobile telephony had it not been for Televerket's leading role. Televerket had built up a position as a competent developer, operator, standardiser and procurer of mobile telephony equipment. It increased the attention and resources Ericsson spent on mobile telephony during the analog and 2G periods (INTSwe-18). Following de-regulation and the introduction of competition, Televerket scaled down its own R&D and lost its incentive to continue financing collaborative R&D, as development would also benefit its competitors (Lindmark, et. al. 2004: 144).

[35] On the development of Mobitex in Sweden see Lindmark, et. al. 2004: 298pp..

The third area of growth, besides handsets and infrastructure, Nokia would like to occupy is the games market. Competitor Sony Ericsson also thought this would be an attractive market. "*Games are currently the most developed content offer in mobile phones,"* said Peter Ahnegard, responsible for the mobile phone game branch at Sony Ericsson. The introduction of a mobile "Play Station" is definitively on the agenda, according to Ahnegard (www.faz.de as of: 03.09.2007). Another important trend in operators' international strategies is that they are increasingly outsourcing their network activities:

> "We see a shift now toward splitting up the infrastructure business. (…) the trend is more toward services (…) As you can see, TeliaSonera is new in Spain (…) There is a very limited number of persons working in Yoigo in Spain, and Ericsson is managing the network (...) also in Barthi in India (…) The trend now is that the operators won't take care of the networks themselves. They ask Ericsson to do that for them and pay" (INTSwe-18).

Additionally, the merger between Telia and Sonera brought important developments to the 3G era in Sweden. Both companies came out of national innovation systems in mobile communications, and both were market leaders in 1G and 2G. However, their lead positions disappeared in 3G because of the delay in infrastructure provision (INTSwe-18).

These days, the power in Sweden and Finland`s markets clearly lies with the manufacturers Ericsson and Nokia, and state policies indirectly also support those two giants. For example, there are mobile clusters in Kista, Sweden, where the industry's R&D functions are concentrated today. Due to the technology convergence trend, media, applications and content manufacturers are active as well. However, TeliaSonera Mobile's 3G technological capabilities differ only slightly from those of Swisscom Mobile, as neither are clear market leaders any more. That is why both actors scan activities in the US and in Japan. But TeliaSonera has an advantage - because of their broad internationalisation, new services invented in the Baltics, for example, can rapidly diffuse in the product portfolio and may also lead to new developments and internationalisation potential. However, the national institutional system in this field at present, e.g. user-producer interaction or state policies, no longer seems so very important for operators' business. In TeliaSonera, in fact, there is an international purchasing and collaboration policy involving international suppliers along the new, fragmented value network (INTSwe-14; INTSwe-16b).

As regards the influence of the ICT sector on its economic development, Switzerland today is an intermediate country compared to leading ICT countries like Finland, Sweden and Denmark, and bigger export countries like the US or Germany (Friedewald et al. 2005: 12):

> "Switzerland is not a manufacturing country but a user country. There are some components of the value chain that could be made in Switzerland in the hardware sector, but to a much lesser degree. It is the same for the IT and telecom services segments. There are some high-quality service providers which are specialised in international niches, but to a much lesser extent. The biggest software export really works within a company like UBS, and thus never makes it to the balance of trade figures. We don't have an export-oriented ICT market in Switzerland. In general we are an end-user country in the field of IT and telecommunication infrastructure and software. And in using IT and telecom-services infrastructure, we are not bad!" (INTCH-18).

Innovation in Swisscom during the 3G era mostly occurred in customer service, in pricing and in process management, and less in the design of services (INTCH-13). Service innovation is clearly done together with international vendors in Switzerland:

> "The voice and data business is still the driving market force among all providers to this day. (...) everything else is just an attempt. (...) you are permanently looking for killer applications in the area of value-added services. A lot of information is derived from international conferences, where there is a strong exchange of knowledge, and naturally through the vendors, whom we often invite to visit us and who inform us about new products. (…) Secret projects do not pay off in that sense (...) they would be way too expensive, since one never exactly knows what will be adopted by the customer" (INTCH-13).

Relationships with international end-device producers gained more importance for Swisscom, especially at the beginning of the multimedia era (INTCH-11). Sunrise's and Orange's end-device subsidising, with both companies embedded in larger international purchasing communities, put Swisscom under considerable pressure in 2001. Due to the small domestic market and national **suppliers**' lack of noteworthy influence after liberalisation, Swisscom's negotiation power with international producers like Nokia, Ericsson, etc. was very limited. Also, access to acceptable applications became very difficult after the WAP debacle in Europe. The necessity of an international strategic alliance with Vodafone became almost unavoidable. Vodafone is one of the largest international operators and thus possesses the allocative resources to create its own mobile web portal (Vodafone live!). Plus, access to handsets is a lot cheaper over the Vodafone business alliance. Furthermore, Swisscom was able to negotiate a cooperation contract that exclusively allows a Swisscom label to mark end devices for the Swiss market, which is unique on an international level. In this way, device subsidising on the domestic market is affordable even for Swisscom. Finally, through Vodafone Swisscom has access to further innovations in the mobile service area and can benefit from the firm's international knowledge (INTCH-14; INTCH-16):

> "It must be said that the final device is an important purchase decision for the customer. Thus the business remains strongly final-device-driven. Hardly anyone knows what they pay per minute. But a good final device - that has naturally helped Swisscom Mobile keep its market share high. We possess a very good portfolio of final devices, using mainly the famous Nokia handsets (…) Japanese producers like Samsung (…) There we possess very big advantages together with Vodafone, and in the business area as well we get special devices which are sold exclusively to us by Vodafone. Now PCs are pre-configured with Vodafone SIM cards. We cannot do such deals as Swisscom alone. For that we are just too small. If we went to HP or LENOVO, they would say straight out "forget it." They don't even talk to us." (INTCH-14).

This explains Swisscom's international strategic alliance with Vodafone in 2001. On the other hand, this close collaboration has put restrictions on Swisscom Mobile's internationalisation options: *"Vodafone pre-determines the playing field; we do not want to be international competitors"* (INTCH-14). Since the IT area has become more important in the meanwhile, and mobile and computer technologies are converging, Swisscom Mobile has entered logical, international strategic partnerships with Cisco Systems, or Microsoft, by way of other areas in the Swisscom group. The mobile branch itself remains less involved there than the branches Enterprise Solutions (IT systems) or Fixnet (Swisscom AR 2002). Through these partnerships, key customers can be offered even better mobile services. Particularly since 2002, Swisscom Mobile has also been trying to develop value-added services with smaller and mid-size businesses (KMU) and to bring them onboard with Swisscom final devices. Among other developments, the Mobile Unlimited solution and Eurospots originated from this cooperation with the KMU (INTCH-12). Aside from this, new niche segments along the value chain in the 3G field have been interesting for Swisscom Mobile as well. It is active in WLAN technologies as well as in the diffusion of Mobile Unlimited and other small-scale businesses along the value chain. Additionally, Swisscom has tried to follow the international technological trends of the industry by scanning lead markets in Japan and the US and by using international collaboration partners like Vodafone to stay up on new developments (INTCH-13).

Altogether in Sweden and Switzerland, due to the globalisation of most suppliers and actors along the fragmented mobile value network, the influence of national institutions in both countries has been marginal during the 3G period: However with TeliaSonera having a light advantage because of its good knowledge about Ericsson and Nokia, as well as its spatial proximity to innovative SMEs in Kista and Tampere (INTSwe-1). This supports thesis 2.1.2.

Technological System	Sweden	Switzerland
National Innovation System "User-producer interaction"	No real national innovation system as in 1G and 2G periods, also because no real national user-producer interaction any more Ericsson is lead player in mobile sector in Sweden – highly globalised	No national user-producer interaction
Capapbilities (technological know-how)	Only light advantages with superior regional competencies in Kista (small and innovative IT companies) International purchasing alliances Synergies with merger - Sonera former market leader in 2G as well - there is also proximity to innovative clusters important for 3G business Scanning worldwide: trends in 3 and 4G - Japan/US/China	Scanning worldwide: Trends in 3 and 4 G: Japan/US/China
Internationalisation potential/strategy	Learning from new 3G applications out of Baltic markets; international purchasing alliances	International purchasing alliance with Vodafone; 3G service application and branding through Vodafone Alliance

Table 25 Internationalisation potential arising from the national technological system in 3G (Source: Author)

The national regulatory system during the 3G multimedia period

National telecommunications legislation in Sweden was a matter of choosing between classic, "heavy-handed" regulation to prevent the abuse of the incumbent's market power, a laissez-fare reliance on the existing competition legislation, or an intermediate approach (INTSwe-19). This led to some problems and learning effects after the first decade of re-regulation there: **interconnection** issues became particularly important. The PTS (Swedish National Post and Telecom Agency), for example, ordered Telia to reduce its interconnection charge on three occasions, the last time in January 2002:

> "Until now the major problems in mobile communications have been this interconnection thing. The first and foremost was that the Swedish Telecommunication Act had no provision to force the network owner to provide interconnection to his competitors. It only said if you own a network, you have to negotiate interconnection arrangements. And of course that meant that Telia, who owned the good network, said OK, we'll negotiate, but we won't reach a contract. And that's what happened for a long time. All we (PTS) could do was mediate in those negotiations. (…) However, we learned from this, and the provision was gradually sharpened in the new Telecommunications Act (…) Then competition in the mobile market took off for real" (INTSwe-20).

This situation also made it nearly impossible for MVNOs to enter the Swedish market on fair terms, because the mobile network operators had no interest in forming contracts with the MVNOs, primarily

because they would compete directly with the mobile network operators' existing operations (INTSwe-17):

> "They (MVNOs) are having a real hard time in Sweden. The law does not really protect their rights. If they do not build a network on their own they are not allowed to interconnect. So they are getting quite a poor deal which they can`t make any money out of" (INTSwe-19).

However, this also changed via stricter new EU regulations: *"At the beginning, the Telecommunications Act was relatively weak. We as an authority could not really solve those disputes (...) There were many changes. But the major change in the old framework came in 1997, when the authorities were given more power to actually solve the disputes and the problems in the market. From 1997 on, the PTS could settle which terms should be applied. And the next major change was in 2003, of course prompted by the EU legislation"* (INTSwe-19). Further important re-regulation steps in Sweden during the multimedia period are included in figure 23:

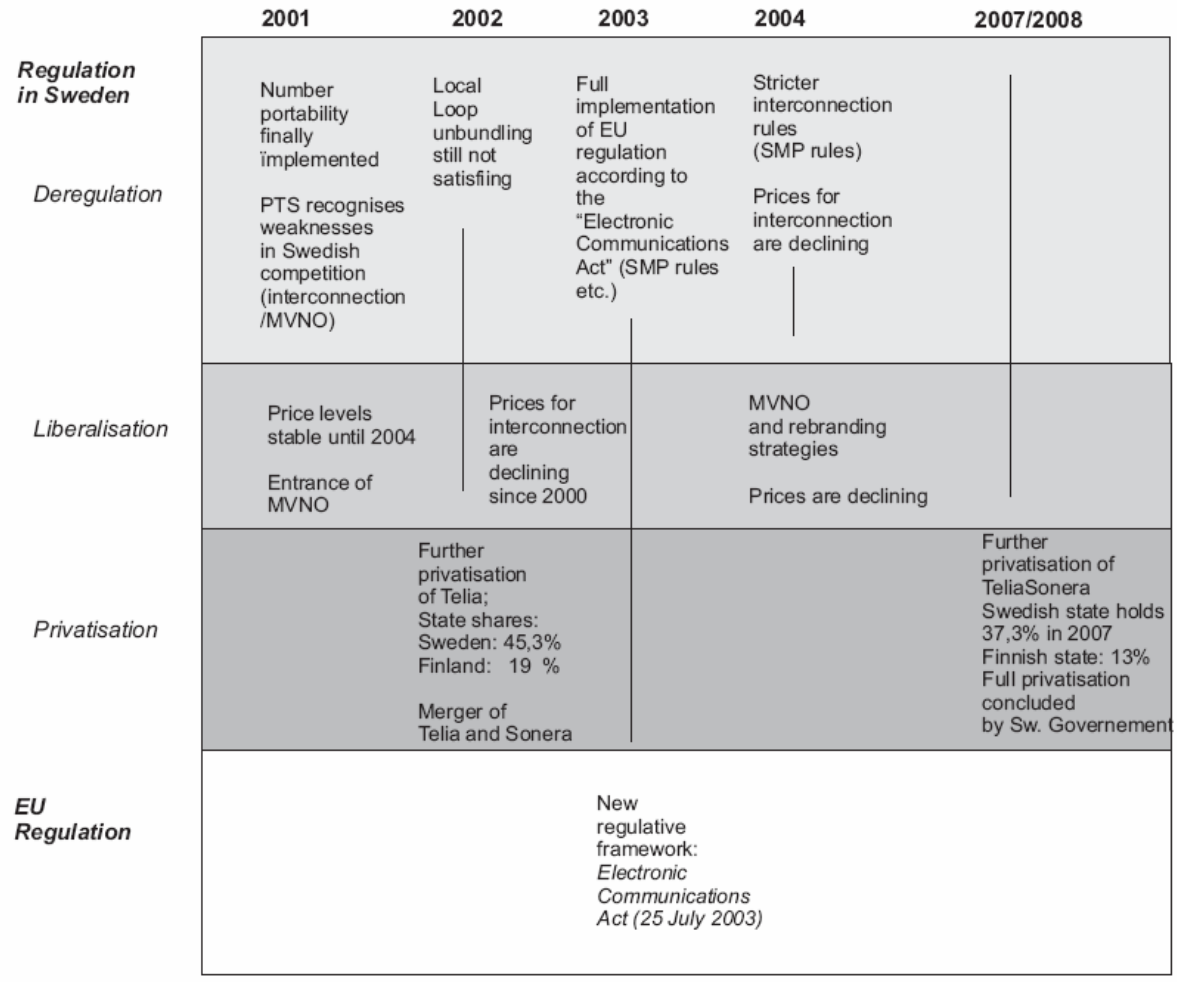


Figure 23 The regulatory system in Sweden in 3G (Source: Author according to PTS 2003 and ARs of TeliaSonera 2000-2006)

The era of national regulation ended when EU legislation was imposed on Sweden, which has been a member state since 1995. The first important step came in the year 2000, with the EU requirement to unbundle the local loop. To this day, however, this has not proved totally effective either, as the following statement shows:

> "Of course Telia still has a market hold on the local loop, and it has been very difficult to break by regulation. The PTS has tried numerous ways of putting pressure on, but without any real success. Now the big issue is whether to do something really radical or not" (INTSwe-17).

Additionally, in 2000 the European Commission presented a proposal for a new regulatory framework for electronics communications with the aim of modernising existing **EU legislation** in this area (INTSwe-17). The overall goal was to harmonise the regulatory framework for electronic communications networks and services as well as associated services in the EU. The "Electronic Communications Act," which came into force in Sweden on 25 July 2003, replaced the old Telecommunications Act and the Radio Communications Act from 1993 (Electronic Communications Act 2003: 1-26).

> "The aim of the the act is to ensure that electronic communications are as accessible and efficient as possible and are open to free competition. We wish to give an authority power to force market-dominating companies to allow competitors access to their networks or to limit their prices to the end customer to what is reasonable. This also means that it will be possible to force operators to share 3G masts. (…) The proposal also contains provisions to ensure that the user is provided with a certain basic range of services at affordable rates and on equal terms through the country. (…) We will also improve consumer protection, e.g. to be able to block such as premium rate calls etc.." (Electronic Communications Act 2003: 1).

Especially important is the market analysis and identification of companies with significant market power (SMP). *"The concept of SMP shall be interpreted with the concept of a "dominant market position"*, as defined in the case law of the Court of Justice and the Court of First Instance of the European Commission" (Electronic Communications Act 2003: 20). National regulatory authorities (NRAs), including those in the countries in which TeliaSonera operates, are expected to take the markets listed in the "Relevant Market Recommendations" established by the European Commission as the starting point for their own market analyses. NRAs should then determine and designate companies that have significant market power. They can also impose or maintain ex ante sector-specific obligations when ex post remedies of competition law are not adequate to meet the market problems identified. Possible obligations could include inter alia transparency, accounting separation, network access and price control. Other applicable EU directives included in the EU Communications Framework cover areas such as authorisation of networks and services, access and interconnection (including local loop access), universal service, and privacy and security issues (TeliaSonera AR 2002; see also: INTSwe-17; INTSwe-19). Thus Swedish regulation in this field today can be characterised by the following statement:

> "Sweden has been at the forefront of telecommunications liberalisation in Europe, but is now making itself an example of re-regulation. Mobile telephony markets have come under a regulatory regime that is stricter than the one that was designed at the time of liberalisation, including rate-of-return regulation of interconnection charges; unbundling requirements; and "everything-now" universal service obligations" (Hultkrantz 2002: 133).

The PTS' decisions may be appealed in an administrative court. To indicate how long this process takes, however, it should be mentioned that there are several SMP decisions that were issued in 2004 and have yet to come up for a decision. The number of cases received by the county administrative court in the years 2000 to 2005 is as follows: 2000: 26; 2001: 7; 2002: 25; 2003: 17; 2004: 60; 2005: 63 (PTS 2006):

> "There are many decisions being challenged by operators these days. Almost every decision which has an economic impact will be challenged in court. Today they are all equally keen on this because there is a lot of money involved… even just to postpone a decision there is a lot of money involved. We have complained a little to the commission, but they would not intervene in national legal instances. So it is a national matter. (…) of very lengthy court processes, which typically drag out over two, three or four years. I guess there is a huge problem in this area" (INTSwe-20).

Additionally, as TeliaSonera views the whole Nordic and Baltic areas as their home market, the regulatory situation in those countries is also important for its business at present. As member states of the EU, Sweden, Finland, Denmark, Lithuania, Latvia and Estonia are required to follow EU regulations and to enact domestic legislation to give effect to EU directives. Norway is under similar obligations as party to the European Economic Area Agreement (INTSwe-16a). Thus the importance of Sweden's national regulation to the Swedish incumbent's internationalisation strategies is declining today, for most of its revenues are not longer domestic:

> "Of TeliaSonera's total revenues, about 40% are related to Sweden. So for us [TeliaSonera] this whole discussion about the incumbent is not as important as it is for Swisscom. Sixty percent of revenues are from outside nowadays. For Swisscom, the opening of the market came much later and it was very much mixed with political influences, so it was difficult" (INTSwe-16a).

TeliaSonera was found to have **SMP status** in several but not all of these outside markets, and final decisions were expected in 2005. The Act increased the Swedish NRA's power to regulate markets where a telecommunications operator has significant power over the relevant wholesale or end-user market (TeliaSonera AR 2004). This can also be seen in the case of the UMTS biddings, where Telia did not win a licence and thus had to collaborate with its competitor Tele 2 in establishing 3G infrastructure (INTSwe-16a). The companies were then ranked according to the extent of the coverage and rate of development that they had promised. Europolitan, HI3G, Orange and Tele2 promised the greatest coverage and most rapid development and were therefore allocated licences (PTS 2003: 17). This controversial choice could perhaps be compared to a beauty contest and its rules. But the PTS process and decision was in fact an interpretation of Swedish law stating that licenses should be issued on grounds of fact, in relation to the aims of the telecommunications law: Moreover, after Telia`s unsuccessful merger with Telenor, the state saw that it had to privatise the company to give it more internationalisation potential:

> "There was also pressure from internationalisation processes. All the other countries were only partly state-owned, and everybody knows what a private company is, but what a state-owned company is, is very unclear" (INTSwe-16a).

Thus **privatisation issues** came to the forefront in Sweden. In May of 2000, the Swedish government decided to issue a public offering to purchase the Swedish state's stock in Telia, after which the state's holding would total more than 70% of all shares. The Swedish state held 45.3% and the Finnish state 19,1%, which were reduced to 13,2% in 2004. The Swedish state then reduced its shares again in 2007 to 37.3 percent (www.heiseonline.de as of: 02.05.2007). A further privatisation of TeliaSonera will come in the future and is currently under discussion (INTSwe-12). During Swedish parliamentary elections in 2006, the government expressed a policy goal of selling its stakes in TeliaSonera. Additionally, a financial crisis arose and Telia was privatised just as the role of investors increased. The company then had to focus its internationalisation strategy toward concentrating on Return on Investment. That is when most overseas involvements were divested and the focus turned to the Nordic and Baltic regions as well as to Russia (INTSwe-19).

However, though Telia had been financially healthy compared to other players prior to 2005, the company had to take the opportunity to merge with Sonera following more losses in the home market and the market entry of new players like MVNO. This brought Telia numerous new internationalisation assets from the Finnish company (especially in Russia, the Baltic area and the Nordic markets as well as new market segments in Eurasia and Turkey). The international strategy at this point was characterised by a two-pronged focus on Nordic and Baltic home markets and Eastern European and Eurasian growth markets. This was also due to stricter EU regulation which went into national law in July 2003. The national regulation is now totally standardised to EU legislation, and the state is selling more and more of its shares. There is almost no direct national regulatory specificity any more in Sweden (INTSwe-16b).

The next section will discuss company, government and regulator relations in Switzerland during the multimedia period and the most important changes in formal and informal institutions that resulted. On the one hand, these changes occurred through lobbying activities on the company's part. Of importance here were the allocative and reputative resources of the actors. Moreover, the public, or the customer, contributed to co-evolutive law changes in Switzerland; a critical public plays a particularly special role in the practice of Switzerland's federally structured government. On the other hand, changes in national institutions within the Swiss regulatory environment were also a result of the **learning effects** experienced by the regulatory board on a national basis, as well as the imitation of international **regulatory reforms** (especially within the EU countries). Figure 24 shows the most important aspects of regulation in Switzerland during the multimedia period:

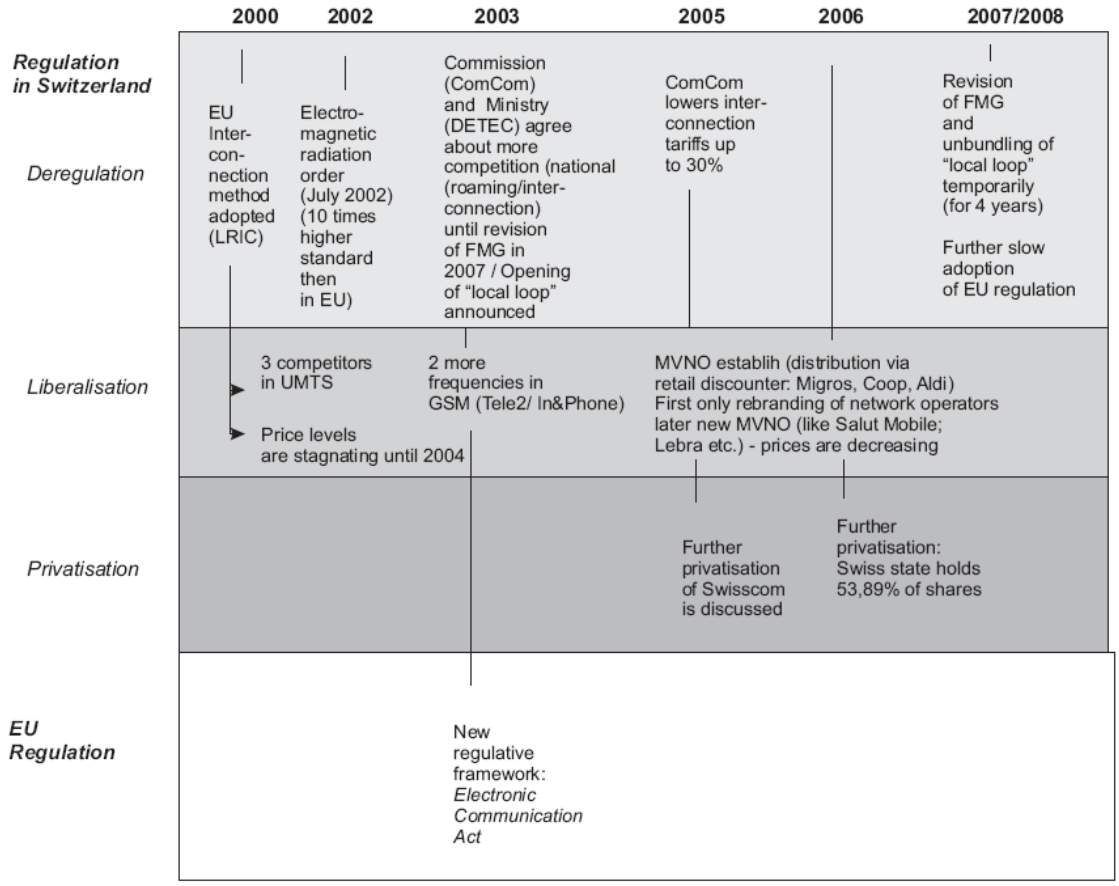


Figure 24 The regulatory system in Switzerland in 3G (Source: Author according to ComCom 2003)

Since Switzerland, in contrast to Sweden, is **not part of the EU**, it has no obligation to comply with EU laws and regulations. However, EU directives are often used as guidelines to amend and revise Swiss law. As a result, Switzerland launched the reform of its telecommunications sector at the same time as the European Union did, and liberalisation came into effect on the same date as in the EU countries (1 January 1998). Switzerland is among the leading countries in infrastructure provision worldwide, and competition has also been established. Nevertheless, after five years of liberalisation, the Swiss legislation showed some weaknesses in relation to the EU objectives and regulatory framework. While the European Union clearly laid down objectives for promoting competition in telecommunications, such as local loop unbundling, Swiss telecommunications law was less specific, leaving more room for interpretation (OFCOM 2003a: 10). Ex-ante regulation[36], for example, was not applied in Switzerland. Moreover, the unbundling of the last mile was considerably delayed and was to become effective only with the revision of the FMG in 2007. Through collaboration with the Independent Regulators Group (IRG), the Swiss regulatory authorities exchange views with the authorities of the EU member states. In this manner, a country like Switzerland, which stands outside the EU, can bring its point of view into the EU regulation discussion. Swiss representatives appear also in the EU commission, but only have the role of an observer there (Dönni/Schwab 2004: 284p.). The challenges facing the Swiss regulatory system at present are:

- The Federal court's ability to overrule ComCom's and OFCOM's specific telecom regulations (i.e., interconnection and access issues):

  "There were particularly problems with the Supreme Court which dominated everything. It interpreted the FMG too strictly and permanently questioned the competence of the ComCom. This all worked in favour of Swisscom" (INTCH-8).

- The unclear language of the National Telecommunication Law (FMG) (which leaves room for contradictory interpretation and can paralyse the sector's development towards a competitive marketplace) (ComCom 2003)
- OFCOM's lack of resources (financial and legal) (INTCH-13)
- The weaknesses of the ComCom (in resources and in telecommunications-market expertise), which sometimes leads to difficulty applying competition law to the telecom sector (ComCom 2003).
- There is little competition in the various telecommunication markets. There are almost no mobile re-sellers in Switzerland because of the national "mobile cartel," also due to the late unbundling of the local loop (ComCom 2003)
- Asymmetry of information and resources in favour of Swisscom (especially in lobbying):

  "Economie Suisse was very, very strongly active for liberalisation along with the ASUT in the area of PTT reform. And with their official statements they also sensitised politicians. At that time, Swisscom still was not a member (…) Swisscom then got in touch with Economie Suisse in order to become a member. And Economie Suisse would not say no to one of the largest firms in the country, since they are interested in membership fees. And for large firms it is clear that they

[36] The currently applicable "ex-post-regulation" leads to long-lasting interconnection procedures and does not meet the requirements of dynamic markets. This means that the authorities in charge of interconnection cannot become active independently but can only do so based on the demand of a provider. Also, prices fixed by the regulator count only retroactively from the point in time when the request was filed. All other market participants benefit a lot later from the decreed prices, i.e. from the time when the decision becomes law. In markets with a monopolistic provider, according to the commission, a more flexible regulation approach would be necessary, allowing legal certainty from early on and competition for the stimulation of the markets. Lengthy procedures lead to year-long delays with financial disadvantages for competitors. With the "ex-ante-regulation" (as it is practised within the EU), these goals could be achieved more efficiently. The advantages of ex-ante-regulation could be seen therein (INTCH-6; INTCH-8): Ex-ante-regulation allows the regulator to be active in individual sub-segments of the market However, this is true only if a provider possesses a domination position. Early intervention leads to equal basic conditions and prices for all providers from the start. Ex-ante-regulation leads to quicker, more efficient procedures as well as more legal and investment certainty (ComCom 2002).

should be represented on the board. And since then you have not heard a word about liberalisation anymore. The power of Swisscom, based on its size and its financial potency, generates huge power in the landscape of associations, of which Swisscom is a part. I actually know from sources within Economie Suisse that they had prepared statements about unbundlilng, and I know that Swisscom said there would be no unbundling for Economie Suisse without discussing it in the board. And Swisscom is represented on the board. Several statements did not appear at all, others were altered" (INTCH-8).

- Ex-post regulation vs. ex-ante regulation in the EU: legal procedures are very slow (in favour of Swisscom) (INTCH-7)
- High demands on network coverage and security (NIS ordinance):

"Just in the field of antenna locations there are some disadvanteges here in Switzerland. There are huge market entry barriers for new applicants. It takes partially two to three years until you can erect an antenna because of citizen objections. For nation-wide coverage you would need 1,500 or more. The advantage of the traditional providers was that they already owned property everywhere and had the locations of course, too" (INTCH-6).

In terms of internationalisation pressure, this meant Swisscom became quite a bit more dependent on the national regulatory practise, which is not as clearly regulated as within the EU. Swisscom, furthermore, had different monopolistic advantages from TeliaSonera. Particularly the ex-post regulation and the late unbundling, which initially caused different calculations for interconnection procedures in the period after liberalisation, led to enormous advantages for the previous monopolist and no further pressure to internationalise. The market entry of competitors, on the other hand, was delayed and hindered by this legal uncertainty. This should change with the 2007 revision of the FMG, which has already led to increased internationalisation pressure (attempts to establish business in Austria, Ireland) and to speculations about the total privatisation of Swisscom. The internationalisation strategy of Swisscom Mobile was put to the test in a hard way in the years 2004 to 2006, when politics intervened and contributed to the failure of the international activities, especially in regard to the majority share of the Swiss state in the company (in 2007 still 53%) as well in the cases of Telekom Austria and Ericom. The Swiss government formalised its determination to no longer enter into risky foreign holdings in its new strategy paper of 2006. This clearly shows how national and political interests can influence the foreign strategy of a company and how they impose first informal and later formal rules which determine the opportunities for internationalisation (INTCH-8).

Regulatory System	Sweden	Switzerland
International regulation	Shift to EU regulation from 1999 to 2003 Implementation of new Electronic Communication Act in 2003	Several changes of old FMG from 1993 until re-writing in 2007 (light adoption of EU regulation)
SMP rules	SMP rules and interconnection rules	
Local loop unbundling	Local loop unbundling in 2000	Only at the beginning of 2007, decision over local loop unbundling for 4 years
Licence procedures	UMTS "beauty contest": Telia gets no licence	
Monopolistic advantages		Still many monopolistic advantages until 2007 (local loop, etc.)
Number portability	Number portability and MVNO regulation in 2000 and 2001 – further competition only in 2004	
State ownership	Full privatisation planned	
Political belief system	Political belief system: shareholder value and market-oriented	Political belief system: market-oriented, but also protection of home-market interests New interconnection method LRIC
Interconnection	Interconnection disputes	
Ex ante/ex post regulation	Ex ante regulation	Still ex-post regulation
Internationalisation potential/strategy	Further internationalisation pressure due to saturated markets at the beginning of 2000; More competition and pressure to go international especially after 2004 because of strict EU regulation	Low internationalisation pressure due to regulatory advantages of former incumbent (local loop, etc.); only since 2004 more pressure because regulator was becoming more powerful (new competitors and interconnection method)

Table 26 Internationalisation potential arising from the regulatory system in 3G (Source: Author)

The national market system during the 3G multimedia period

There have been three GSM operators with national coverage in Sweden since 1992. Altogether three further important **entries** appeared in the Swedish market for mobile telecommunications services during the multimedia period. The undertaking Hi3G Access AB (Hi3G) obtained a UMTS licence with the "3" brand at the end of 2000. Telenor Mobile Sverige AS, under the brand Djuice, concluded an agreement for MVNO access to Tele2's network. However, at the beginning of 2006, Telenor purchased Vodafone Sverige, which in practice meant that Djuice subscribers would migrate from Tele2's to Telenor's network. In 2002, Spring Mobil was awarded spectrum in the GSM band and established services in the business segment. In addition, following an auction in February 2005, Nordisk Mobiltelefon A/S won a national licence for digital mobile telephony in the 450 MHz band. Orange has withdrawn from its venture in Sweden, with its UMTS spectrum reverting to the PTS. Tele2 and TeliaSonera have jointly formed a UMTS network company, SULAB, which now holds the original Tele2 licence (PTS 2006: 33).

Operator	Year of launch	Technology	Market share (subscribers)	Revenue
TeliaSonera	1992 (GSM)	NMT, GSM 900/1800, UMTS	43 %	N/A
Tele2	1992	GSM 900/1800, UMTS	35 %	N/A
Telenor/Vodafone	2003/1992	GSM 900/1800, UMTS	17 %	N/A
Hi3G	2003	UMTS	3 %	N/A
Spring Mobil / Swefour	2004	GSM 900/1800	-	N/A
SPs	1999-		2 %	N/A

Table 27 Mobile operators in Sweden in the 3G multimedia period (Source: PTS 2006: 33)

Furthermore, there were more mobile than fixed-net **subscriptions** in the year 2001, which again stresses the significance of the market segment for Telia. Switzerland and Sweden are positioned in the midfield in the UMTS and GSM area. In statistical terms, both reached approximately the same market shares in the year 2007. In 2005, the market for mobile telecommunication services saw revenues of 16,613 billion Swedish Krona. As of 31 December 2005, the total number of subscriptions in Sweden was 9.1 million. In general, Swedish operators have had an operating profit margin of 40% to 50%30 from their mobile businesses in recent years (PTS 2006: 34). However, the **market share**s of TeliaSonera decreased to about 43% in mobile telephony in 2006. This is within the European average for a former incumbent. In 2001, the number of service providers had increased dramatically from two to around ten, increasing further to 18 in 2002. By the end of 2001, these operators had taken a 1.1% market share of subscriptions and 6% of growth that year, increasing to 2% and 9% respectively in 2002 (Lindmark, et. al. 2004: 282-290). However, four of these were run by network-owning mobile operators; Tango (Optimal Telecom), for example, is a subsidiary of Tele2. Halebop Mobile is a subsidiary of TeliaSonera. Djuice and Glocalnet are subsidiaries of Telenor. This business strategy was not unique to Sweden, but was also successful in other Nordic and Baltic core areas as well as the new market area in Spain (with the "Yoigo" brand) in 2007:

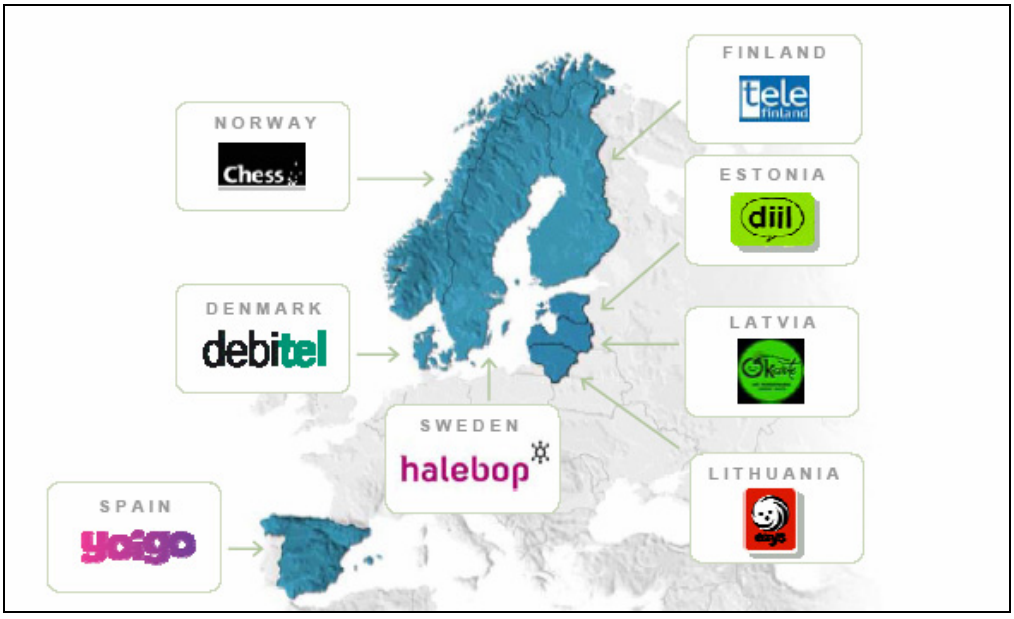


Figure 25 TeliaSonera`s mobile low cost brands in advanced markets 2007 (Source: www.telia-sonera.com_Investor Relations as of: 01.2008)

The annual growth for mobile subscriptions in Sweden had remained relatively stable at around 10% for several years. As of 2005, however, this rate of growth began to drop. Between the first half of 2005 and the first half of 2006, the number of subscriptions (contract subscriptions and prepaid cards) increased by just under 3%, which was less than previously. The most important explanation for this is that these days most people already use a mobile telephone. In other words, the market in Sweden is beginning to become saturated (PTS 2007: 34). This effect further intensified after 2006 in the Nordic and Baltic regions, which explains the new market focus on Eurasia and Russia as clear growth markets, as well as the current (as of February 2008) acquisitions in Afghanistan, Tajikistan and Uzbekistan, despite the numerous cultural and infrastructural problems there:

> "Lithuania has a higher penetration than Sweden does in the mobile branch, which is incredible - and this also in services. Because they jumped over (…) and that is one area with a 100% penetration (…) And in the Fintour companies, there is only 34% penetration, so there is more opportunity to grow. These different markets are in different stages of their development. And the ones that we had up here are now important to us for bringing more services to the market. There it is still building to get customers. Here [Nordic and Baltic region] we are stealing customers from each other" (INTSwe-16b).

With 2,350 Euro in the year 2007, Sweden still shows relatively high per capita spending on telecom services. The EU average of per capita spending lies at 1,344 Euro (EITO 2007). In terms of the adoption of data-services in Sweden, for example, SMS diffusion was initially slow, but started to increase significantly in the late 1990s. In 2002, SMS services accounted for 8% of the operators' ARPU; for private customers, the corresponding figure was 12% (Lindmark, et. al. 2004: 282-290). However, the proportion of SMS usage is much higher in Norway, Switzerland and Germany. Thus Sweden stands out in the Nordic area as the country with the lowest mobile data usage:

> "In Sweden the amount of mobile minutes is a lot lower than the EU average. 24% of the traffic was mobile traffic in the middle of 2006. The average is around 40%. Finland is much higher. The other Nordic markets are much higher, so only Sweden stands out there" (INTSwe-2).

However, the first packaged **mobile data services** on the Swedish market were launched by Telia in February 1998 under the name Telia DOF (Department of the Future). The DOF service introduction was aided by a large marketing campaign (21 million Swedish Krona for the first six months) targeting corporate customers (Telia AR 2000). In 1999, Telia launched what it called the world's first public WAP portal, Mydof. The portal included services such as news from the daily media, banking services, etc. In November 2000, additionally Telia announced the launch of a new mobile portal project, Speedy Tomato. The portal was later launched in the UK, Italy, Denmark and Finland, too. Telia's goal was to be the leader in mobile Internet in the Nordic countries. The aim internationally was to be an MVNO and mobile portal provider in the European area. This was earlier than most other European players. Sonera had a similar first-mover strategy in 3G during this time (Telia AR 2000). However, the portal business was unsuccessful in both countries because of delays in 3G infrastructures, handsets and the burst of the IT bubble (INTSwe-8). First out on the Swedish market was Vodafone, launching its mobile data package "Vodafone live!" in late 2002, at the same time as in seven other countries. Telia launched its answer to "Vodafone live!", the "Telia Go" service package, in June 2003 (Lindmark, et. al. 2004: 377pp.). The operator "3" was first on the Swedish market to launch 3G services. The introduction of 3's services was aided by a massive marketing campaign. Out of the demanding competitive situation, especially with Vodafone, the pressure on Telia to develop 3G services with the same quality was very high. This also led to internationalisation potential for those services in the other advanced markets in the Nordic and Baltic region (INTSwe-16b):

> ”Tele 2 and the other competitors have recently started selling flat rates in the 3G segment, like unlimited data-traffic service that you pay for. “3” launched this ten weeks ago, and I think data traffic in the network increased by 300% in that week; 3G and especially data traffic is taking up very rapidly in Sweden right now” (INTSwe-17).

The first **learning effects** have already occurred with different cultures in the Nordic and Baltic core areas:

> “For TeliaSonera the Baltic market is very important. Estonia is a country working very much in the forefront with new techniques. You can send flowers and you can send chocolates (…) Mobile TV is already reality in Estonia. The IMS system is already implemented” (INTSwe-18).

In Sweden, network coverage is no longer the hot topic in 3G that it was in 2G, as all the competitors have their own infrastructure. However, differentiation via new technologies (fast, always on) is still important (INTSwe-19). Traditionally, Sweden kept a very low **price level** overall, but could not maintain it compared to international prices after liberalisation (Vaterlaus et al. 2003: 78). There were virtually no price changes between 1996 and 2001 in Sweden, even though other countries experienced falling tariffs. Altogether, pricing history in Sweden reflects phases of pressure to go international. At the beginning of liberalisation, there was barely any price war. However, this changed with new entrants during the multimedia period. The pressure to go international grew during this time. This may explain the merger with Sonera as well as internationalisation into the other Nordic and Baltic countries.

In the area of **public relations**, TeliaSonera is less specific than Swisscom, which is focused strongly on their domestic market. TeliaSonera needs to be more open because of the merger, which brought together two different cultures. Therefore they use advertisement slogans like “our services are easy to use” and “we represent values like respect and value-creation.” These are culturally neutral and can appeal to all Nordic markets and target groups. In this TeliaSonera very much follows the international trend to simplify service offers. This also facilitates internationalisation, in that synergies in advertisement and marketing can be used and applied to other areas (INTSwe-18). In 2001, Telia particularly hoped to secure the loyalty of customers with innovative products. The importance of customer relations grew after the merger and especially intensified in the area of large corporate telecom clients. After the merger the company introduced new “values and principles” designed to influence customer relations. “Innovative, responsive, rapid, reliable and simple” are the guiding principles of TeliaSonera’s approach to its customers (TeliaSonera AR 2002). The focal point is on customer security. Prices are another important formal market institution which shapes TeliaSonera’s customer relations: *“Another high-priority area is cost. The competition is intense. This is why it is important to create a competitive cost level, naturally in relation to the level of service and added value that customers expect”* (TeliaSonera AR 2002). An additional formal customer-relation element is the organisation’s focus on customer segments rather than on product groups. All of TeliaSonera’s products and services must be “easy to understand, easy to buy and easy to use”; these are the guidelines to be implemented in dealing with customers. In the year 2004, TeliaSonera’s focus shifted from the domestic market to the entire Nordic and Baltic regions where it is present. There a competitive environment exists that is generally different from Sweden’s national domestic market (where a lot is done for uniform marketing), so the number of customers could be increased again in spite of saturated markets. Furthermore, especially in Sweden, numerous resources have been dedicated to the marketing of mobile data services, since they (especially SMS-services) have not yet reached a high acceptance level there. The goal in this is not necessarily to gain new customers but to hold on to the existing customer base (INTSwe-16b). Thereby it was crucial to prevail in the price war

and to offer attractive package services from 2004 to 2006 (TeliaSonera AR 2005). All in all, customer loyality in Sweden is no longer as high as it is in Switzerland:

> "I guess the old loyalty is beginning to fade away in the general public. I did [change operators] a few years ago, and my friends (…) It is not so important any more to trust Telia in any case. People have learned to appreciate competition" (INTSwe-17).

TeliaSonera's focus on internationalisation in the Nordic and Baltic regions can be explained in a simple way by similar cultural starting points and the immediate spatial proximity of the flow of knowledge and goods, and by their understanding of customer wishes. Collaboration with other partners is not as easy. There were particularly big problems with cultural understanding in Russia: "*I think the main problem has been to understand what the Russian population is looking for"* (INTSwe-11). This complicates successful service implementation. Neither does cooperation with the Russians seem to be very easy. This will not change soon, since the Russian and Turkish investors in TeliaSonera have not been inclined to give up the majority of shares (INTSwe-14). In mobile telephony, the competition is heavier, but prices are only declining slowly, and interconnection disputes are still not totally solved. Customer habits led to TeliaSonera's early internationalisation into the Nordic and Baltic regions. Later on, Eurasia and Russia were added, as well as Turkey. With knowledge about customers in these regions, the company focuses on emerging markets as a second core business. These activities will increase, as TeliaSonera is currently investing more in Eurasia, Ukraine and even Afghanistan. Thus positive experience which occurred over time may explain the additional current investment in this region.

In comparison, Swisscom is mainly focused on niche segments in Europe. This is due to their ample knowledge of high-value services and high-value customers. Switzerland has experienced a boom in mobile communication over the last few years. More than 7.3 million people were using mobile phones in 2007, 4.6 million of whom were customers of Swisscom Mobile (Swisscom Mobile AR 2007). At the end of 2003 there were already 84 mobile phone subscriptions per 100 inhabitants. However, growth rates have lessened considerably in the last few years (OFCOM 2004b: 6). In spite of this, in comparison with specific countries, Switzerland holds a middle-to-lower position in terms of mobile-phone **market penetration** (ComCom 2007 see: figure 26).

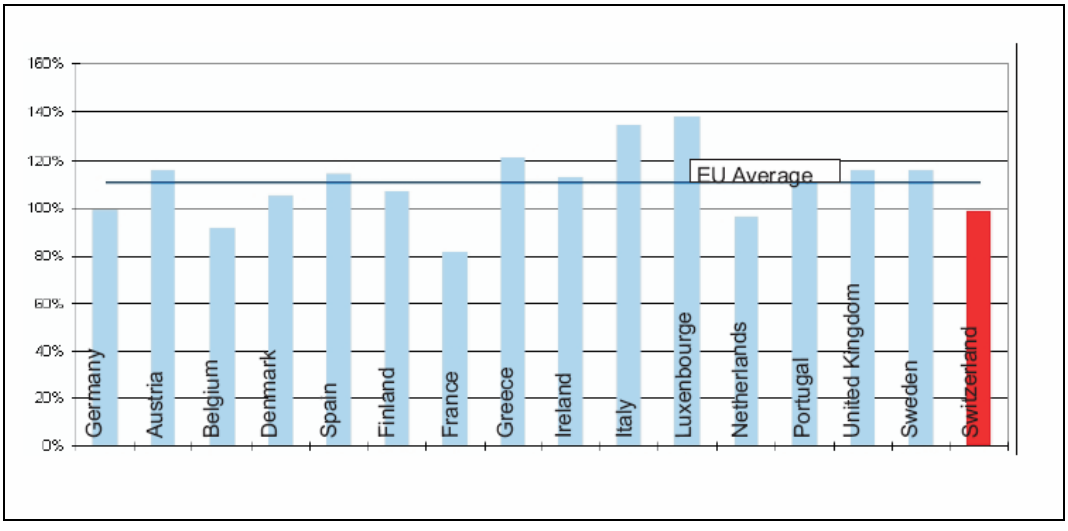


Figure 26 Mobile penetration in Europe and Switzerland December 2006 (Source: www.comcom.admin.ch_statistics as of: 04.03.2008)

The front runners today are Italy (129%), Greece (116%), Sweden and Great Britain (113%). In Switzerland, too, the '100% barrier' will undoubtedly be broken (ComCom 2007). Additionally in this time period, the UMTS licences were auctioned in Switzerland on 6 December 2000. The award procedure ended with the granting of licences to Orange, TDC Switzerland, 3G Mobile and Swisscom Mobile at the end of January 2001 (ComCom 2000: 19). Moreover, licenses to Tele2 and In&Phone in the 1800 MHz frequency band were granted by the Communications Commission in February 2004. Up to this point, the national system in Switzerland had been characterised by an average **number of competitors** during the 3G period. The new market entrants put much more pressure on the incumbent to go international, and thus after the failure of debitel there were unsuccessful attempts to acquire investments in Austria, the Czech Republic and Ireland until 2005 (INTCH-17). In June 2005, Tele2 launched its first city network in the Zurich conurbation, limiting itself to a reduced range of services (telephony, SMS and mailbox) and hoping to establish itself as a low-price provider (INTCH-4). Likewise in this time period, claiming to offer breakthrough prices, the two largest Swiss retailers came up with **re-seller** prepaid offerings: in August 2005, thanks to its partnership with Swisscom, Migros began to market the "M-Budget Mobile" product, and Coop, in cooperation with Orange, introduced "CoopMobile" in September. TDC Switzerland (Sunrise) also rolled out a low-cost prepaid offering for telephony and SMS under the "Yallo" brand, which the customer self-manages via the internet. Toward the end of 2005, other sales-partnerships were announced in the mobile telephony sector: the Mobilezone chain of mobile telephone shops started providing prepaid and post-paid offerings based on Orange's GSM network. Cablecom and Sunrise introduced similar concepts: with its prepaid product, Cablecom is now the first "quadruple player" in Switzerland (ComCom 2005:5). Additionally in 2007, the German retail discounter Aldi introduced a new brand into the market, Salut Mobile.

All in all, Swisscom Mobile is the best vested financially, and thus can clearly claim the lead position in the Swiss market. Its competitors have no other choice but to match this with similar technologies and services.

In terms of international competition, Swisscom Mobile is always equipped with the newest mobile communication technology. This is made possible by the manageable size of the country and the financial resources of the operator (INTCH-19). The net infrastructure of Swisscom is technologically one of the most modern in the world (Swisscom AR 1998). An example to illustrate this is the fact that Swisscom already covered 45 percent of the Swiss population with the fast data turbo HSPA at the end of 2007 (Swisscom Mobile Newsletter 01.11.2007):

> "In what concerns technological standards, Swisscom usually had the lead. In Switzerland, Swisscom Mobile always had advantages in regards to network quality, which for a long time was also an important part of the customer's decision-making. We also know from benchmarking with Vodafone that we are really very, very good. This is also evident in the degree of general success we've had with the amount of drop calls (that you can call, and so on). Traditionally, network quality and standards are much better with us. This is not competition-driven but is a genuine advantage of Swisscom Mobile's being on the market for a long time all by itself. For that reason we also have EDGE and WLAN and HSDPA and the corresponding coverage in Switzerland. This cannot be achieved by the competition, since it is only worthwhile for us to do it" (INTCH-14).

Additionally the goodwill of the rural population was secured foremost by high network coverage in the sparsely populated and therefore less lucrative areas. This led to high customer loyalty in the field of residential customers and to low internationalisation pressure from the home market (INTCH-13).

After the mobile boom period, the heavy **price** wars and the economically difficult years from 2001 to 2004, however, prices for mobile services stabilised in Switzerland. Customers who used mobile services in an average way or intensively were rewarded with falling prices in 2005, and in 2006 low-use callers also enjoyed distinctly lower prices. There were probably two reasons for this second fall in prices (see: figure 27): on the one hand, several new market entrants and partnerships (Tele2, Migros, Coop, Cablecom, Mobilezone and Yallo) increased competition, primarily at the level of services. On the other hand, the reduction in mobile termination charges by Swisscom in the summer of 2005, and then by Sunrise and Orange, probably had an effect (ComCom 2006: 6):

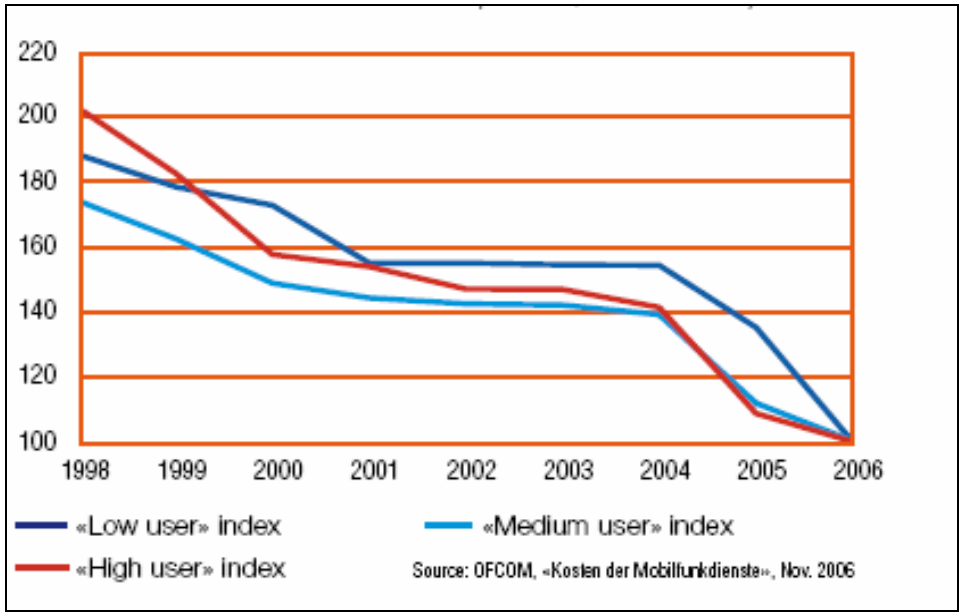


Figure 27 Average prices of mobile services in Switzerland according to usage (Source: ComCom 2006: 6)

Many formal branch agreements and cooperations were heavily dominated by Swisscom from shortly after liberalisation until the year 2004. Swisscom was in the driver's seat in the wholesale segment as well in national industry associations. This did not lead to increased internationalisation pressure for the former incumbent (INTCH-5). Today, however, the power balance is more equal. The courts have decided against Swisscom in some interconnection cases, and conflicts within the industry associations have also been minimised for the moment. This combined with the entry of new competitors has led to a renewed increase of internationalisation pressure for Swisscom Mobile (INTCH-8).

From an evolutionary perspective, Swisscom's **market shares** decreased after liberalisation from 100% in 1998 to 62.7% in 2004. But they increased again in 2005 to 63% and were stagnating at 63.2% in 2007 (see: table 28). This low competitive pressure on the home market may be one explanation for Swisscom Mobile's low internationalisation performance in general until now, compared to TeliaSonera Mobile.

	98	99	00	01	02	03	04	05	06
Swisscom	100%	76.8%	67.3%	64.3%	63.2%	61.8%	62.7%	63.0%	62.7%
Sunrise	0%	14.7%	15.3%	18.0%	19.9%	20.5%	19.1%	18.6%	18.4%
Orange	0%	8.5%	17.4%	17.7%	16.9%	17.7%	18.2%	18.4%	18.9%
	100%	100%	100%	100%	100%	100%	100%	100%	100%

Table 28 Market shares in Switzerland in the mobile communication segment 1998-2006 (Source: www.comcom.admin.ch_statistics as of: 03.04.2008)

Customer numbers for the three national GSM providers also increased considerably in 2006. By far the greatest growth in numbers was again enjoyed by Swisscom Mobile. The distribution of market shares at the end of 2006, however, remained practically the same as in the previous year: 63% of users were with Swisscom Mobile, and more than 18% were Orange and Sunrise customers. Moreover in 2007, in terms of international comparison, Switzerland was still the third country after Cyprus and Slovenia in which the subsidiary of the traditional operator had the largest market share. This rate, 63.21%, is well above the European average (39.4%) (OFCOM 2007: 56):

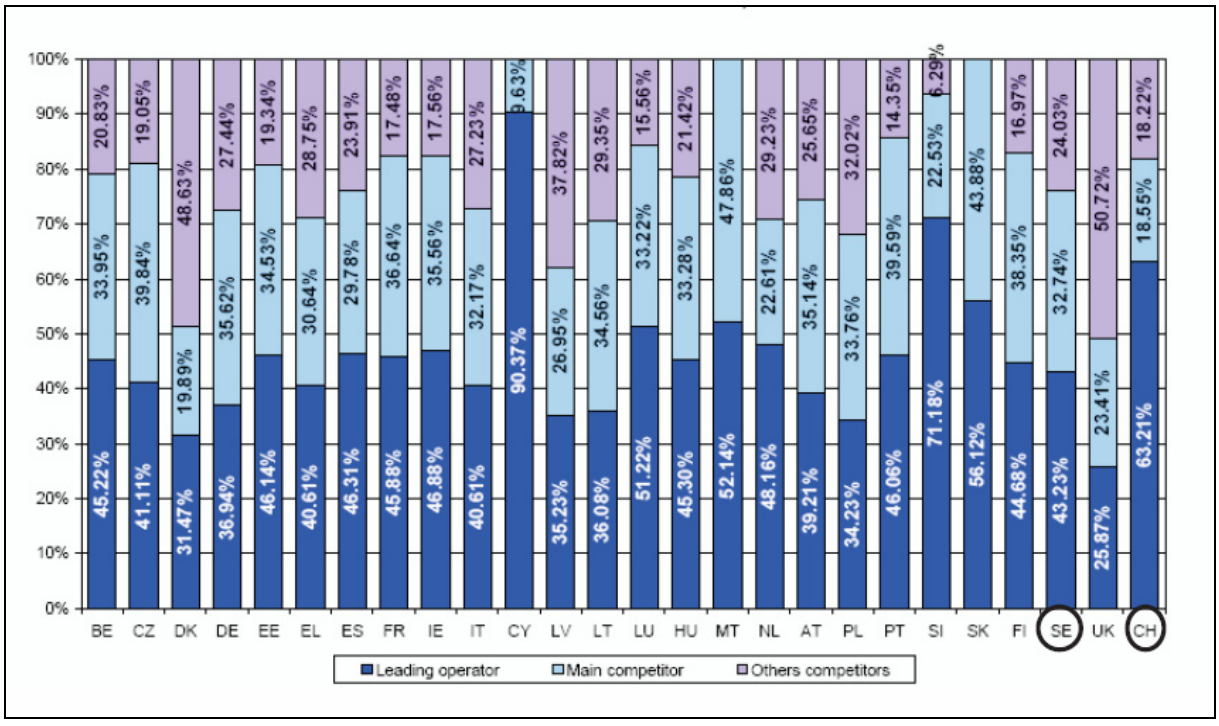


Figure 28 Mobile market share Sweden and Switzerland compared with EU-15 based on subscribers (October 2006) (Source: OFCOM 2007: 57)

Also in 2007, Switzerland logged the highest per capita spending on telecom services worldwide, with 2,791 Euro (OFCOM 2007). In addition, the Swiss were lead users in the field of mobile tele-working, as mentioned above in chapter 3.2. This may also be due to the presence of big international companies and the many service sectors in Switzerland (INTCH-3). However, the spread of new mobile phone features like 3G multimedia services takes time. In 2004, for example, only 18% of users in Switzerland had a camera phone. In 2006, the figure was 51%, as shown by the 2006 KommTech study (IGEM/Publica Data AG, Sept. 2006). The vast majority of customers still use a

mobile phone almost exclusively for making telephone calls or sending SMS text. It is primarily 15- to 24-year-olds who most often send an MMS message, take video footage, listen to music or play games on their mobile. However, these data services are indeed still in their infancy in Switzerland (IGEM/Publica Data AG, Sept. 2006):

> "I'd say that there is a certain inactivity among customers in Switzerland. What is done here in the area of value-added services are only ring tones and other such little things" (INTCH-4).

Switzerland's business-customer population and its function as a location for international headquarters create special international niche potentials for operators there:

> "Thus Carsten Schloter made a virtue out of necessity. In a speech in Bonn which I recently heard, he said that he wanted to use his international business contacts. The key benefit of Switzerland in this field would be the headquarter function and the wide base in business customers as well as the proximity to qualitatively high-standing MNC. One is trying to examine the branches according to their needs in the area of communication, thus really targeting certain growth niches with the MNC, also internationally when appropriate" (INTCH-3).

Thus Swisscom began to work with hotel chains in the area of hot spots, reached relatively high coverage in the WLAN segment and gained an advantage with their subscription offers. Broad-band solutions for business customers were offered as well (INTCH-3). There is certain internationalisation potential in the residential segment due to the country's multilingualism and its resulting cultural knowledge. This potential, though, has not been explored enough in mobile communication (INTCH-6). From that point of view, it is necessary to critically examine the Swiss internationalisation experience in India and Malaysia:

> "But one needs to see that there is quite a distance from Switzerland to India. It would have made sense to start first with Austria. There would have been similar structures there and also approximately the same size. India is quite a lot bigger" (INTCH-19).

Moreover, MVNO are active today in the Swiss market. Altogether, the falling market shares shortly after the opening of the mobile market in Switzerland were alarming and resulted in managers' high uncertainty that the shares could fall even more. This is one explanation for the internationalisation projects during this time - why Swisscom Mobile acquired debitel, for example. The former incumbent wanted to make up for lacking market power as a player in the big German market. Additionally, as UMTS came up, a new problem arose due to the small home market. The high cost of developing 3G applications and purchasing high-quality brand handsets favoured mobile players with economies of scale. This could be an explanation for why Swisscom Mobile involved itself in a strategic alliance with Vodafone in 2000. However, because of the small home market and the unsuccessful debitel investment, Swisscom Mobile made several unsuccessful attempts to acquire new assets in Austria, the Czech Republic and Ireland. But these activities were marginal compared to business in the home market. Overall, by comparison internationally, Swisscom Mobile's high share of the home market reduced pressure on the former incumbent to go international, and that is why the company's main strategic focus since the early 2000s has been domestic, in contrast to TeliaSonera.

In turn, from 2002 onward, this focus has been strongly underscored by the firm's communication policy. Its marketing has appealed to Swiss values such as "love of homeland, urbaneness, respect and reliability" (INTCH-13). Customer service has also become an important element for success in the Swiss market: *"In any case, since everyone here is used to Swisscom doing a good job in the past, you do not have to speak of quality. You only need to deliver it"* (INTCH-4). These values flow into customer communication by means of marketing and branding. In 2003, the campaign "schools on the

internet“ was expanded and other population groups were targeted to facilitate access to the network. Swisscom especially enhanced the management of its environmental reputation by obtaining certification from different environmental organisations. The company also attempts to reflect the cultural diversity of Swiss society and its multilingualism by securing a corresponding mix of employees (INTCH-13). Recording-breaking market shares and a high degree of loyalty reflect the customers' response to these efforts, despite the persistence of high prices even years after liberalisation. Parallels can even be drawn to Swissair:

> "Does Swisscom possess a soul? Swisscom is a part of us, since we have built it together, and therefore it belongs to us all. Do we want to barter it to foreign powers? Just as with Swissair - if six or seven years ago somebody would have said that Swissair would be sold to Lufthansa, they almost would have been lynched" (INTCH-4).

Market System	Sweden	Switzerland
Relationship among the competitors	Telia received no 3G licence - collaboration with Tele2 Oligopolistic reaction of 3 and Telenor - collaborate on infrastructure build-up as well	Increased competition in 3G Tele2 and In&Phone as new entrants
Prices	Lower price levels since 2004 because of competition	Lower price levels since 2004
Marketing	Re-branding and discounter strategies	Re-branding and discounter strategies (low-cost brands)
Customer habits		Many demanding business customers and high-value retail customers
Core market	All markets in the Nordic and Baltic regions as core market (not only Sweden)	Focus on the Swiss market
Products	Differentiation through attractive bundling of services, pricing and brand	Differentiation through attractive bundling of services, pricing and brand
Internationalisation potential/strategy	Independent from national market; more international; Nordic market as core market area; re-branding in Nordic markets via MVNO Higher investment in emerging growth markets (Eurasia, Afghanistan) due to saturated core market	High-tech solutions in the field of broad-band mobile – Mobile Unlimited and WLAN as well as new business opportunities in niche segments along the value chain (health care, etc.)

Table 29 Internationalisation potential arising from the market system in 3G (Source: Author)

The national corporate governance system during the 3G multimedia period

TeliaSonera`s shares have been listed on the Stockholm and the Helsinki Stock Exchanges and on Nasdaq in the United States since the year 2000. However, the Swedish and Finnish states are the largest shareholders, with holdings of 37% (in June 2000, 70%) and 13.9 percent, respectively. In the shareholders' agreement drawn up between the Swedish state and the Finnish state, the parties agreed to use their voting rights at TeliaSonera's annual general meeting in accordance with the highest standard principles for corporate governance (TeliaSonera AR 2002). Compared to other companies like the France Telecom or German Telecom, TeliaSonera's shares are performing pretty well. It is not performing as well as Telenor, but it is among the companies which remained quite healthy after the burst of the IT bubble and the UMTS auctions in Europe (INTSwe-2). At the beginning of 2007,

financial investors were gaining more power within TeliaSonera. The state sold 8% of its shares again, and held 37% of TeliaSonera's shares in May 2007 (INTSwe-16b).
Additionally, durint the 3G period a new **group structure** was introduced on 1 April 2001 to strengthen Telia's orientation and to promote internationalisation while laying the groundwork for Telia to participate in the restructuring of the industry. Five new business areas were formed, and each business area has responsibility for its respective products on all markets (INTSwe-16c). The importance of mobile technology within TeliaSonera seems to be much higher than within Swisscom. This can be seen in the following statement: *"We do not actually have fixed phones any more here in TeliaSonera. That is the closest you come to a fixed phone here (points at the table)"* (INTSwe-18). Additionally, there was broad divestment of many international and national activities and further concentration on the core competencies in the Nordic and Baltic regions. The core businesses included mobile technologies, broad band, fixed and international carrier operations. A lot of international businesses were divested in order to focus on core competences. **CEO** Marianne Nivert was risk-averse and did not invest as much in UMTS licences as other company CEOs, such as the CEO of Sonera Key Surlander:

> "At Sonera from that perspective from 1999 to 2000, the CEO Key Surlander was a risk lover. He wanted to conquer the world. And he almost succeeded. He almost succeeded in driving Sonera bankrupt that way. And yeah, there is a big difference between the CEO's personality and the way the companies are being run" (INTSwe-5).

The decisions taken by Marianne Nivert made the company financially very healthy in the multimedia period, and as a result Telia was able to buy the former Finnish monopoly Sonera in 2002. This decision was made because of a unique position of financial power after the burst of the IT bubble, when most companies were heavily indebted, as well as the need to grow internationally (INTSwe-16b). Following the unsuccessful attempt to merge with Telenor (1999), this was the perfect chance. TeliaSonera operates as an integrated company with strong central Swedish management and control of overarching strategic issues, synergies and improvements within both Telia and Sonera. Synergies that were expected from the merger of Telia and Sonera included purchasing synergies, network operation, IT systems, corporate administrative functions, international synergies in the Nordic and Baltic regions and in Eastern Europe. Growth opportunities in emerging markets in Eurasia and Eastern Europe were especially valuable. Responsibility for profitability and day-to-day operations was decentralised to four geographic profit centres: TeliaSonera Sweden, TeliaSonera Finland, TeliaSonera Norway, Denmark and Baltic countries and TeliaSonera International. Strong management and control of key issues and a developed delegation of day-to-day operations enabled TeliaSonera to combine economies of scale with proximity to customers, flexibility and decisiveness in each market (TeliaSonera AR 2002). Moreover, the plan to integrate different company and national **cultures** successfully after the merger involved establishing corporate values from scratch. These shared values were outlined in 2003 and were elaborated on by the employees of TeliaSonera. More than 700 managers and employees participated in seminars and workshops for that purpose. An additional 3,000 participated via the Internet. Each profit centre is now working to implement the results of these efforts. The value statements are: "Add value through our work; show respect to all stake- and shareholders; make it happen" (TeliaSonera AR 2003). The board of directors is mostly Swedish. The new CEO Anders Igel was elected in 2002. He was formerly a member of the Ericsson's top management and was known there as "financial guy" (INTSwe-13) and "cost cutter" (INTSwe-18):

> ”I think Marianne Nivert was more like an old Televerkert manager; she spent all her life as a public servant. I think maybe at Televerkert she was more risk-averse. I know that Anders Igel has a tradition of being a cost cutter. He was a cost cutter at Ericsson. But I think both are more or less part of the old telecom world. Anders Igel comes from an old tradition. If some new management director was there, it could probably change the strategy again very much” (INTSwe-15). “Telia has succeeded in lowering the cost base, and that is where Anders Igel is quite good. I think less so when it comes to developing the business” (INTSwe-13).

However, Anders Igel was also responsible for the new internationalisation focus on Eurasia, Russia and Turkey: *“If you want to know who is responsible for the international investment today (Interview was carried out in May 2007), you have Anders Igel. Anders Igel is in charge of the operations with Turkcell and MegaFon. He is the man. He is the only one who knows what is going on there. There are no people from TeliaSonera in Turkcell or MegaFon. The CEO takes a decision and this has to be approved by the board of directors”* (INTSwe-1). Here there were a few problems of adjustment for the other shareholders, caused by cultural and strategic issues, among other things: “*There were very problematic tendencies in the origin of this business. And maybe they have not been able to get rid of that. They made some bad agreements already in the ‘80s. In MegaFon there is this Russian management, and Russian management is very different. If you are not able to play with the oligarchs, Abramovich and others, they will cause you a lot of trouble”* (INTSwe-14). Here, however, a history of good contact between management teams can prove helpful: *“Obviously the proximity of the Russians with the Fins and the fact that the Russians know the Fins pretty well is a big factor. So that kind of relationship helped in getting MegaFon a national licence as a first operator in Russia and avoiding problems with the oligarchs” (INTSwe-5).*

However, management also experienced **learning effects** with these internationalisation matters. For example, a knowledge management system should be implemented to profit from the knowledge produced in the other international units:

> “One of the things that is happening now, and what is going to force much more of this, is especially the knowledge transfer between countries. At the end of last year we had an organisation which was country-based. And the amount of cross-border (…) knowledge transfer wasn’t as great as we would have liked it to be. So our CEO decided to rebound the company and to go into three parallel business areas: one for mobility, one for broad band where the old fixed network is, and one for the international carrier network. And then there is an area called enterprise solutions, which are more complex solutions for businesses. The fourth one is Eurasia and Russia and Turkey and the other countries. (…) This started on the first of January of this year (2007), and we started to have similar services in all the Baltic countries and in the mobile area also” (INTSwe-16a).

At the 2005 annual general meeting, a decision was made to establish a nomination committee, which should consist of between five and seven ordinary members in TeliaSonera. Four members should represent the four largest shareholders in terms of votes who wish to participate in the nomination process. The chairman of the board of directors should also be a member of the committee. The nomination committee can appoint an additional two members. At the moment, the nomination committee consists of Jonas Iversen (Swedish state), Markku Tapio (Finnish state), KG Lindvall (Swedbank Robur), Lennart Ribohn (Skandinaviska Enskilda Banken), and the chairman of the board. The annual general meeting also adopted instructions for the nomination committee’s tasks, which includes nominating members of the board, nominating the chairman of the board and, where appropriate, nominating an auditor and presenting proposals for remuneration to board members (www.teliasonera.com_corporate governance as of: 08.2007). Thus at the beginning of 2007, **financial investors** were gaining more power within TeliaSonera:

> "It's reasonable to say that we have moved towards a shareholder value perspective since we were floated on the stock market…of course (…) What characterized this period during '98 and '99, but also in 2000…was that all ideas were worth trying…Today, we need to see if they are economically feasible … profitable…if there is a market… These dimensions were not that important during the end of the '90s…it was an exciting time…very creative, visionary… The operative staff [now] should be more focused on creating value for customers and competitiveness…top management and the board need to communicate and satisfy the shareholders" (Kenneth Karlberg, VP Telia)… (de Paula 2006: 133p.).

The financial investors have two seats in the board of directors and also in the nomination committee. Anders Igel, the CEO of the merger, had problems with the business in Turkey and Russia, and he had been described as a CEO without industrial vision. This had to change in the multimedia age, where industrial vision is crucial to survival, and Igel had to leave the company. Igel had already been criticised for a while, even among bigger shareholders, because of strategic errors made in the process of conversion to new business segments:

> "And then (…) the investors think that it is the CEO's fault for not telling them how the numbers should go. Then you get distrust and dislike, and a low valuation. And then if there is a run on four quarters with the right numbers, that trust comes back. It has been a bit on and off (…) Anders Igel (…), he generally has not been liked by investors because they had (…) issues in terms of communicating with the market. They could not make the market really understand what they wanted. You have to really meet him and other CEOs to get sort of a feeling as to why. It is difficult to make it clear. I think with direct, detailed questions and many other questions he has sometimes been a bit arrogant and difficult to get an answer from. And there are very many others who are much more open to discussion (…) Furthermore, they had problems with Turkcell. They talked about getting control, but they did not. They wanted to buy control in Turkcell, then that failed and made many investors just disappointed. Instead, Russian companies have come in and have taken stakes that investors generally think should have belonged to TeliaSonera. The investors have seen the management crew as a little slow and not making decisions fast enough, etc. (...) These are the points of criticism that people put on Anders Igel" (INTSwe-5).

The board of directors of TeliaSonera wanted a CEO who was more dynamic and who could improve the spirit and the "commercial drive" of the organisation. Furthermore, they wanted visionary leadership. Tom von Weymarn, chairman of the board of directors, justified Igel's replacement with TeliaSonera's need for *"a new leadership and a new leadership style in order to motivate and inspire the staff."* In this as well one can clearly see the increasing pressure from profit-oriented investors. The new CEO, Lars Nyberg, was appointed in August 2007 by the board. Nyberg has had a long career, both internationally and in Sweden. He previously held several managerial positions in Philips and was a member of Philips group management committee. *"Lars Nyberg has a great record with vast international experience and is the perfect CEO to lead TeliaSonera into the future. He is an inspiring team builder and a visionary leader with a strong commercial focus,"* says Tom von Weymarn (Winkelhage 2008). The increased influence of financial investors is also affecting the internationalisation strategy of the company, which is increasingly bending toward growth:

> "The telecom industry has had its shifts in terms of what people in general thought to be a successful strategy…particularly when it came to internationalisation and acquisitions…In an industrial investment, we consolidate the business, we acquire the market we enter…with the entire group…In a financial investment, we usually try to acquire a specific technology or simply try to make money… A good example is…last year we acquired Powercom in Denmark…The rationale was to get better coverage in one of our home markets…back-bone as well as access and IP telephony…On the other hand, Eircom and Eircell were two financial investments that we made in Ireland…we don't consider Ireland as a home market…so these two companies were sold last year" (Kennet Rådne, VP Telia) (de Paula 2006: 133p.).

Altogether, the rationale in the corporate governance system during the 3G period in Sweden was to rationalise and to create synergies between Telia and Sonera. Thus very early on, the home market comprised not only Sweden but the whole Nordic and Baltic areas. A second core market was seen in the emerging regions of Russia, Eurasia and Turkey. However, at the end, Anders Igel seemed to have no new industry vision, and as new financial investors came into the company in 2005 and 2007, pressure grew and Igel had to leave the company (INTSwe-16b).

In contrast, the Swiss Confederation was reducing its shares up until 2006. According to a press release issued by the Federal Department of Finance (FDF) on 14 September 2006, the Swiss Confederation has a majority holding in the company in terms of capital and votes, amounting to 33.13 million shares, or 58.41% of Swisscom's share capital. No cross-holdings exist between Swisscom Ltd and other public limited companies (www.swisscom.ch as of: 08.2007). The federal government thus occupies different positions in the telecommunication sector in Switzerland, which is not always unproblematic, especially when there are new regulatory laws in the works:

> "(…) because the federal government is roped into at least three roles (as a majority shareholder, a law maker and also a treasurer). This relationship is not considered to be healthy. I think there are always electoral politics involved" (INTCH-22).

In terms of other investors, it can be stressed that after a few failed attempts to gain short-term speculative profits (Malaysia, India, etc.), Swisscom began focusing on long-term and sustainable company strategy, and communicated this to its investors. Swisscom thus represented a relatively solid investment value. High risk in business activities was avoided. The company is financially healthy, but expected returns on investment are rather mediocre. Besides sustainability, environmental friendliness was also a concept with which Swisscom tried to position itself favourably among investors:

> "(…) based on their excellent environmental ratings, Swisscom is considered to be an environmental trailblazer not only by telecommunication funds but also by traditional investors who orient themselves by the stock index as well as investors who prefer highly capitalised stock titles " (Swisscom AR 1998: 8).

This resulted in a relatively risk-averse **management style** at Swisscom and the avoidance of risky UMTS investments:

> "In contrast to many comparable companies, we have not striven for aggressive sales growth over the last few years. Our strategy of "profitable growth" stood the test in the reporting year. An expression of this was the extraordinary stock market price development (+9.1%– in a business area, which in 2001 suffered massive losses; DJ EU Telecom Index: –30.4%; Swiss Market Index [SMI]: –21.1%). This development was most of all a result of our conservative investment policy and our healthy balance sheet " (Swisscom AR 2001).

In 2001 Swisscom Mobile became a legally independent business entity and a stock-listed company. This form of organisational structure was kept, with small changes, until 2007. This procedure was introduced in order to facilitate Vodafone's shareholding of 25% in Swisscom Mobile, and therefore laid the groundwork for a long term strategic alliance focusing on mobile data communication and handset activities (Swisscom AR 2001). Despite its relatively small share, Vodafone had a high degree of influence on company management:

> "Vodafone had a minority share but had a lot to say (…) When one heard anything, it was Vodafone saying what was to go down with Mobile. This was naturally because the CEO of Mobile at the time, Carsten Schloter, was very much a slave to Vodafone. He did everything Vodafone said (…) 'yes, yes, we will do it, do it' (…) But legally they had no right to say anything, the primary stockholders were still Swisscom" (INTCH-9).

This again led to implications for internationalisation strategy. Swisscom did not want to act as competitors in markets where Vodafone was already active (INTCH-17). Also the Swiss state as major shareholder had great influence. Its relationship with **CEO** Jens Alder became increasingly worse after heavy lobbying for the local loop. This culminated when Alder tried to invest in Ireland and the state directly intervened because it viewed the strategy as too risky. Thus Alder left the company, and Carsten Schloter (former CEO of Mobile) got the chance. Schloter must have created a better relationship with the major shareholders, as he was able to pursue an international strategy with Fastweb in Italy shortly after in the year 2007. The influence of the **financial community** on Swisscom, however, was still low. Swisscom shares were promoted as long term investments (INTCH-3). Because of the relatively conservative and risk-averse behaviour of Swisscom management, and because of the CEO's broadly based restructuring attempts, Swisscom continued to grow and show profits in 2001, at the same time that many international competitors lost value because of the IT bubble bursting. In general it can be said that after liberalisation, the growth area of mobile telephony per se, in contrast to the fixed-net area, became a great deal more influential in strategic corporate policy. This was also seen in the decisions made for group structures. The director of the mobile department carried decision-making weight in strategic decisions concerning the company as a whole. In 2003, an organisational unit called "Swisscom Innovations" was founded to focus on innovations regarding the intersection between mobile and Internet applications, and also to scan actively the international lead markets. With this development, the increasing significance of Triple Play and multimedia applications was taken under consideration. An innovative image was increasingly pursued with Mobile Unlimited Technology, from the period of Walter Heutschi (CSO in Swisscom during the 1-2G preliberalisation period (1992-1999), as well as with WLAN. Swisscom positioned itself nationally as an innovative niche provider, and when possible also internationally (Swisscom Eurospots). When he was head of the mobile section, this made Schloter the most powerful man after Alder. The partnership with Vodafone especially gave him a lot of weight in the leadership of the group (INTCH-10). Internationally, however, there were only few human resources left. This led to the failure of the take-over of KPN, in spite of a lucrative price and the full coffers of Swisscom at the time:

> "I know that Swisscom was thinking they could do this. They could have bought it (KPN), from a financial point of view, with no problems (...) but for this operation, they would have had to send their best people from the highest echelon to Holland. The dimensions of Swisscom are such that it is not so easy to send the best people for a few years to Holland. And as regards restructuring, it is not possible to bring any manager from MCI Worldcom to Holland. You would need Dutch people who know the situation locally. This is necessary when you invest so much and you get full ownership of the firm. Then you have to be there at all cost. Finally, they decided they could not do it with their relatively small top management" (INTCH-8).

Jens Alder successfully mastered his task as a "cost cutter," but was less successful at expanding the company internationally to further raise profit rates. Debitel was sold due to low expectation of future success in 2004. Furthermore, Jens Alder had a poor reputation with the regulator, since he had been relatively aggressive at lobbying and had lost the confidence of the main stock holder (the Swiss government):

> "One can pose the question of whether it was always necessary to do this (heavy lobiing, jurisdical trials, etc.), or if one could have done it the Swiss way - to find a compromise by winning people over to your point of view. It was very polarising to go to the Supreme Court for each decision. This is now striking back brutally. I do not think you can say whether it was right or wrong, but what I can say is, we are dealing with this now a lot more consciously and carefully, even though currently there is no Swiss in the leadership of the firm" (INTCH-17).

After the daring takeover attempt in Ireland (Eircom), Alder eventually had to leave the company in January 2006 at the demand of the majority shareholder. His successor was Schloter. As mentioned above, Schloter successfully entered the firm by way of debitel and Swisscom Mobile and quickly gained influence. In contrast to Alder, he seemed to have an industrial focus, which he impressively proved with the acquisition of Fastweb, the Italian Internet provider, in July 2007. This shows that a new international strategy can also be a synthesis of **learning effects** in relation to all stake- and shareholders in the national industrial system that occur over time. However, after the dissolution of Swisscom's international department and the conclusion of many international projects, there was hardly any expertise left in international management:

> "The focal points are now being set differently. Jens Alder and the direction of the firm were fully convinced that they needed big foreign expansion, because growth opportunities in Switzerland were limited. This is obvious - one normally loses world market share. And he put strong focus on Telecom Austria und Telecom Ireland in order to access growth opportunities abroad. This is generally all right. But our focal point is now primarily on the Swiss market, in the sense of value development in the company. We can secure the most value and develop if we focus on Switzerland. Each customer we lose will reduce the profits and the value of the company. Customers abroad must first be bought expensively and then earned back. Therefore we are focusing heavily right now on the existing customer base in Switzerland in order to generate more value for the company. This naturally has its limits. We intend, of course, to continue investing abroad in a targeted manner, but rather in niche segments along the value-creation chain" (INTCH-17).

Eventually, serious changes in the **organisation** allowed the convergence of mobile, fixed-net and Internet services. Customers are now offered service packages through a dissected group structure which appears to hinder a uniform company image. Because of this, the foreground of the organisational structure was adapted to the customer in order to provide each customer segment with optimal service packages. In the new organisational structure of 2007, group units do not appear separately, but customer groups stand in the forefront. The different business units appear only on the second level, but these are not visible to the customer. This is intended to further increase customer satisfaction. In 2007, Swisscom had 19,600 full-time positions and operated as a multimedia provider and full-line distributor in the domestic market, as well as a niche provider in some areas of the value-creation chain in the area of international mobile telephony (INTCH-12). Schloter also took on the position of president of the mobile association from the time of its inception (Swisscom AR 2005). Thus communication to important stakeholders (large clients, the public and politicians) took place through a charismatic representative of top management. This shows that not only financial power, but also the personality and reputation of company representatives count:

> "It is not only a question of market power of the business section in which you are in, but rather of personal power. The board members who are the most involved are also the ones who can eventually push their arguments through. With Carsten Schloter, it was like this. He is just a power personality - when he says something, it is so well based that it is difficult to argue against it" (INTCH-20).

Dialogue with the international community of financial investors has continuously stood in the forefront for Swisscom since 2004. Their interests appear to be gaining increasing significance and to be more influential on the strategic decisions of the company. A possible further privatisation of Swisscom was discussed in 2006, but was postponed. Currently in the field of mobile internationalisation, however, only acquisitions and projects in niche markets seem to be possible. That is why Swisscom Mobile engages in WLAN and Mobile Unlimited technologies. Vodafone's 25% of shares were given back to Swisscom in 2006, but there is still a close purchasing collaboration between both operators to this day. In general, the state still controls most of Swisscom's activities, even after selling some of its shares.

Corporate Governance System	Sweden	Switzerland
State influence	Selling of state shares (total privatisation discussed), 37% state shares (plus 13% of Finnish state)	Further privatisation (however total privatisation not to come soon) – state influence on internationalisation strategy high (especially with strategy paper 2006-2009), 58% state shares.
Organisation	Group structure since 2002 - TeliaSonera Mobile	Group structure since 2002
Influence of financial investors on CG structure	After merger: More financial-interest influence (financial investors); further privatisation of the company	
Company values and vision in communication with customer	Easy to use services	Marketing and branding according to Swiss customer values - homeland, respect, security, etc. Values focused on Swiss market (homeland, respect, etc.)
Character of management	CEO: Anders Igel Financial logic - rationalisation, but no industry vision and problems with control over MegaFon and Turkcell	CEO: Jens Alder. heavy lobbying for local loop
	Relationship between CEO and investment community is important - trust	Unsuccessful attempts to go international (Austria, Eircom) due to direct intervention of major shareholder in management's strategic plans
	New CEO 2007: Lars Nyberg	Alder must go and new CEO is Carsten Schloter
Internationalisation potential/strategy	Focus on Nordic and Baltic areas – integration of Sonera's international business expertise	Several tries to go international but unsuccessful due to direct intervention of majority shareholder
	Growth strategy in Eurasia, Turkey and Russia Further growth through investment in Afghanistan and Ukraine	Carsten Schloter established a better relationship and went international only one year later in the case of Fastweb (broadband in Italy)
	Altogether 2 international foci: - Nordics and Baltics as home market - Emerging markets as growth markets (Russia, Eurasia, Afghanistan, Ukraine, Turkey) **Over: 119.3 million consolidated customers!**	Further internationalisation in mobile in niche segments along the value chain (Eurospots, Mobile Unlimited) – but still marginal, and main **focus on home market today**

Table 30 Internationalisation potential arising from the corporate governance system in 3G (Source: Author)

Conclusion – Internationalisation in the 3G multimedia period

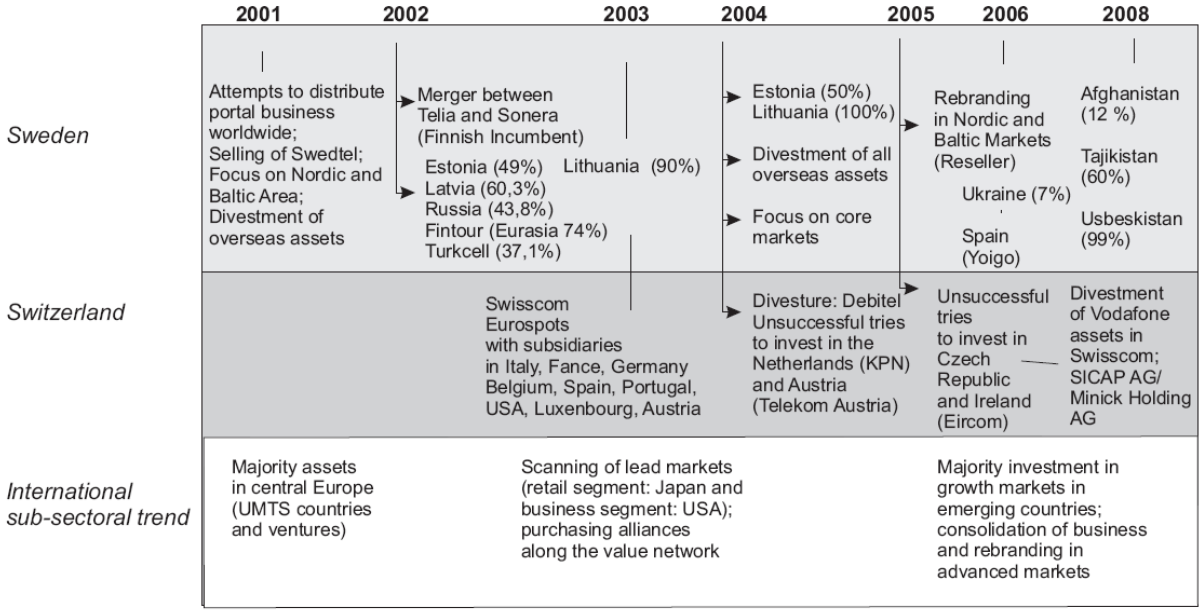


Figure 29 Internationalisation strategies of Swisscom Mobile and TeliaSonera Mobile in the 3G multimedia period (Source Author according to ARs of both companies)

Swisscom Mobile's divergent internationalisation strategy during 3G (focus on home market, only light foreign activity with Swisscom Eurospots) can be mainly traced back to the fact that government influence on company decisions has remained high (through formal institutions within the national regulatory and corporate governance system, for example). Furthermore, the national market system is still characterised by high tariffs, low competition and high customer loyality to the former incumbent. The regulatory system is mainly national and does not follow strict EU legislation for telecommunications. All this combined with a risk-averse management can explain Swisscom's poor internationalisation performance today. Additionally, path specifications and national path dependencies from the two previous internationalisation phases contributed to the current internationalisation strategy in Switzerland, since the institutional environment of the 1-2G pre-liberalisation and boom periods did not favour endogenous internationalisation activity. At the time, Swisscom management imitated opinion leaders' strategies and went to emerging markets in Asia and Eastern Europe, as well as UMTS markets in Germany. However, these strategies were not successful in the end. This is why Swisscom Mobile could not achieve the needed economies of scale and is a laggard in international performance today[37].

Sweden, on the other hand, was relatively successful internationally. The Swedish incumbent managed to turn its international first-mover advantages from the 1-2G pre-liberalisation and boom periods into sustainable, strategic advantages in 3G. Especially by following its endogenous internationalisation potential (from superior national institutions), the company managed to pursue a relatively solid two-market strategy in the Nordic and Baltic regions, as well as in Eurasia and Eastern Europe. The Swedish incumbent's risk-averse management contributed to its financial health after the burst of the IT bubble, and thus the merger with the indebted Finnish incumbent Sonera was possible. This additionally brought international businesses in Turkey and Eurasia into the company as well as

[37] That does not mean that the company is not financially healthy. The company's stock performance is above the current average (see: Swisscom Group: Investor Relations 2008).

made the consolidation of businesses in the Nordics and Baltics possible. These post-merger, path-dependent aspects are essential to understanding the current internationalisation performance of TeliaSonera Mobile:

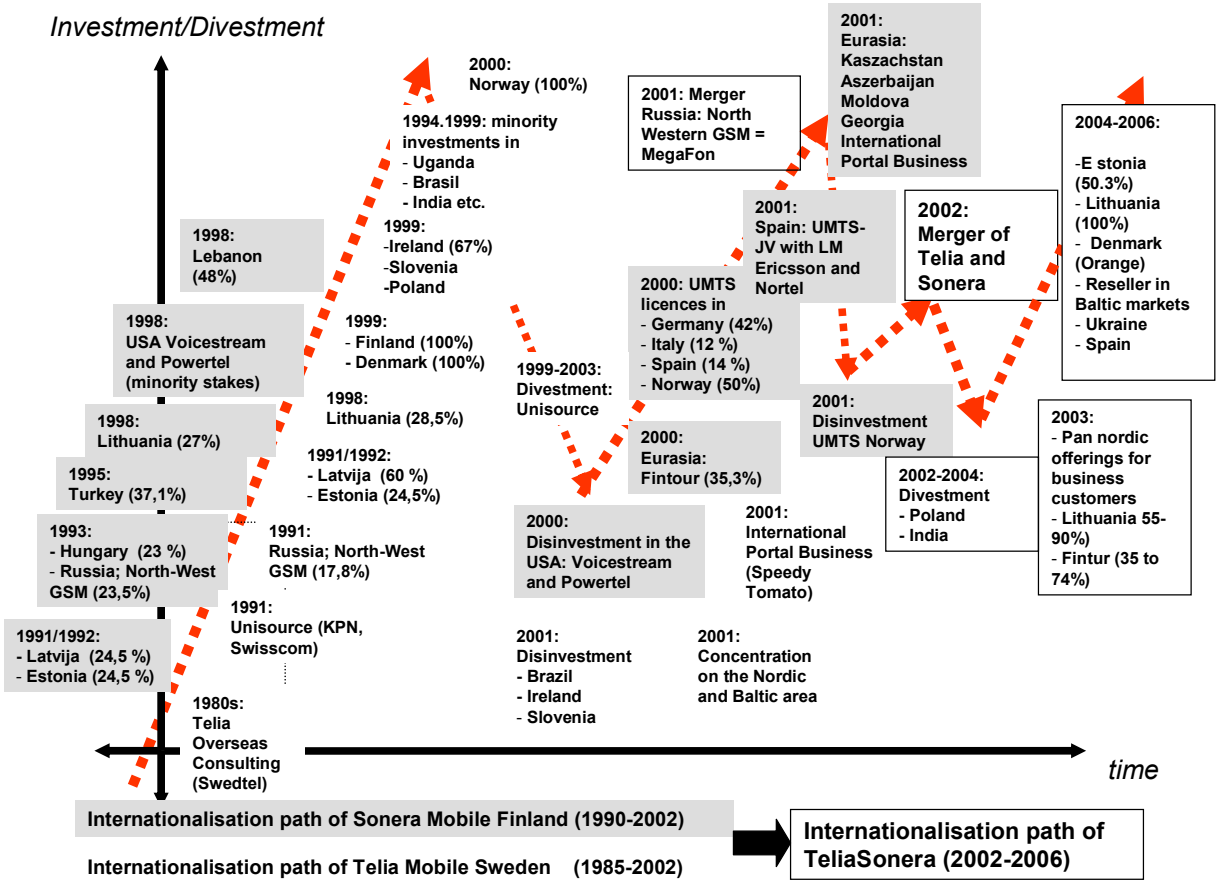


Figure 30 Internationalisation path of Telia and Sonera (1990-2006) (Source: Author according to ARs of Telia and Sonera)

During the 3G period, however, the national-institutional influence on TeliaSonera's internationalisation strategies decreased, as the company's home market today is defined by the whole Nordic and Baltic areas (see: figure 31). Sweden itself as a home market is no longer so important for TeliaSonera. The emerging markets are today's growth segments and will be pursued with additional current investment in Afghanistan and Eurasia. This geographic focus mainly arose due to the learning effects gathered from regional managements, customers and regulatory cultures. Furthermore, after 2003 EU regulation dominated company decisions, and government shares in the company decreased. Thus all in all, after the merger with Sonera in 2002, the company was no longer much affected by national Swedish institutions. The period of 2002/2003 turned out to be a tipping point in the co-evolution of institutions with the development path of the company, when TeliaSonera Mobile's market development began to occur internationally. This supports thesis 2.2.3 in that the more company revenues came from international business, the smaller is the influence of national institutions on its internationalisation strategies. Today, international regulatory, market, technological and corporate governance institutions are more dominant in influence in Sweden. Moreover, the influence of international financial investors on the corporate governance of the company is particularly visible nowadays in both companies.

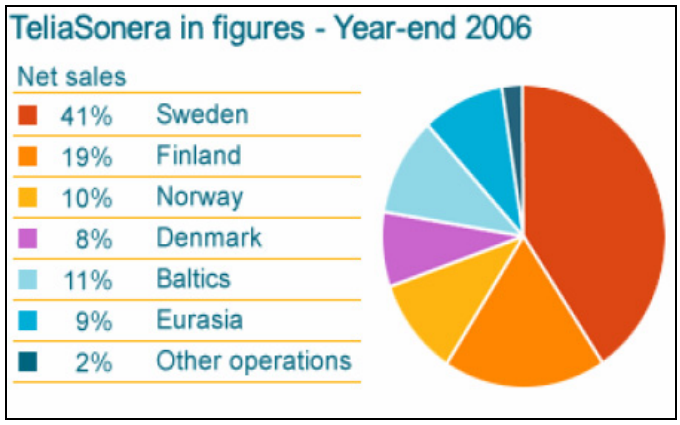


Figure 31 TeliaSonera net sales 2006 (Source: www.teliasonera.com_frontpage as of: 28.02.2008)

This supports thesis 2.2.2, that internationalisation strategies increasingly follow a pure financial logic. However, thesis 3 is also true in that a national development path underlying this international dominance contributed to TeliaSonera Mobile's current internationalisation performance, and an understanding of this is essential.

A tipping point occurred in Sweden during the 3G multimedia period, characterised by a major influence from international institutions on all aspects of TeliaSonera. However, a look at the present international institutions alone is not enough to fully understand the company's current internationalisation performance and its differences from other companies, like Swisscom. The co-evolutive history of TeliaSonera and national institutions during the 1-2G pre-liberalisation and boom periods must be taken into consideration. Overall, these path-dependent aspects are essential to the process. Additionally theses 2.1 and 2.2 are also supported by the empirical findings of the Swedish case study, in that superior national institutions led to internationalisation potential and resulted in first-mover advantages in the starting phases of the process, and this in turn could be been transferred to sustainable strategic advantages later. Altogether today's divergent internationalisation of Telia-Sonera Mobile and Swisscom Mobile is only understandable by taking a historical examination of national institutions (and their co-evolutuion with the company) and individual learning effects along the internationalisation path into account.

6 Discussion and conclusion

6.1 Discussion of the research results related to the central theses

The central aim of this thesis is to understand differences in internationalisation strategies and performances among national core companies with similar conditions at the start of their international activity, which is mostly the case with similarly sized companies operating in the same industry segment. The term "industry segment" refers to companies sharing the same technological challenges (e.g., the technological regime change from analog to digital to multimedia technologies in mobile communications), and similar products or services, such as mobile voice and data services, or a similar demand structure of retail and business customers. Divergent corporate internationalisation of "national champions" has been illustrated through the examples of TeliaSonera Mobile and Swisscom Mobile. The most prominent indicator of strategic differences between these two companies is their current internationalisation performance: with around 119.3 million consolidated customers worldwide at the beginning of 2008 (see: TeliaSonera QR-1 2008), Sweden differs greatly from Switzerland, which has only 5 million customers, mostly in the Swiss home market (see: www.swisscom.ch 28.01.2008). However, if we take a look at the internationalisation paths of both companies, it is clear that there were convergent and divergent internationalisation activities which led to the significant divergence in performance between the two countries today.

Conventional internationalisation theory according to Dunning (1993), Knickerbocker (1973), and Johanson and Vahlne (1977) - to mention only a few of the most frequently cited approaches in international management literature - explains differences in internationalisation strategy by using central variables such as company size, financial power, home-market size, learning effects and oligopolistic reactions. However, the size of both mobile communication companies in this thesis, their home-market sizes and their financial strength were similar at the beginning of their internationalisation efforts (see: also table 31).

Conventional internationalisation theory	Sweden	Switzerland
Dunning (eclectic paradigm)		
Market value	8.28 billion Euro (2004)	7.666 billion Euro (2004)
Market revenue mobile	1.79 billion Euro (2007)	1.2 billion Euro (2007)
Market volume (all)	9.1 million subscriptions (2005)	7.3 million subscriptions (2006)
Per capita spending	2,350 Euro per year	2,791 Euro per year
Number of employees (2007)	28,528 (int) / 10,427 (Sweden)	19,658
Partially privatised since	2000	1998
Market revenue (all)	4 billion Euro (2008)	5.3 billion Euro (2008)
Mobile clients	4.5 million (2008 in Sweden)	4.9 million (2008)
Knickerbocker		
	No oligopolistic parallel reaction	No oligopolistic parallel reaction
Uppsala School Approach		
	Only little previous experience with internationalisation (*de facto* state monopoly)	Almost no previous experience with internationalisation (*de jure* state monopoly)

Table 31 Basic market data chosen in accordance with conventional internationalisation theory (Source: Author according to statistical data present on both company homepages as of.03.2008)

Additionally, both companies had experienced practically no learning effects from corporate internationalisation in the middle of the 1980s because both companies were formerly state-owned monopolies (de facto in Sweden, de jure in Switzerland) and due to the fact that other markets were mostly not open during this time. Also oligopolistic market structures did not exist back then (see: Kickerbocker 1973). Thus, if the starting internationalisation phases of both companies were to be compared using the variables of conventional internationalisation theory, similar performances could be expected today. Altogether, however, the empirical findings show (see figure: 31) that there is a relatively low explanatory power of the conventional internationalisation theories, as there are not only differences in the current internationalisaiton performance but also the whole internationalisation paths of both companies (see: figures 32).

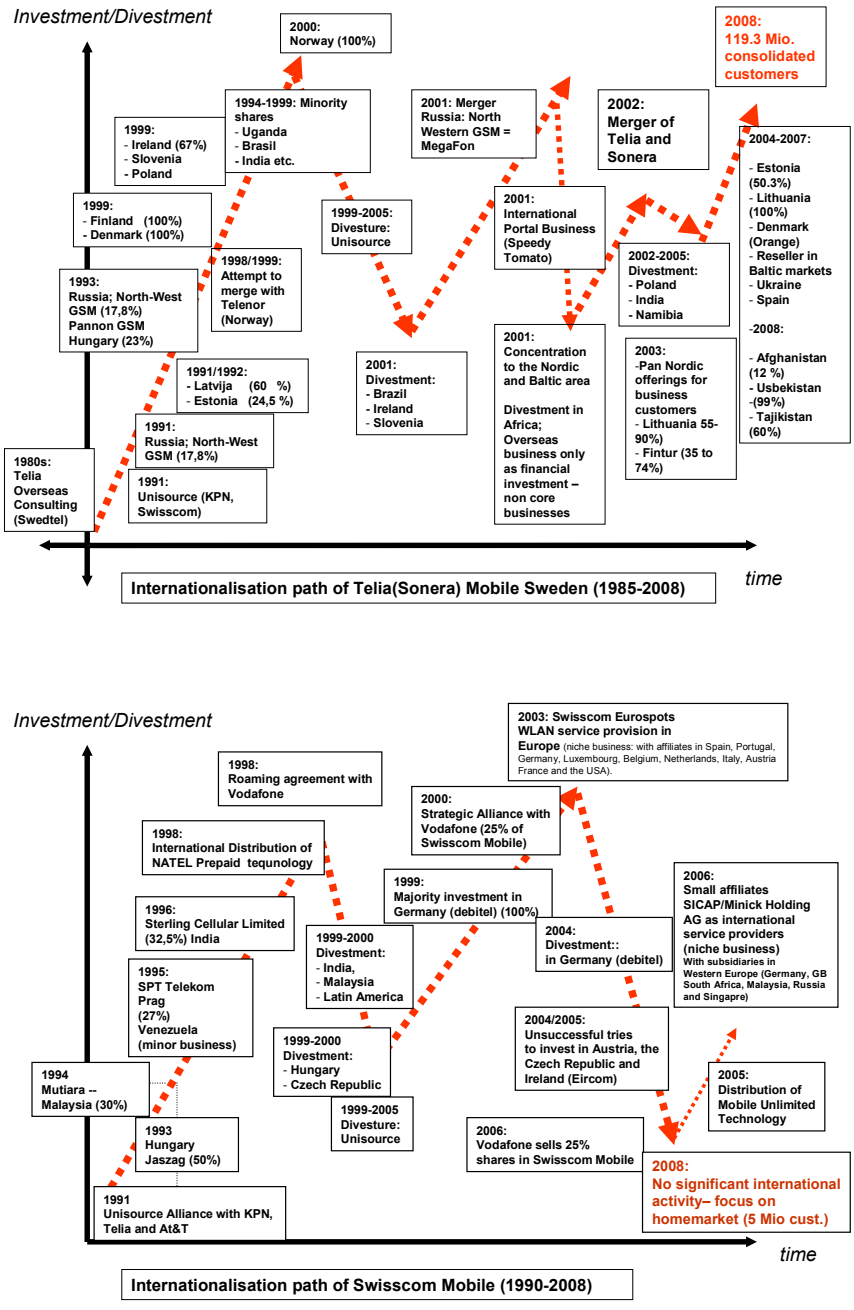


Figure 32 Illustration of Swisscom Mobile and TeliaSonera Mobile internationalisation path (1989-2008) (Source: Author based on ARs of both companies)

This difference can obviously not be explained by conventional internationalisation theory. Thus the first theoretical metathesis

> Metathesis theory 1: Conventional internationalisation theory does not properly contribute to an understanding of differences in internationalisation strategies and performances among national core companies in the same industry segment.

is confirmed and validated by the empirical results drawn from the analysis of the two case studies (see chapter: 5).

> "Sweden and Switzerland might well be similar in many dimensions (small countries, a large proportion of multinationals, etc). However, when it comes to telecommunications, the regimes have been radically different from day one in the late 1870s. In the case of Sweden, what later became Telia was back then literally "born free" through (international) competition, with Bell Telephone (from the US) as one of its competitors in building alternate infrastructure, etc.. However, by 1918 Telegrafverket had established an effective (de facto) monopoly which lasted into the early 1980s. Televerket was, however (and this is crucial!) never granted any statuary monopoly, unlike most other countries. In consequence, there was never any PTT as in most continental countries like Switzerland. Postal services have always had to run their own business, with some statuary rights with respect to plain letters. But also their legal protection has been abolished for some years. In brief: You are not comparing two similar countries, but rather two quite different (historical) REGIMES, where the former Swiss PTT model was the more "normal," as in other parts of Europe" (Bertil Thorngren 2007; cited from e-mail contact via co-referee process, April 2007).

However, a comparison of the literature with statements like these from the first exploratory interviews reveals a gap in conventional internationalisation approaches, since they do not focus in detail on the meaning of formal and informal national institutions for corporate internationalisation processes and their development over time. This brought up the question of how internationalisation strategies are developed and how this development is influenced by national institutions, which seem to be crucial in the industry segment of mobile communications. This in turn led to the theoretical approaches of the old institutionalism and evolutionary economics according to Nelson/Winter (1982) and Dosi, et. al. (1988). Case studies about the internationalisation of former national champions further showed the importance of the relation of territoriality and institutions. Ruigrok/van Tulder (1995) particularly point out the significance of national institutions in the internationalisation processes of former national champions. In short, higher context-sensitivity (focusing on institutions) and time-sensitivity (focusing on the co-evolution of company strategies with national institutional paths) differentiates an evolutionary economic approach from the conventional internationalisation theories. The functioning of the main driving forces of internationalisation becomes clearer from a systemic point of view. This can provide a deeper understanding of the divergent internationalisation processes of companies in the same industry segment. But to understand the differences between the two companies under study, first the role of international institutions in the industry segment must be examined; this in turn can illuminate the role of national institutions in the internationalisation processes of mobile communications in Switzerland and Sweden:

> Thesis 2.1.2 "Space"/International Institutions: The most influential international institutions are embedded within international financial and technological systems. Examining international institutions may contribute to an understanding of convergence in international company behaviour, and may thus also explain industry-segment-specific hype scenarios in the field of corporate internationalisation.

According to the above thesis, international institutions within the financial communities and technological systems particularly lead to **industry-segment-specific hype scenarios**. However, as the empirical investigations of the mobile industry in general have shown, other systems have also been influential in creating international industry trends in mobile communications. But those were much more influenced by national institutions than by international ones. In telecommunication policies, the trend has been from monopoly systems to competition. In wireless innovation, the past decades have witnessed a shift from proprietary technologies and patents to increasing openness and standardisation. In market evolution, the most critical turning point involved the shift from original demand to replacements, prior to the 3G transition and to total mobility in 3 and 4G (mobile data services). In the corporate governance systems of telecommunication companies, the trend moved from bureaucratic state organisation and interests to market-oriented, efficient and shareholder-driven company strategies. Some of the mentioned industry-segment-specific "trends" and their influences on internationalisation strategies are summarised and shown in table 33, as well as in the following statement from a telecom analyst:

> "In the beginning there was quite a trend toward large international alliances and joint ventures. This was shortly after liberalisation. You could mention Sprint or Global One. At that time, incumbents had a kind of reflex to globally compensate for competition which arose on their domestic markets. The trend then was to do this with a network most often made up of minority shares. Unisource included Swisscom, Telia and KPN. The intention primarily was to take care of business customers. There was quite a bit of this in the EU, but AT&T was also active with Uniworld and Worldpartners. Definitely there was also a buying syndicate in order to be capable of offering more attractive termination fees. (…) The results were rather modest, though, and this is why the trend toward strategic alliances and minority shares receded quickly. One saw that these trans-national organisations were relatively unmanageable. Alliances, though, were out for a while. Around 2000 another trend arose: expanding minority holdings in Eastern Europe or in other emerging markets. Here Vodafone was the leader! Vodafone had a relatively broad internationalisation strategy in emerging markets which extended as far as Japan. In 2000, when it became obvious that all these minority holdings in emerging markets brought nothing, there was a shift to global brands (T-Mobile branding strategy) and leaving a company "footprint." From then on majority holdings especially in Central Europe were the trend. Vodafone was the trendsetter in this and leader in mobile communication. It surpassed Mannesmann, which also had a broad internationalisation strategy with their global brand model. Others then followed. It was recognised that you couldn't succeed with alliances but with your own brand and with majority holdings" (INTCH-3).

During the analog period, international institutions were especially present in the field of technological systems, e.g., international standards and early international "user-producer" interaction. However, particularly in the **1-2G pre-liberalisation period** and analogue era, only few international standards existed. The first was the AMPS standard in the US, which diffused into Latin America and parts of Asia. The other was the NMT standard in the northern European countries. Only closed national standards existed at the time, especially among the bigger countries in Europe. Thus, technological standards combined with national regulation represented a barrier to internationalisation, and therefore internationalisation potential and trends emerged mainly among companies embedded in internationally open standard areas. Hence the US and northern European players were among the leaders in corporate internationalisation during this time. However, they were mainly restricted to their own standard-setting area. At the same time, among the other players, a light form of internationalisation was taking place in the form of international conferences and infrastructure build-up all around the world. Here again, the countries with the leading technological standards had the highest potential for internationalisation. Pressure to open up markets and to internationalise services arose out of international business customers' needs as well as national manufacturers' interests in foreign growth opportunities. Also, the financial investment community saw the potential in mobile

technologies and started to stress investment there, which during this time were mainly characterised by international infrastructure build-up in emerging markets (minority investments). This led to liberalisation and de-regulation as well as privatisation of the former monopolies in the 2G boom period.

Due to the technological paradigm shift from analog to digital, as well as the rapid internationalisation and consolidation of the manufacturing industry, the standard areas grew. The European digital GSM standard became especially famous worldwide during the **2G boom period**. The US and Asian players had their standards as well. But internationalisation was again influenced by technological barriers: It was difficult for European players to spread to a US or Asian standard area. Furthermore, the corporatisation of companies led to the increasing influence of financial interests in company corporate governance. Thus financial strategies dominated convergent internationalisation decisions during the middle of the 1990s until the beginning of 2001. Investment in emerging markets was highlighted first until the end of 1999. A famous example was the majority investment in European UMTS countries which was hyped by analysts shortly before the millennium. The lead countries during this period were the northern European countries and later on Japan. At the same time, a divestment of minority assets in emerging markets occurred in most companies.

Currently in the **3G period**, convergent corporate internationalisation activities are dominated by international institutions representing the new technological paradigm (convergence of mobile systems and the Internet). New players have emerged all around the world, and the value network has become enormously fragmented. An international industry trend of this period has been toward purchasing alliances with attractive partners along the value chain. Again, strategic alliances have arisen to achieve economies of scale and to create more attractive purchasing contracts in this field. The lead country in the business segment during this time has been the US (due to its strong IT industry), and Asian countries have led in the residential segment (due to innovative data services). Therefore, scanning international technological developments in these lead countries has become a common international trend in telecommunications. Furthermore, due to the increasing privatisation of incumbents (and dependence on the goodwill of shareholders), financial interests in these companies' corporate governance have grown stronger. This development favours short-term strategies based on a "Return on Investment logic". The growth potential in emerging markets is a particular focus of the international investment community today as well, and has led to a rise in company shares in mobile communications. Thus in general, from an industry-segment-specific point of view, international institutions from the technological and financial systems might best explain international strategic convergence, in the form of international hype scenarios and industry segment-specific internationalisation trends also in mobile communications (see: figure 33).

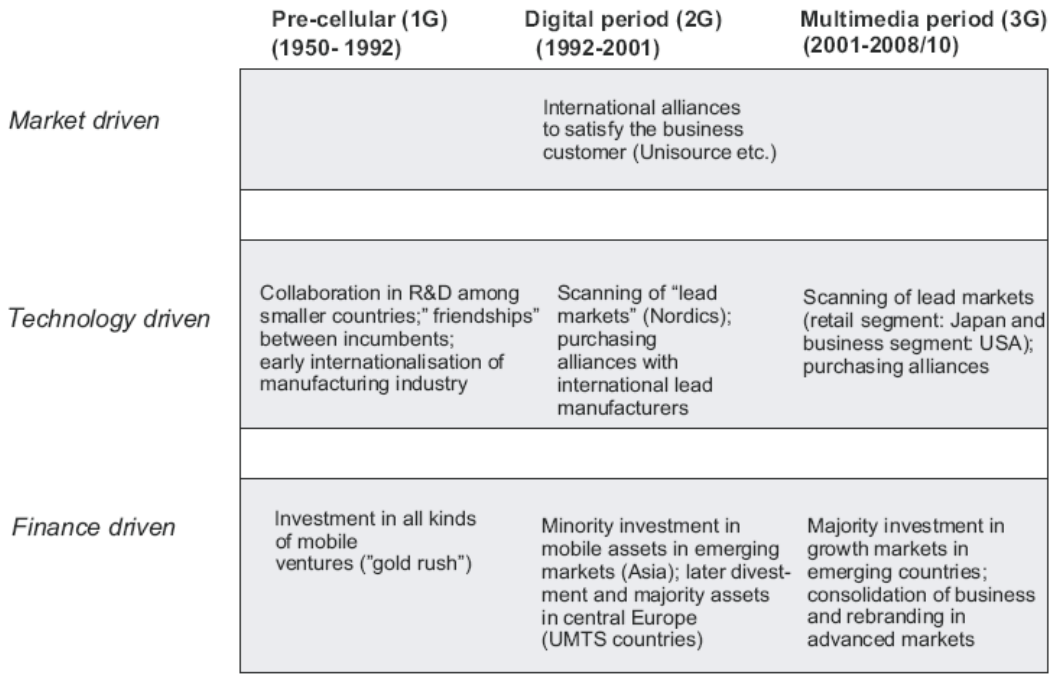
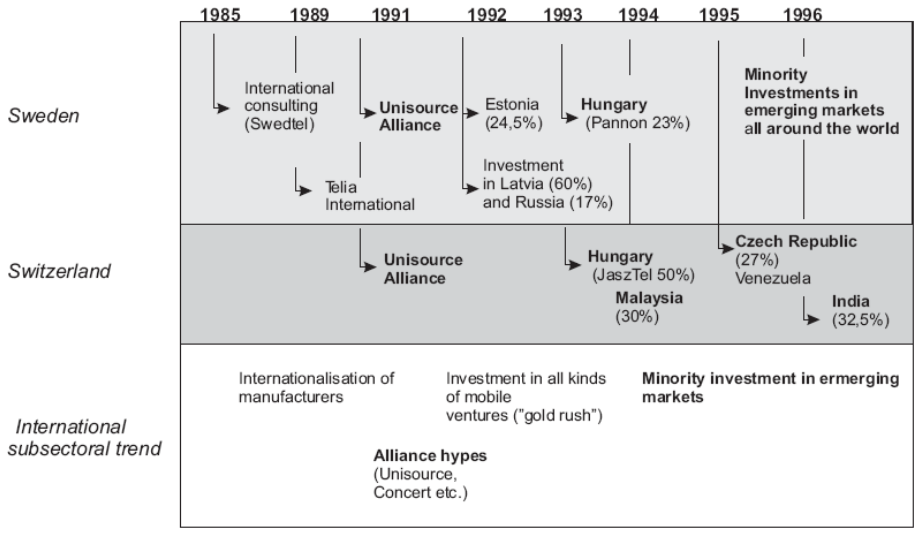


Figure 33 International industry trends arising from international institutions in the mobile sub-sector (Source: Author)

But is this also true for convergent internationalisation in Sweden and Switzerland? Altogether, the empirical results presented in figures 34 show that convergent strategies along the internationalisation paths of both Swisscom and TeliaSonera resulted mostly from dominant international institutional influences. On the one hand, new technological paradigms on the international level can lead to industry-specific dominant strategic designs (Nelson/Winter 1982; Dosi, et. al. 1988; Utterback 1994). On the other hand, there is always a financial logic behind international investments, especially as the international financial investment community attempts to gain increasingly power over all aspects of the value chain:



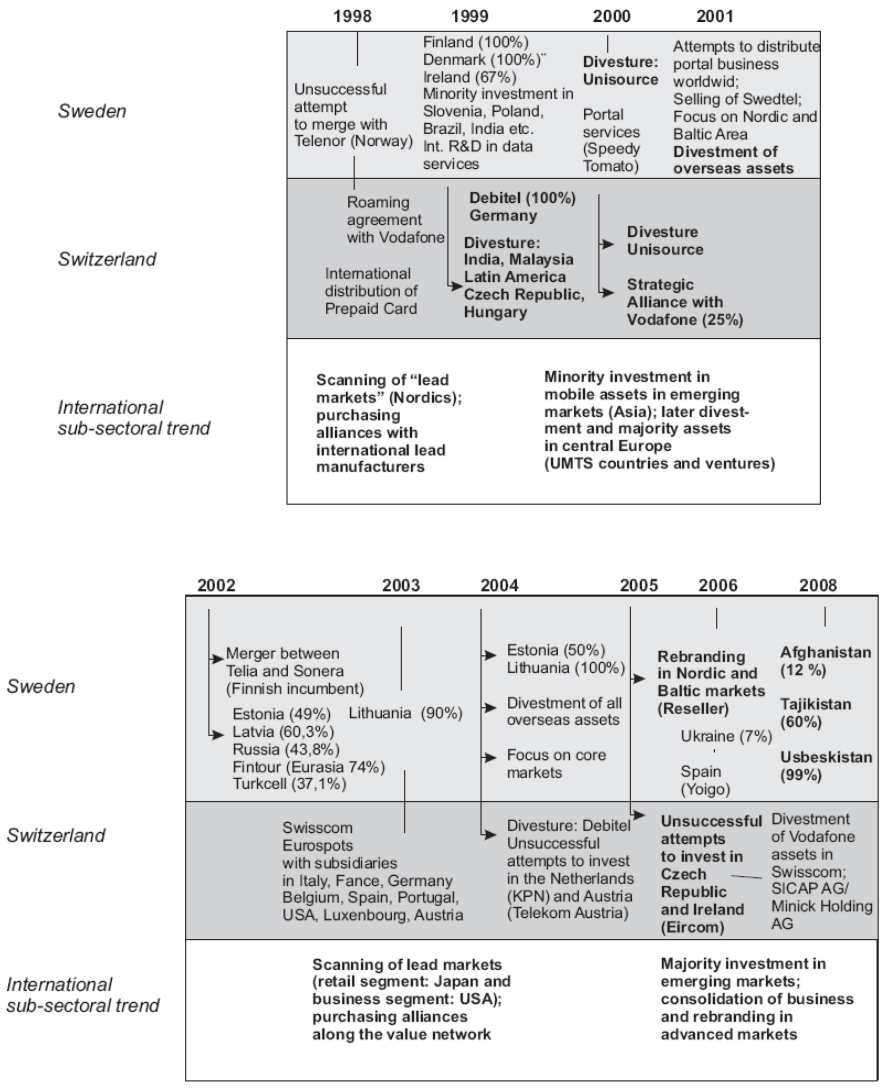


Figure 34 Convergence in corporate internationalisaion in Sweden and Switzerland according to international sub-sectoral industry trends (Source: Author in according to ARs of both companies)

Thus thesis 2.1.2 is partially true in that the general industry trend is mainly influenced by technological institutions as well as by expectative speculations within the financial investment community on the international level, and this leads to international strategic convergence among both companies. However, international market institutions, such as the habits of international business customers, also lead to international hype scenarios, like the international strategic alliance hype of the mid-1990s (Unisource etc.).

A further important empirical result within the industry segment of mobile communications is that technological standards began to influence internationalisation decisions as an international formal institution. However, these standard areas did not become truly global until today. There have been about three main standard areas from the beginning, which is congruent with the macro-region triad division between the US, Europe and Japan. The rest of the world adopted the standards of one of these macro-regions. There are some outliers as well, as China shows. Thus corporate internationalisation was facilitated within the "home" standard area.

The second international influence lay in financial markets that supported and guided the opening of national markets, the privatisation of incumbents, the internationalisation and consolidation of manufacturers as well as the rapid diffusion of digital mobile technologies all around the world. This culminated in an overrating of new technologies (like UMTS) and shares in companies that were active in new technology segments, and finally led to the bursting of the IT bubble in 2001, which affected all companies in the business. After the crash, a heavy consolidation in telecommunications followed, which favoured M&A activities in central Europe as well as majority investment in growth markets in emerging countries all around the world.

This trend is still continuing. The convergent parts of the internationalisation paths of both Swisscom and TeliaSonera could be explained by the embeddedness of both companies in similar international technological, financial and market environments; my central thesis (theses 2.1 and 2.2), however, is that the significant divergence of their internationalisation strategies and performances must be the result of divergent national-institutional place and path dependencies. The question now concerns the extent to which national-institutional specifications in the regulatory, market, technological and corporate governance systems in the past have contributed to today's divergent internationalisation strategies and performances in Switzerland and Sweden. First, theses 2.1 and 2.1.1 (as well as related theses) will be discussed:

> Thesis 2.1 "Space": Divergent internationalisation strategies among national core companies in the same industry segment may result from their embeddedness in different national-institutional environments.
>
> Thesis 2.1.1 "Space"/National Institutions: The national institutions that most influence internationalisation strategies among "national champions" in the same industry segment are markets, regulations and the corporate governance structure. This may contribute to a further understanding of divergent internationalisation strategies among these companies.

Thus national institutions in both countries within the market, technological, regulatory and corporate governance systems are compared over three main phases: the time period before liberalisation, "the 1-2G pre-liberalisation period" (approx. 1970-1995); the time period after liberalisation, the so called "2G boom period" (approx. 1995-2001); and finally the "3G multimedia period" (from 2001-2008):

The first phase investigated was the 1-2G pre-liberalisation period (approx. 1970-1995), which was mainly characterised by the first analog and digital standards in mobile communication and the first niche markets, as well as national state regulation (e.g., state monopolies) and early international competition. During this phase, the worldwide consulting business Swedtel and Televerket`s/Telia Mobile's beginning international focus on the Nordic and Baltic areas were the main distinctions from Swisscom Mobile's (at this time operating as Swiss PTT) internationalisation strategy, which mainly followed the international industry trend of investing in emerging markets in Asia and Eastern Europe. But what were the main national-institutional drivers of this strategic difference between Sweden and Switzerland during the 1-2G pre-liberalisation era?

Within the *technological system* and on the national level, it was mainly the fruitful user-producer interaction (with collaboration as well as rivalry) between Telia and Ericsson that contributed to superior knowledge in the field of mobile telephony (AXE switch) and the collaboration with Nordic players during the development of NMT. This finding stands in contrast to thesis 2.1., which states that technological developments mainly occur on the international level. Thus out of this

superior national-institutional configuration, a leader position in standard setting emerged which led to superior internationalisation potential in the field of mobile infrastructure build up all around the world for Telia (as well as for Ericsson). This was supported by formal and informal national institutions in the national *regulatory and market environments* as well in Sweden (see: low national tariff structures; light national regulation; autonomous management). Especially the early competition (almost from day one; see: Comviq 1981) contributed to internationalisation pressure on Televerket during this time. Also very important in the *corporate governance system* in Sweden during this time was the entrepreneurial and visionary nature of Televerket managers like Tony Hagström, who influenced the whole company culture. Very important is also the fact that Televerket had build-up a genuine engineering culture and educational system in-house which led to superior knowledge and capabilities in the field of radio- and mobile technologies. By chance this superior knowledge could be put into use in the joint venture with Ericsson (Ellemtel), which contributed to the development of the AXE-Switch and also GSM later. This supports thesis 2.1.1, which states that formal and informal institutions within the national regulatory, market and corporate governance systems make a particular difference. Additionally, the timing of *national-institutional path dependencies* is also very important, as these developments took place in Sweden several years before they did in Switzerland. This led to first-mover advantages and to the diffusion of national Swedish institutions on the international (sub-) sectoral level (NMT, GSM).

As **Switzerland** did not have such superior national institutions, they were laggards in company internationalisation and mainly followed international industry trends. They imitated lead players as well as scenarios emphasised by the financial investment community as internationalisation into emerging markets shows during this time. Even though Switzerland had a lot of potential in its superior *market institutions* (quality of infrastructure, high-value customers) as well as entrepreneurial people in its mobile-segment management team (see: Walter Heutschi), the Swiss PTT's management was not able to turn this national potential into sustainable, endogenous internationalisation strategies. One reason is that the *regulatory system* (especially state entities, which did not support mobile technology for a long time) placed a lot of restrictions on the Swiss PTT, and broader international expertise was lacking in the company. This led to the relatively low internaitonalisation performance during this time. These findings support thesis 2.2 (and related theses), which states that national path dependencies, such as time, are also very key to understanding internationalisation strategies, and that first-mover advantages may result from a co-evolution with national institutions:

> Thesis 2.2 "Time": The time aspect is very important too, since the co-evolution of a company with its national institutional environment, as well as internal path-dependent learning effects, may be further components to understanding differences in internationalisation strategies among national core companies in the same industry segment.
>
> Thesis 2.2.1 "Time"/National Institutions: A superior national institutional structure during the starting phase of internationalisation may result in international first-mover advantages.
>
> Thesis 2.2.2 "Time"/International Institutions: An inferior national institutional structure may result in an imitator position, e.g., as an international laggard that only imitates international industry-segment-specific trends.

Additionally, the empirical results also support thesis 2.2.3:

> Thesis 2.2.3 "Time"/tipping points in territorial-institutional influence: In a dynamic view, there can be a majority logic of national or international institutional influences as well as tipping points which indicate a path change. The more a company internationalises, the smaller is the influence of national institutions on corporate internationalisation decisions.

During the starting phase of internationalisation in both countries, there was a clear majority logic of national-institutional influences on corporate internationalisation. However, underlying this was a not-so-dominant international-institutional path mainly driven by such institutions as the wishes of international business clients and the expectations of the international investment community (relating to thesis 2.1.2, already tested in the previous section on international industry-segment-specific trends). Membership in the international strategic Unisource Alliance is one of the industry-segment-specific internationalisation trends that both companies followed during this time, as well as minority investment in emerging markets. Thus the needs of international business clients contributed significantly to a converging industry-segment-specific internationalisation trend during this time. This empirical finding must be added to the model, as it shows convergence not only resulted from international technological and financial institutional influences, but also from the market influences of the time (see: figure 35).

Altogether theses 2.1 and 2.2 are largely supported by the empirical findings regarding Sweden and Switzerland during the first phase of internationalisation in telecommunications (1-2G pre-liberalisation period): a consideration of national institutions contributes to a further understanding of the internationalisation processes in the starting phase of the internationalisation path (see: figure 35).

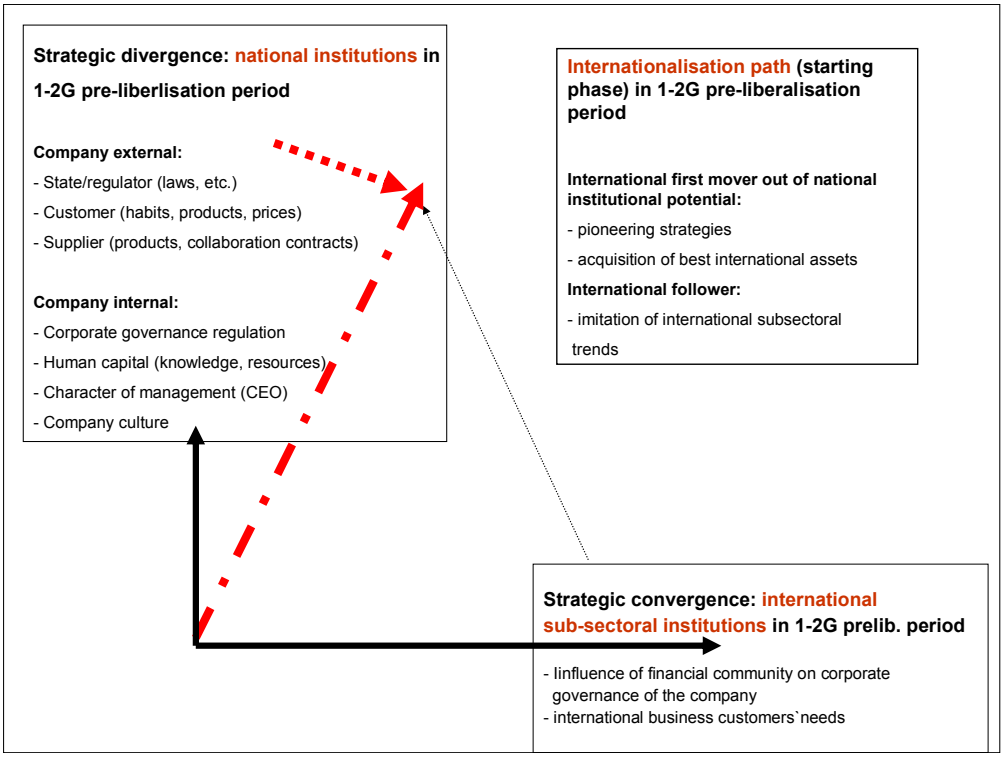


Figure 35 The role of national and international institutions in corporate internationalisation during the 1-2G pre-liberalisation period (Source: Author)

The next phase examined was the 2G boom period (approx. 1995-2001), which was mainly characterised by de- and re-regulation, a booming mass market, as well as increased competition and the privatisation of incumbents. The main difference in internationalisation performances during this time lay in the further focus of Telia Mobile in investment in the Nordic and Baltic regions as well as in Russia. Additionally, Telia was heavily active in minority investments all around the world (due to further consulting activities combined with Swedtel). Before the millennium, an international portal business (Speedy Tomato) distinguished the Swedish internationalisation activities from the Swiss. In Switzerland, this phase was mainly characterised by divestment of all international assets as well as majority investment in the heart of Europe by buying debitel in Germany. Furthermore, a strategic alliance with Vodafone arose in the year 2000. However, Swisscom was already showing a significantly lower internationalisation performance compared to Telia Mobile during this time period.

Sweden's broad internationalisation strategy and focus on the Nordic and Baltic areas during the 2G boom period can mainly be explained by the *national market system* and its informal customer habits, which could easily be transferred to other countries in the region, as well as its light regulatory *system* and full governmental ownership. Monopolisitc advantages from the NMT period as well as the 2G boom put very little internationalisation pressure on Telia during the middle of the 2 G boom. However because of early competition in Sweden (1981) and a fast saturation the 2G boom occurred in Sweden earlier and led to immense internationalisation pressure during the end of the 90-ies. This is why Telia went to Finland, Denmark and Norway and acquired 100% assets in all countries in the later phases of the 2G boom time.

The same was true for **Swisscom**, however; the *regulatory conditions* (light regulation in its favour, much incumbent lobbying power) and *market specifications* (high customer loyalty, price structures and market entry barriers) contributed to a continued focus on the national market and to a total divestment of almost all international projects besides debitel, which arose from an international industry trend toward majority investment in a UMTS country like Germany. Also, the national *corporate governance system*--in particular the character of leading managers like Marianne Nivert (CEO Telia) and Jens Alder (CEO Swisscom) - contributed to the situation. Nivert's risk-averse nature did not support the industry trend of risky investment in UMTS countries at the time. Also, Alder's financial logic led to a focus on the home market and divestment of all international assets besides debitel. This was in the interest of the majority shareholders in the Swedish as well as the Swiss state at the time. This again supports theses 2.1 and 2.1.1:

> Thesis 2.1.1 "Space"/National Institutions: The national institutions that most influence internationalisation strategies among national core companies in the same industry segment are markets, regulations and the corporate governance structure. This may contribute to a further understanding of divergent internationalisation strategies among these companies.

In addition, *national path dependencies* contributed to a divergence in internationalisation performances at the time, too, since developments from the 1-2G pre-liberalisation era influenced events in 2G boom period. For example, the Speedy Tomato business in Sweden grew out of the capabilities created in the NIS (for mobile data Mobitex) in the pre-liberalisation times. Sweden had a four- to five-year jump on the mobile take-off in the middle of the 1990s, because of early competition and market saturation. As a result, internationalisation pressure from saturated home markets arose earlier there and resulted in a broad global presence as well as a focus on corporate internationalisation the Nordic and Baltic areas. This supports thesis 2.2 again:

> Thesis 2.2 "Time": The time aspect is very important, too, since the co-evolution of a company with its national institutional environment, as well as internal path-dependent learning effects, are key to our understanding of differences in internationalisation strategies among "national champions" in the same industry segment.

Telia's relatively autonomous management and its high level of international *expertise* from its broad consulting business contributed to a successful internationalisation performance during this time as well.

In **Switzerland**, the boom came later due to the slow regulatory system, which for a long time did not support mobile technologies in the 1-2G pre-liberalisation phase. This resulted in a relatively late opening of the market and regulation in favour of the former incumbent during the 2G boom period. Internally, however, company management experienced *learning effects* from the internationalisation strategies of the pre-liberalisation era. Swisscom's management refrained from further investment in emerging markets due to the problematic nature of different management cultures and regulatory environments, and because of their knowledge of how human-resource intensive an international venture can be. Additionally, the favourable home market structure at this time put very little internationalisation pressure on Swisscom Mobile. This trend was supported by the low international expertise of Swisscom's management and its lack of vision, as well as the dominance of the Swiss state as a conservative majority shareholder even after liberalisation. Moreover, its position as international *imitator and laggard* with no sustainable organic internationalisation strategy left few options for Swisscom in the international service market.

All in all, during the 2G boom period, national path and place dependencies dominated international corporate strategy-making (see: thesis 2.2.3). Though liberalisation had occurred in both countries by this time, and international market and regulatory institutions had gained increasing importance, internationalisation strategies were still dominantly influenced by national institutions in both countries during the 2G boom period. Furthermore, while EU regulation, international financial markets and technological developments gained growing importance, no tipping point had occurred in either country to indicate a shift toward international institutional paths dominating corporate internationalisation. However, the increasing influence of financial investors could be observed. This led to an international convergence of investment hypes in UMTS countries, for example, and to the burst of the IT bubble in 2001.

Thus also thesis 2.2.2.1 is supported by the empirical findings of this period:

> Thesis 2.2.2.1 "Time"/International Institutions: The expectations of the international financial investment community in particular have increasing influence today and shape internationalisation strategies through industry-wide hype scenarios and "best/good practices."

While financial industry conventions and international technological developments during the 2G boom period shed light on convergent internationalisation strategies in Switzerland and Sweden, a look at national institutions illuminates the differences in strategies between the two. Thesis 2.1.2 is completely supported by events during the 2G boom period, as technological institutions drifted mainly to the international level and lead suppliers became highly internationalised. In addition, the power of the financial investment community increased as states sold more and more of their shares. However, as the empirical results show, the internationalisation paths of *first-movers* materialised as individual, successful internationalisation performances, which became increasingly more focused and

individualised during the 2G boom period. The *laggards*, however, did not manage this sustainable, organic, individual path, as they mostly imitated the industry trends. Thus the empirical results show that such imitation is no guarantee of sustainable international success. These findings support theses 2.2.1 and 2.2.2 (see also thesis 3):

> Thesis 2.2.1 "Time"/National Institutions: A superior national institutional structure during the starting phase of internationalisation may result in international first-mover advantages.
>
> Thesis 2.2.2 "Time"/International Institutions: An inferior national institutional structure may result in an imitator position, e.g., as an international laggard that only imitates international industry-segment-specific trends.

All in all, however, no tipping point according to thesis 2.2.3 had occurred during this phase, and theses 2.1 and 2.2 are mostly supported by the empirical findings from the 2G boom period (see also: figure 36):

> Thesis 2.1 "Space": Divergent internationalisation strategies among national core companies in the same industry segment may result from their embeddedness in different national institutional environments.
>
> Thesis 2.2 "Time": The time aspect is very important too, since the co-evolution of a company with its national institutional environment, as well as internal path-dependent learning effects, may be further components to understanding differences in internationalisation strategies among national core companies in the same industry segment.

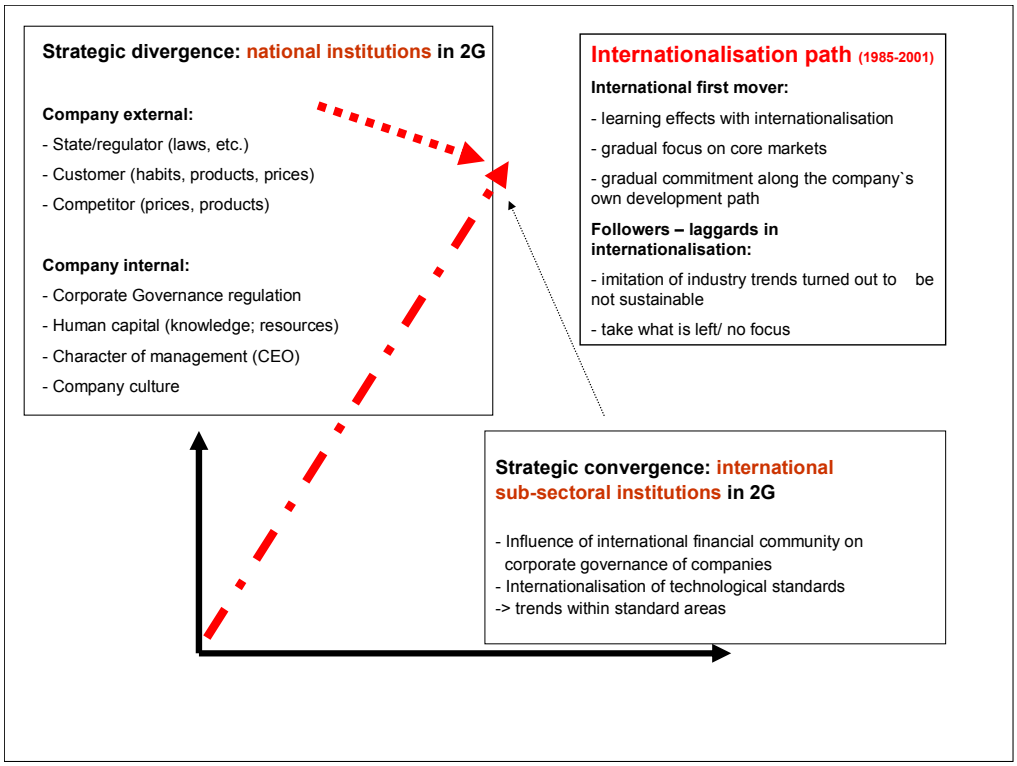


Figure 36 The role of national and international institutions in corporate internationalisation during the 2G boom period (Source: Author)

The third phase examined was the 3G multimedia period (approx. 2001-2008), which has mainly been characterised by the convergence of mobile and computer technologies, as well as the increasing dominance of international regulation and saturated markets in the advanced countries. Altogether in this third phase, there have been few commonalities between the two players. The internationalisation strategy of Swisscom Mobile, aside from its strategic alliance with Vodafone (which ended in 2006) is no longer of importance. Swisscom divested itself of debitel after the UMTS debacle and focused afterwards on a few failed attempts to gain an international foothold (Telecom Austria, Eircom, KPN) as well as on the domestic market and on smaller mobile services in niche segments along the value-added chain. Swisscom Mobile thus has shown a relatively unspectacular internationalisation performance, with a mobile-segment customer base of 5 million primarily in the domestic market[38]. For the core business, which is primarily based in the domestic market, these foreign customer numbers are of little significance. This stands in strong contrast to the internationalisation performance of TeliaSonera Mobile, which since the merger in 2002 has been seen as a leading player in Northern Europe and the Baltic states as well as in the emerging markets in Russia, Turkey and Eurasia. Apart from geographic direction, differences in internationalisation strategy between TeliaSonera and Swisscom Mobile can be seen most clearly in the different customer count. Altogether, TeliaSonera Mobile has achieved numbers of roughly 119.3 million consolidated customers worldwide (at the beginning of 2008).

The divergent internationalisation of Swisscom and TeliaSonera Mobile during the 3G period may be traced back to national institutions once again. On the one hand, governmental influence on company decisions is still high in **Switzerland**, e.g., through formal institutions within the national *regulatory* and *corporate governance system*. On the other hand, the national *market system* in Switzerland is still characterised by high tariffs, low competition and high customer loyalty to the former incumbent. Furthermore, the regulatory system in Switzerland is mainly national and does not follow strict EU legislation for telecommunications. The relatively high state shares (>50% in 2008) in the company especially hindered internationalisation into Austria, the Netherlands and Ireland. The state even formalised its interest with its strategy paper of 2006, which stipulated that Swisscom management could no longer attempt any risky internationalisation projects. All this combined with a relatively risk-averse *management* may explain the company's poor internationalisation performance at present. However, under the new CEO Carsten Schloter, continued internationalisation in the broadband segment is visible today (acquisition of Fastweb in Italy).

In **Sweden**, the situation is totally different. Since 2003, *EU regulation* has dominated company decisions. Government shares in Telia have decreased steadily (<40% in 2008), and full privatisation is under discussion (see rumours about selling the company to France Telekom as of: June 2008). Since the merger with the former Finnish incumbent Sonera in 2002, the company has no longer been much affected by national Swedish institutions. Thus in 2002/2003, a *territorial-institutional tipping point* occurred, as international-institutional influences gained more importance than national ones in all related systems. Within the *market system*, the definition "home market" has changed, since the whole Nordic and Baltic regions are now part of it, and not just the Swedish market. This occurred especially after the Sonera merger in 2002. As mentioned above, within the regulatory system, formal international EU institutions are more important for the Swedish player today. One reason for this is that now, growth mainly takes place internationally for TeliaSonera Mobile businesses, not only in Sweden. Secondly, Sweden which is also a member state of the EU

[38] To be fair, since the original group structure of Swisscom had been formally dissolved in the 3G multimedia period (triple play, convergence), it must be pointed out the acquisition of the Italian Fastweb was a renewed step toward internationalisation in the broadband area for Swisscom. Despite this, its internationalisation performance lagged far behind that of the TeliaSonera group.

since 1995 thus must adopt the same rules. However, the regulation of emerging markets is also very important for TeliaSonera today, as these markets are important growth drivers. Important changes have also occurred within the *corporate governance system* in Sweden, as the Swedish state is no longer a majority shareholder and financial investment interests are gaining increasing power. These interests influence elections among the management board, company organisation and internationalisation strategy as well. That is why the relationship between the CEO and the investment community is crucial today. Distrust and dissatisfaction between the investment community and the management board (especially CEO Anders Igel) led to the fast and surprising hire of a new CEO in TeliaSonera Mobile (Lars Nyberg) in 2007 due to pressure from the new investment community. Risky growth strategies in emerging markets are also favoured by these investors. That is why TeliaSonera Mobile currently does further investment in Eurasia, even as far as Afghanistan, to satisfy these demanding shareholders. These findings do not support thesis 2.1. However, they do support thesis 2.2.3:

> Thesis 2.2.3 "Time"/Tipping points in territorial-institutional influence: In a dynamic view, there can be a majority logic of national or international institutional influences as well as tipping points which indicate a path change. The more a company internationalises, the smaller is the influence of national institutions on corporate internationalisation decisions.

However, the empirical results from Swisscom also support this thesis, since as *a laggard* from the 1-2G pre-liberalisation era and 2G boom period, Swisscom did not manage successful internationalisation. Swisscom management mainly imitated the international industry trend, which in the end did not prove to be a successful strategy. In contrast to this, TeliaSonera Mobile's endogenous (national institutional) potential materialised into international *first-mover* qualities at start of internationalisation, and became sustainable strategic advantages (economies of scale) at the end[39] of the process. These findings re-affirm the following theses:

> Thesis 2.2.1 "Time"/National Institutions: A superior national-institutional structure during the starting phase of internationalisation may result in international first-mover advantages.
>
> Thesis 2.2.2 "Time"/International Institutions: An inferior national institutional structure may result in an imitator position, e.g., as an international laggard that only imitates international industry-segment-specific trends.

Again, *convergent strategies* in the 3G multimedia period in Sweden and Switzerland are mainly the result of technological and financial systems, even more so than in any other previous phase. Within the technological system, global user-producer interaction (global purchasing alliances) along the value network is important, as well as the scanning of lead countries like the US and Asian nations. Within the financial system, the increased influence of financial interests in the corporate governance of all privatised companies can be seen. This has led to heavy investment in growth markets in

[39] At this point it must be reiterated that a successful internationalisation strategy does not lead to more company success, since both companies currently perform above average on an international level on the stock market. That means that until now, company success has not been directly connected with internationalisation strategy; but this can change in the future, since Swisscom is rather a small player that could be in danger of dismantlement or takeover by a larger player in case of full privatisation (possibly even TeliaSonera).

emerging countries today, as well as the ongoing (however slower) consolidation of actors in the developed markets. These findings support the following theses:

> Thesis 2.1.2 "Space"/International Institutions: The most influential international institutions are embedded within international financial and technological systems. Examining international institutions may contribute to an understanding of convergence in international company behaviour, and may thus also explain industry-segment-specific hype scenarios in the field of corporate internationalisation.
>
> Thesis 2.2.2.1 "Time"/International Institutions: The expectations of the international financial investment community in particular have increasing influence today and shape internationalisation strategies through industry-wide hype scenarios and "best/good practices."

The starting point of this thesis was the current, divergent internationalisation performances of TeliaSonera Mobile and Swisscom Mobile. What has become clear in this third phase of internationalisation is that aside from the importance of international institutions in Sweden today, only knowledge of the former national-institutional development paths can contribute to a full understanding of the divergent internationalisation performances of Switzerland and Sweden. The merger with Sonera in particular resulted from national path dependencies, i.e., good historical contacts between the Swedish and Finnish states and collaboration in NMT, etc.. Today's geographic focus in Eurasia and Eastern Europe is a result of this merger, since Sonera brought businesses in Eurasia, Turkey and Russia into the Swedish company. This again may be traced back to national Finnish *path dependencies* (which are, however, not a central topic of this thesis). Also, *learning* effects from internationalisation (e.g., making majority investments to gain full control of assets, investing in geographic areas with similar customer habits) contributed to the current strategies and internationalisation performances of both companies. Thus today's divergence is only understandable by taking path- and place-dependent aspects (such as the co-evolution of the company and its national institutional environment) into consideration. Moreover, in the 3G period it became obvious that an initial leader or laggard position at the start of internationalisation could influence the establishment of a sustainable entrepreneurial strategy. The present internationalisation performances can only be explained by the initial national-institutional characteristics and the co-evolution of the company with its national institutions (national path dependency). Now only the "success-thesis 3", based on the industry specifications, has to be discussed, which should give an answer to the following questions:

- Why do national core firms in the same industry segment, with similar challenges, differ in their internationalisation strategies (Swisscom Mobile versus TeliaSonera Mobile)?
- Why are small country players like TeliaSonera internationally successful?
- Why did other smaller players not succeed internationally (Swisscom Mobile)?

> Thesis 3: "International success in mobile"
>
> In mobile communications, the influence of national institutions on internationalisation strategies is decreasing due to reduced state influence in general and dominant international institutions in the sector. However, there is still an underlying national institutional logic. This means that the successful internationalisation of players in the industry may mainly be traced back to national institutional first-mover advantages and early learning effects. These companies managed to convert national institutional advantages from the monopoly period into sustainable strategic advantages. Additionally,

these companies are also less dependent on national institutions today because of their successful internationalisation.

The "latecomers" may imitate the strategies of "first movers" or other opinion leaders (e.g., consultants, etc.). The international financial community especially contributed to the "imitation of industry segment specific good practices," e.g., international industry trends and hype scenarios. However, the imitation of industry trends is no sustainable strategy. That is why latecomers mostly show no successful internationalisation performance and are more dependent on national institutions still today.

As figure 37 shows, *laggards* in corporate internationalisation in mobile communications, like Switzerland, imitated mostly international industry trends or so called "best/good practices." This strategy was shown not to be sustainable as it did not build on endogenous national institutional strength. For small laggard companies there is a focus on the home market and internaitonalisation is only possible in international niche segments. Those companies did not manage to get the needed economies of scale to futher persue bigger international projects. Thus their role is mainly one of a "national champion," whith high dependence on national institutions (see: figure 37).

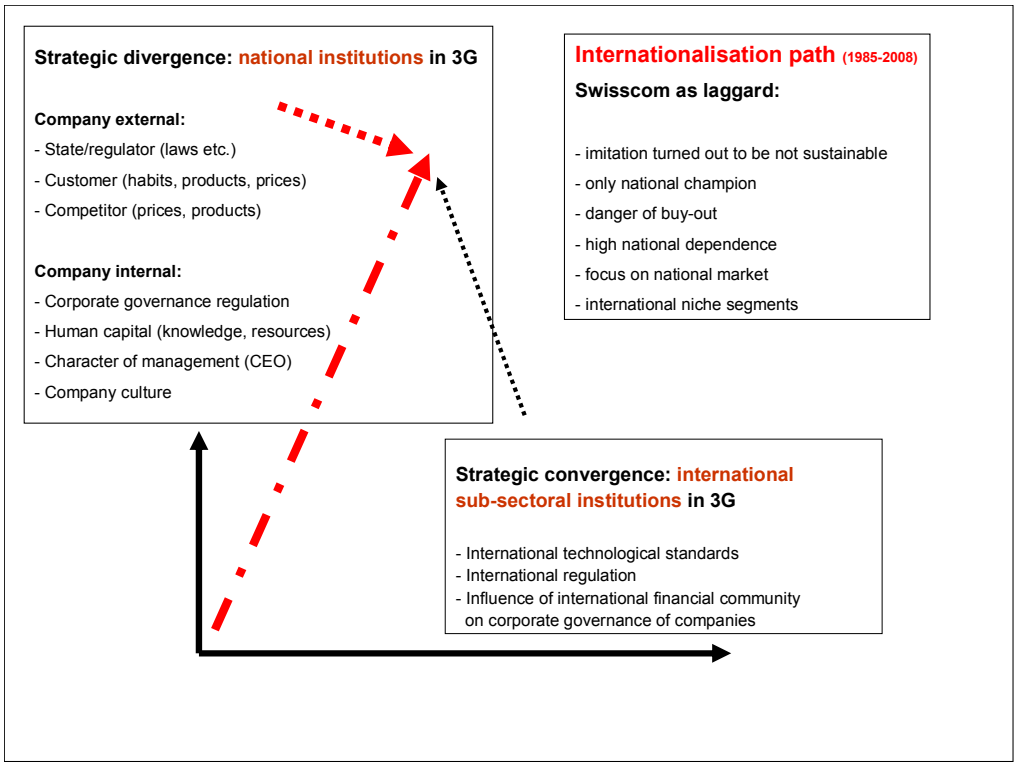


Figure 37 The role of national and international institutions in corporate internationalisation among "laggards" during the 3 G multimedia period: the example of Swisscom (Source: Author)

On the other hand *first movers* in corporate internationalisation, like TeliaSonera Mobile, managed to convert their national institutional advantages into sustainable strategic advantages[40]. Their recipie for success was mainly to follow an individualised development path built on national institutional strength. Imitation of industry "best/good" practices is lower among those companies. That is why they managed to internationalise successfully and why their current internationalisation strategy is not

[40] However at the moment the thesis was completed (June 2008) it seemed that TeliaSonera is being bought by France Telekom (see: http://www.pressetext.com/pte.mc?pte=080605024 as of: 07.06.2008).

dependent on national institutional environements any more but on the international institutional environements they are operating in today. However the whole internationalisation performance may only be explained in taking the historical co-evolution of the company with its national institutional environements into account.This findings support the thesis 3 totally.

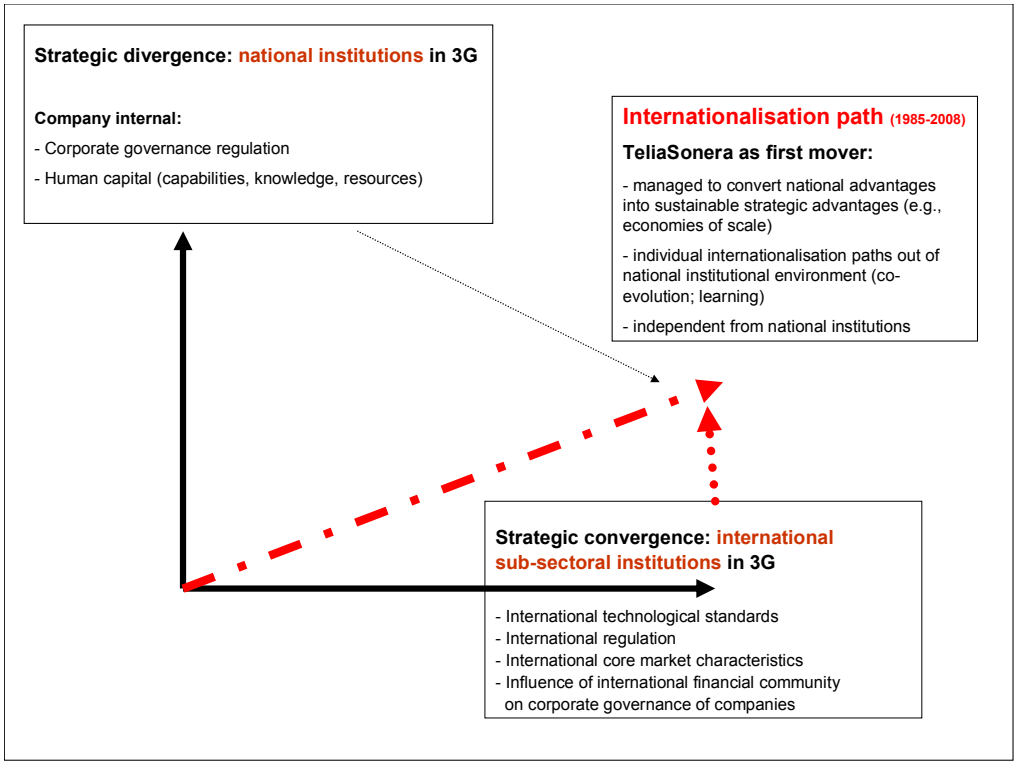


Figure 38 The role of national and international institutions in corporate internationalisation among "first movers" during the 3 G multiemedia period: the example of TeliaSonera (Source: Author)

Altogether, all empirical findings from the Swiss and Swedish cases support the central theses (theses 2.1 and 2.2) that a company's co-evolution with its national institutions, i.e. space and time, make the difference. It was mainly the late de-regulation of the market, high-quality services, national customer habits, high state shares in the company and the light national regulation system that led to Swisscom's poor internationalisation strategy today. In Sweden, it was mostly the government belief system in new mobile technologies, technological first-mover advantages and an early collaboration among the Nordic countries which led to the relatively "successful" internationalisation performance of TeliaSonera Mobile today. Thus all in all, the central theoretical Metathesis 2 is also supported[41] by the findings:

> Metathesis theory 2: An approach based on evolutionary economic assumptions, where differences in company strategies are traced back to institutional selection environments, highlighting the influence of "space" and "time" on company strategies, may contribute to a further understanding of different internationalisation strategies and company performances of "national champions" operating in the same industry segment. Conclusion and short outlook on further research

[41] However as already stated at the beginning of this thesis the empirical findings can not be generalised as the thesis is only based on two case studies. For a solid verification of the theoretical implications further case studies in the industry segment would be needed.

6.2 Outlook on further research

This thesis began with the relatively provocative statement that the national-institutional home country environment is responsible for success or failure in corporate internationalisation of (former) "national champions". While at first this seems an unsustainable proposition, the thesis's results clearly confirmed it. However, because this thesis is only based on two examples, it would be necessary to carry out further research in the field to truly verify the findings. Comparable studies may help decision makers within policy-making bodies (regulatory environment) as well as company managers to better understand the complex multi-finality of internationalisation and its national-institutional drivers. Insights into these processes might contribute to the international competitiveness of industry segments, which could be favourable at the national level as well as the corporate level. Understanding the internationalisation processes in companies of the same industry segment is relevant today on a macro-political level (competition among nations) as well as a micro-economic level (competition between firms). This thesis may be a guideline for decision makers currently in the process of liberalising economies, like the energy sector, and developing new national (regulatory) institutions as well as corporate strategies. An awareness of the systemic dependencies between national and international drivers of strategic internationalisation in industry segments, and of the "lessons learned" in telecommunications, can aid the process. The central lesson learned, in the field of former monopoly players, is not to base company strategy on the imitation of international industry "best practices," as this did not prove to be sustainable in telecommunications. A sustainable internationalisation strategy must be based on endogenous national-institutional potential, identified and used by decision makers at the right time. Additionally in the field of mobile communications the role of national institutions in the consolidation of larger players in the triad nations and the development of the business in emerging markets, especially China could be topics of further research. In the end, this thesis raises one immediate question: to what extent can these findings be generalised to other industrial sub-sectors and industry segments? It is certainly true that the mobile communication industry has some unusual features, especially the importance of the national regulatory environment, that favour evolutionary economic modelling within the presented analytical categories:

Nevertheless, most industries, not only former national monopolies, are still influenced by national regulation and international industry conventions (e.g., the pharmaceutical industry, see:: Zeller 2001). Furthermore, there are numerous examples of service industries that rely heavily on the knowledge of informal national or regional customer habits (see: Glückler 2006 on the banking and consulting business). Additionally, evolutionary economic modelling is important when it comes to understanding differences in the internationalisation strategies of companies in the same industry segment which share similar company and home-market characteristics. These are the central explanatory variables within conventional internationalisation theory. Thus there is need for a broader view of internationalisation activities, particularly because conventional theories and interdisciplinary work neglect the influence of power relations, informal institutions and co-evolutionary processes:

> "(…) the topics and sectors where evolutionary theories have been developed (…) are those where standard neoclassical theories have difficulties also. They are areas where there is no real market or where market selection is strongly mixed with political or professional influences (…) The problem in theorizing here clearly lies not in the evolutionary art form but in the complexity of the subject matter. (…) In my view, economics would be a stronger field if its theoretical framework were expressively evolutionary. Such a framework helps us see and understand better the complexity of the economic reality" (Nelson 2005: 113-114).

These few examples illustrate that an industry-segment-specific, detailed analysis of a company's internationalisation path which takes into account international industry conventions and national path- and place-dependencies may contribute to a more realistic understanding of the complex nature of internationalisation processes in general, and of divergent internationalisation strategies among national core companies in the same (sub-) sector in particular.

Thus, the main contribution of this thesis to the existing literature is to present a consistent evolutionary economic framework (which only has to be modified according to industry-segment specifications). Additionally, this thesis is an argument in favour of more industry-segment-specific case studies, out of which one can extract hypotheses in order to prepare industry-segment-specific internationalisation models. Further research may be done in the field with different case studies and different (sub-) sectors. The importance of the interplay of formal and informal institutions (hierarchies, etc.) might also be of interest, for their power in shaping institutional frameworks. The question of how strategic hype scenarios and industry conventions develop, and who the central actors shaping these scenarios are, could be of further interest as well.

7 Extended summary

Understanding the forces behind the divergent corporate internationalisation activities of (former) "national champions" in the same industry segment is of high political and social interest, as it truly affects national economies. Additionally, many national core companies, having faced similar starting conditions, today show significantly different internationalisation strategies and performances. This also makes the forces that lie behind these differences interesting. Research about corporate internationalisation is largely derived from the conventional internationalisation approaches of business and management studies. In these studies, internationalisation strategies are explained by rational, static norm theories which tend to assume the existence of a global marketplace with more or less "footloose" companies (Ohmae 1994). A few remarks on company internal factors and home- and host-markets aside, general dynamic aspects and a wider contextuality are still neglected in much of this literature. However, recent work in evolutionary economics and economic geography has shown that contextuality provides a valuable framework for the analysis of the development and change of corporate strategies. Also interdisciplinary studies about international restructuring (Ruigrok/van Tulder 1995; Hess/Coe 2006) show that national core companies are still influenced by national institutions. Additionally, as national institutions are the outcome of relationships with important actors within the national industrial complex (Ruigrok/van Tulder 1995), the framework for strategic developments not only has to be context-sensitive, but dynamic too. However, context- and time-sensitive studies are rare in strategic- and international-management literature. This thesis tries to make a contribution in this direction, as its central purpose is to analyse the role that national institutions play in the internationalisation processes of national core companies in the same industry segment. This should be demonstrated with the help of case studies of former national champions in telecommunications in Sweden and Switzerland, i.e., TeliaSonera Mobile and Swisscom Mobile. If we look at their current internationalisation performances as a main outcome of their internationalisation strategies, we see a stark difference. TeliaSonera has about 119.3 million (QR TeliaSonera March 2008) consolidated customers today and is present in the Nordic and Baltic regions as well as in Russia, Eurasia and Turkey. Swisscom Mobile, in contrast, is only active in niche segments (WLAN provision, content enabling) in Europe and in the US. It has a customer base of about 5 million (www.swisscom.ch: 28.01.2008) and is geographically focused mainly on the Swiss domestic market. The main empirical goal of this thesis is to understand this difference in internationalisation strategies from a national-institutional perspective. Thus the underlying motivation for this work stems mainly from conventional research's inadequate examination of the role and impact of national institutions on the corporate internationalisation strategies of national champions, factors that are implicitly accepted by many researchers, but explicitly still insufficiently examined.

To understand differences in internationalisation strategies from a territorial-institutional perspective and to analyse its driving forces, it first seemed necessary to define some key concepts, in particular "internationalisation," "institutions", "territoriality" and "(sub-) sector." Economic institutions are defined in general as *"systems of enforced norms, routines, conventions and traditions in which individual economic activity is embedded"* (Groenewegen et. al 1995: 6 cited after Ruigrok 2006: 335). Thus institutions limit and define the individual's field of choice through concrete formal restrictions (rules, laws) and abstract (informal) ones (norms, values, customs) (North 1992: 3). Discussion of economic and social globalisation has focused increased attention on the role of institutions and territoriality, e.g., discussion of the declining influence of national institutions and rising influence of formal and informal regional and international institutions in shaping corporate strategies (Bathelt/Glückler 2002). These institutions greatly vary by industry segment or from sub-sector to sub-sector. According to Malerba (2004), a (sub)-sector is defined by a common technological knowledge base, common demand structure and common products or services. Malerba (2004) and others identified national core sectors which are significantly important for advanced national economies, like biotechnology, ICT, etc.. Furthermore, "national champions" by definition (see: Ruigrok/van Tulder (1995)) dominate a national core sector, or sub-sector, according to size and market power. Additionally there is no adequate accepted definition of the term "strategy" in general, but the specific term "internationalisation strategy" exists, and thus there is a variety of diverging interpretations, mostly reflecting the specific scientific perspectives of the authors. However, two main schools of thought can be detected: the analytical/positivistic view, which aims at describing and

explaining internationalisation strategies by deterministic laws, and the systemic perspective, which focuses on understanding the internationalisation process. What matters in the systemic perspective is the collectiveness of components/indicators (multi-finality) rather than the specific cause-effect relationships of individual dependent and independent variables.

Conventional internationalisation theories might be assigned to the analytical/positivistic tradition of thought, as they claim to explain corporate internationalisation by a few variables and cause-and-effect relations only. According to "number of citations" in international management and business studies and well known textbooks of international management (Pettigrew 2006; Kutschker/Schmid 2005), three major internationalisation concepts can be identified: the eclectic paradigm by Dunning (1993), the concept of oligopolistic behaviour by Knickerbocker (1973) and the Uppsala School approach by Johanson and Vahlne (1977). Dunning in particular integrates different internationalisation approaches into his "OLI model", mainly those of monopolistic advantages (Hymer 1979), several internalisation approaches (Williamson 1993 and Coase 1988) and location theories (see: "Porter`s diamond" 1998; Macharzina/Oesterle 1995, etc.) from the 1970s and onwards. He tries to explain corporate internationalisation through company internal variables like financial strength, number of employees and technological competence, as well as company external variables such as home-market power and home- and host-market size and value. His general proposition is, the better the OLI conditions for a company in an industry segment, the more successful it will be in its internationalisation efforts in relation to its competitors. Knickerbocker (1973) mainly explains internationalisation by international rivalry among competitors: If one competitor internationalises, the other will follow or may do a cross-investment. However, this approach is limited to companies which operate under international oligopolistic market conditions only. Moreover, the few dynamic studies (Bartlett/Ghoshal 1989; Johanson/Vahlne 1977) also mention specific norm strategies (e.g., the perfect organisation of internationalisation or international development paths), which derive mainly from learning effects and experience with internationalisation. These studies generally state that the more positive the internationalisation experience with a region, product or country, the deeper the commitment to further internationalise into this field of activity or country. As these examples show, conventional internationalisation approaches can provide a first insight into corporate internationalisation processes, but they are hugely insufficient for explaining the divergent strategies of national champions in the same industry segment. Conventional internationalisation theory states that companies which face similar starting conditions in their internationalisation process should also have comparable internationalisation strategy and performance. However, as Ruigrok/van Tulder (1995) show, and as our empirical examples indicate, this is not always true. Thus the numerous points of critique can be reduced to a lack of context and time sensitivity on the part of conventional internationalisation theories (Kutschker/Schmid 2005).

At present in strategic and international-management literature, a demand for a realistic view of the internationalisation process is raising new, interesting research questions on the topics of path dependency and contextuality, in contradiction of the positivistic studies. However, systemic studies on the topic of internationalisation are still in their infancy. Thought provoking aspects have come from neighbouring disciplines, such as the old institutionalism and evolutionary economics (Nelson/Winter 1982, Dosi, et. al. 1988, Malerba 2002), which state that formal and informal institutions like regulations and informal customer reactions also play an important role in driving company activities. Understanding different institutional environments can thus help us grasp differences in business practices, with institutions in effect acting as fields of selection that can decide the success or failure of company strategies (Nelson/Winter 1982). However, a consistent framework for research on internationalisation processes in evolutionary economics has not yet appeared. For creating a consistent analytical model based on evolutionary economic and institutionalist assumptions, interdisciplinary studies on the topic of internationalisation processes come into the picture (Glückler 2006; Hess/Coe 2006; Ruigrok/van Tulder 1995). Ruigrok/van Tulder (1995), for example, point out the importance of national "industrial complexes" (a company's network relationships with important stakeholders and shareholders at the national level) to the internationalisation strategies of former "national champions". In general, basic national regulatory conditions, market institutions, technological systems and, nowadays, financial institutions (Zeller 2004) exert a large influence on corporate strategy-making as well. Additionally, since human beings are involved, corporate strategies are also shaped by the skills and the character of powerful decision makers (Ahorni 1976; Nonaka/Toyama 2002; 2005). Moreover, these individuals are embedded in

institutional environments (Scott 1995). The evolutionary assumptions here are that managers either make decisions based on their "trial and error" experience (e.g., learning) or, in time of insecurity, imitate international industry trends (Nelson/Winter 1982). International strategic industry trends are mainly shaped by international industry institutions (e.g., industry-specific quality standards) (Edquist 2004). Thus convergent internationalisation strategies can best be understood by the embeddedness of companies in similar international institutions. However, regulatory, market and corporate governance institutions are mainly located at the national level, even today, and this may explain divergent internationalisation strategies; on the other hand, international institutions are mainly located within the technological or financial system and contribute to convergent internationalisation strategies. The ever-increasing influence of international financial institutions on the corporate governance of national core companies has led to international industry-segment-specific "trends and hype" scenarios today (Zeller 2004; Fransman 2002). In addition to company context, which in this thesis is also called "place dependency" (according to: Martin/Sunley 2006 and Cox 1996), time (or "path dependency") (Dosi, et. al. 1988) also plays an important role, as in, for example, the precise moment when institutional conditions must be confronted. Deeg (2001a, b) and Schneidewind (1998) notably state that there is a steady co-evolution between important core companies and national institutional environments. Traditionally, the authors of innovation and technology studies (Freeman 1992; Lundvall 1992) note the importance of a historical examination of national institutions to understanding differences in company strategies and national competitiveness. Most noteworthy in regard to national competitiveness are core-industry institutions (e.g., biotechnology, ICT, etc.). International institutional paths also play an ever-increasing role in shaping internationalisation strategies on behalf of globalisation. However, as Deeg (2001 a, b) points out, there is always an underlying national development path that shapes corporate strategies in national core companies. So even if international institutions have a dominating influence on corporate strategy-making today, the current internationalisation strategy of a national core company can only be understood by taking national-institutional developments into account. These national-institutional differences in the starting phases of a company's internationalisation may also explain their later position as a first-mover or laggard, i.e., success or failure measured by a company's internationalisation performance. The argument is that a laggard position results when a company has not followed its national-institutional potential and has merely imitated international industry "best practices", which do not lead to sustainable strategic success. Based on these arguments, the central thesis of this study is that different internationalisation strategies and performances in national core companies may best be understood by a historical examination of the national-institutional settings the companies are operating in. That is to say, corporate strategies, like internationalisation strategies, evolve dynamically over time (e.g., measured by technological paradigm shifts in the same industry segment, or (sub-) sector)) and differently across locations (co-evolution of company strategies with national and international institutional environements, e.g., national place and path dependencies). Thus, basic evolutionary assumptions on the functioning of corporate strategy making were taken as a general theoretical framework. Additionally, the results of interdisciplinary studies about internationalisation were added as a guideline to build an analytical approach specific to the topic of internationalisation. However, the usability of this "approach" had to be proven empirically. Chapter 2 concludes with the central theses.

Furthermore chapter 3, "Description of case study and operationalisation," focuses on describing the "research problem". A short description of the technological and business characteristics of former incumbents in mobile communications is given as well as a detailed delineation of the research problem, i.e., differences in the internationalisation strategies of TeliaSonera Mobile and Swisscom Mobile. Furthermore, it is shown that the research problem may not be solved by the simple premises of conventional internationalisation theories. The theories of Dunning (1993), Knickerbocker (1973), and Johanson and Vahlne (1977) provide central explanatory variables like company size, financial power, home-market size, learning effects and oligopolistic reactions to explain internationalisation strategy differences. However, in both firms studied, company and home-market size and financial strength were more or less similar at the beginning of internationalisation activities. Additionally, neither company had experienced many learning effects from corporate internationalisation at that point (the middle of the 1980s), because both companies had previously been state-owned monopolies (Sweden, *de facto,* and Switzerland, *de jure*) and foreign markets were almost all closed during this time. Furthermore, Knickerbocker's (1973) explanatory variable of oligopolistic market structures did not exist back then. Thus applying the variables of

conventional internationalisation theory to the starting phases of both companies would lead to expectations of similar internationalisation performances today. However, the empirical findings herein support the basic argument of this thesis, that the explanatory power of conventional internationalisation theories is relatively low when it comes to understanding the central research problem, i.e., the divergent corporate internationalisation of "national champions" in the same industry segment. Therefore, a theoretical model based on evolutionary economic assumptions and interdisciplinary findings was operationalised according to the specifications of the mobile industry. For example, central national and international institutions in the regulatory, market, technological and corporate governance systems were identified for the industry segment of mobile communications. The ensuing thesis referring to the industry segment is that those former national monopolies which managed to convert their national institutional potential into sustainable internationalisation potential (e.g., international economies of scale, consolidated customers worldwide) are the companies that could achieve success in the mobile communications field today. Additionally, it is suggested that laggards in internationalisation mainly followed the international industry "best practices" (trends), and this turned out to be no sustainable strategy

Hence chapter 4, "Methodology," focuses on describing the research methodology (qualitative) actually applied during the research process, as well as the choice of case study. In order to empirically demonstrate the validity of the theses and usability of the analytical model with accurate methods, it was necessary to find companies that have been demonstrably exposed to internationalisation pressure and have internationalised from out of different national-institutional environments. This was absolutely the case for former monopoly companies in the telecommunications field, and especially in mobile communications, due to the opening of national markets, restrictive regulatory environments and the resulting sinking market shares. The internationalisation of important customers as well as the globalisation and fragmentation of the value chain further contributed to this pressure in the sub-sector (Hess/Coe 2006). A further consideration is that investigating "national champions" confronted with similar challenges at a similar time, whose internationalisation strategies have a comparable time horizon, required a historical analysis. This led to an examination of former monopoly firms in mobile communication that were all liberalised and privatised in a similar time frame and had to face similar technological challenges, from the analog (1G) to the digital (2G) and multimedia periods (3G). For this reason, telecommunications companies with different national-institutional environments were chosen that were similar in terms of home market and company size at the beginning of their internationalisation processes. This was the case with former monopoly companies in Sweden and in Switzerland.

An investigation which targets differences in internationalisation strategies on the basis of institutions and institutional transformation can not only work with standardised data, but must also include the views and evaluations of different system components. Thus the nature of the data in this thesis is both qualitative and quantitative, although the emphasis is on qualitative data. Conducting 44 semi-structured interviews with senior executives was methodologically the most appropriate way to address the research objective: to investigate the embedded nature of internationalisation strategies in mobile communications. Arguments presented in this thesis further derive from a synthesis of the interview analysis, as well as from a detailed analysis of business and regulatory reports from 1997 to 2008, detailed newspaper analysis (2004-2008) and general background literature relating to the mobile communications industry.

In chapter 5, "Research results", the central thesis that internationalisation strategies have evolved dynamically over time (technology) and differently across locations (co-evoltution of company strategies with national and international institutional environement; e.g., national institutional place and path dependencies) is illustrated by the two empirical case studies. It is also the aim of this chapter to present the central national institutional drivers in time and space that contributed to the divergent internationalisation strategies of Swisscom Mobile and TeliaSonera Mobile. To do so, the common industry trends in internationalisation resulting from formal and informal institutions within the international technological, market, regulatory and corporate governance systems are outlined first. Additionally, the general "industry-segment-specific trend" is compared to the specific influence of national institutions on divergent corporate internationalisation within the two countries (Switzerland and Sweden). Thus national institutions in both countries within the market, technological, regulatory and corporate governance systems are compared over three main phases: the time period before liberalisation, "the 1-2G pre-liberalisation period" (approx. 1970-1995);

the time period after liberalisation, the so called "2G boom period" (approx. 1995-2001); and finally the "3G multimedia period" (from 2001-2008):

- The first phase under investigation is the **1-2G pre-liberalisation period (approx. 1970-1995),** which was mainly characterised by the first analog and digital standards in mobile communication and the first niche markets, as well as national state regulation (e.g., state monopolies) and the beginnings of international competition. During this phase, the main distinction between Swisscom Mobile's strategy (at this time operating as Swiss PTT) and Telia Mobile's (at that time operating as Televerket's mobile section) was the latter's worldwide consulting business (Swedtel) and its early international focus on the Nordic and Baltic regions. Swisscom Mobile's strategy for the most part was to follow the international industry trend of investing in emerging markets in Asia and Eastern Europe. Within the *technological system,* superior national capabilities in mobile or related technologies created superior "user-producer interaction" between different national actors in Sweden more or less by chance. This is illustrated by the case of Ellemtel in the late 1970s, when Televerket and Ericsson combined their knowledge bases to create the AXE switch, upon which GSM technologies were later based. This situation was encouraged by the visionary and entrepreneurial character of managers like Raoul Wallenberg (a banker) and the former director of Telia, Bertil Bjurel. Additionally, Sweden's collaboration with Nordic players during the development of NMT is another example of the country's superior knowledge base in mobile-related capabilities, which developed mainly out of Televerkets in-house training facilities for engineers (Teleskolan). Thus out of this superior national institutional configuration, Sweden assumed a leader position in international standard-setting (see: NMT and GSM), which in turn led to Telia's superior internationalisation potential in the construction of mobile infrastructure all around the world. This later materialised in the international consulting business Swedtel. Lindmark, et. al. (2004) even state that there was an National Innovation System in mobile technologies (standard setting and mobile data) during this phase in Sweden. This was supported by formal and informal national institutions in the *national regulatory and market environment* in Sweden, too (see: low national tariff structures, light national regulation, autonomous management; early competition). An important component of the *corporate governance system* in Sweden during this time was the entrepreneurial and visionary character of such Televerket managers as Bertil Bjurel and Tony Hagström (both former managing directors). They were able to influence the entire company culture and sense of vision. Furhtermore also a genuine engineering culture within in the company had brought up early "visions" in mobile. Additionally, temporal aspects were decisive during this phase, i.e., national institutional path dependencies, as these developments took place in Sweden several years before they took place in Switzerland. They led to first-mover advantages and to the diffusion of national Swedish institutions on the international (sub-) sectoral level (see, for example: NMT, GSM). As Switzerland did not have such superior national institutions in the mobile field, it performed as a laggard in company internationalisation and mainly followed the international industry trends of this time. It imitated lead players as well as scenarios highlighted by the international *financial investment community,* as shown by the internationalisation into emerging markets in Eastern Europe and Asia at the time. Even though Switzerland had a lot of potential in its superior market institutions (quality of infrastructure, high-value customers), as well as entrepreneurial managers in the mobile segment (see: Walter Heutschi), the management of the Swiss PTT (later Swisscom) was not able to turn this national potential into sustainable, endogenous internationalisation strategies. One reason is that the regulatory system (especially the state representatives, who for a long time did not believe in mobile technologies) put a lot of restrictions on the Swiss PTT; another is that the company lacked broader international expertise and technological capabilities. This led to a mere imitation of international industry trends in Switzerland during this time (see also figure 39 page: 256).
- The convergent, industry-segment-specific internationalisation trends that both companies followed during this time included membership in the international strategic Unisource Alliance (to serve business clients' needs) and minority investment in emerging markets. The needs of international business clients were very influential. Thus, during the starting phases of internationalisation in both countries, there was a clear majority logic of national-institutional influences on corporate internationalisation. But underlying a rather weak international-institutional path, mainly driven by such factors as the wishes of international business clients and the expectations of the international investment community, began to influence internationalisation strategies during this time.
- The next phase under investigation is the **2G boom period (approx. 1995-2001),** which was mainly characterised by de- and re-regulation, a booming mass market, as well as increased competition and the privatisation of almost all incumbents. The main difference in internationalisation strategies during this time lay in Telia Mobile's intensified focus in investment in the Nordics and Baltics as well as in Russia. Additionally, Telia was heavily active in minority investments all around the world

(due to increased consulting activities connected to Swedtel). Before the millennium, an international portal business (Speedy Tomato) also distinguished Swedish internationalisation activities from those of the Swiss. In Switzerland, this phase was mainly characterised by its divestment of all international assets and its majority investment in the heart of Europe in Germany's debitel (a mobile reseller). Additionally, a strategic alliance with Vodafone arose in the year 2000. However, Switzerland already showed a significantly lower internationalisation performance in comparison with Telia Mobile at that time. During the same period in Sweden, the *national market system,* particularly early competition in mobile telephony from almost day one (a main competitor was Comviq in 1981, and more competition followed in 1993) and informal customer habits, led to early internationalisation into the Nordic and Baltic countries. This combined with the light regulatory system and full government ownership explains Sweden's broad internationalisation strategy and its focus on the Nordic and Baltic regions. However, monopolistic advantages from the NMT times as well as the 2G boom lowered this internationalisation pressure during the middle of the 2G boomtime on the Swedish company. The same was true for Swisscom, but the *regulatory characteristics* (light regulation in favour of Swisscom, high lobbying powers for the former incumbent) and *market specifications* (high customer loyalty, high price structures, high market-entry barriers) in Switzerland contributed to a continued focus on the *national market* and to a total divestment of almost all international projects besides debitel. Also, the debitel investment was an imitation of an international industry trend to make a majority investment in a UMTS country. Furthermore, the national *corporate governance system,* especially the character of leading managers like Marianne Nivert (CEO Telia) and Jens Alder (CEO Swisscom), contributed to the different situations in each country. Nivert's risk-averse dispostion did not support the industry's trend to make risky investments in UMTS countries. Alder's financial logic led to a home-market focus and to the divestment of all international assets, besides debitel. This was in the interest of the respective majority shareholders at the time, i.e., the Swedish and the Swiss states. Additionally, *national path dependencies* contributed to the divergent internationalisation performances of the period as well, since developments from the previous internationalisation period had clear influences on the 2G boom time. First-mover aspects from developments in the 1-2G pre-liberalisation phase in fact resulted in Sweden's 2G boom. This created little pressure to go international at the time. For example, the Speedy Tomato business resulted from capabilities generated by the Swedish NIS (for mobile data Mobitex), as well as from early in-house vision for the field of mobile data communication during the 1970s. Additionally, mobile telephony took off four to five years earlier in Sweden than in other markets (middle of the 1990s) due to competition in NMT that had begun in 1981. As a result, internationalisation pressure from saturated home markets arose earlier and materialised into a broad global presence as well as a focus on corporate internationalisation in the Nordic and Baltic areas. Telia's relatively autonomous management and high international expertise from the consulting business contributed to successful internationalisation performance during this time as well. In Switzerland, the boom came later due to the slow regulatory system, which had not supported mobile technologies in the 1-2G pre-liberalisation phase. This resulted in a relatively late opening of the market in favour of the former incumbent in the 2G boom time (see the late unbundling of the "local loop" which affected competition in the mobile field). Internally, however, management experienced learning effects from the internationalisation strategies of the 1-2G pre-liberalisation time. Differences in the management cultures and regulatory environments of emerging markets and knowledge about the intensive human-resource requirements of an international venture prevented Swisscom management from further investment in emerging markets. Also, a favourable domestic market structure put little internationalisation pressure on Swisscom Mobile during this time. This trend in Switzerland was underscored by the low international expertise of Swisscom management and their lack of vision, as well as the dominance of the Swiss state as a conservative majority shareholder, even after liberalisation. Furthermore, its previous position as international "imitator and laggard" with no sustainable, organic internationalisation strategy in the 1-2G pre-liberalisation times left few options for Swisscom on the international service market during the 2G boom period (see also figure 39 page: 256).

- Even though liberalisation had occurred in both countries by this time and international market and regulatory institutions had gained more and more importance, internationalisation strategies were still mainly influenced by national institutions in both countries during the 2G boom phase. Also during this time, national path and place dependencies dominated corporate international strategy-making. EU regulation and international financial markets, as well as technological developments, gained increasing importance as well, but no tipping point had yet occurred in either country to indicate a shift toward corporate internationalisation driven by international institutions. However, the increasing influence of financial investors could be observed at the time. This led to convergent international investment by many telecom providers in UMTS countries, for example, and to the

burst of the IT bubble in 2001. Nevertheless, as the empirical results show, the internationalisation paths of international "first movers" in the previous phase materialised into successful internationalisation performances in the boom period, on a more focused and individualised level. International laggards, however, could not manage this sustainable, organic, individual path, as they mostly just imitated the industry trends.

- The third phase under investigation is the **3G multimedia period (approx. 2001-2008),** which has been mainly characterised by the convergence of mobile and computer technologies as well as the increasing dominance of international regulation and saturated markets in the advanced countries. Altogether in this third phase, few convergent internationalisation strategies can be observed among the providers. Besides the strategic alliance with Vodafone (which was ended in 2006), the internationalisation performance of Swisscom Mobile has been very minimal. Swisscom divested itself of debitel after the UMTS crisis in Europe. It attempted to invest in several markets, e.g., in Austria and Ireland, and finally focused almost exclusively on growth in the home market. Today it is only present internationally in niche segments, and has about 5 million consolidated customers, mainly in the domestic market. Its international performance is very poor and only marginal to the company's core business. In contrast to this, TeliaSonera Mobile's broad internationalisation strategy is focused on two core areas today: the Nordic and the Baltic regions, as the advanced markets and second emerging markets in Russia, Turkey and Eurasia. Aside from this difference in geographic presence, the number of TeliaSonera's consolidated customers worldwide (119.3 million) is another indicator of difference between both companies' internationalisation strategies.). In other words, there is still a great deal of government influence on company decisions when it comes to internationalisation in Switzerland. Thus on the one hand, the poor internationalisation performance in Switzerland can be traced back to the influence of national *regulatory and corporate governance* institutions there (see Eircom caseOn the other hand, the national *market system* is still characterised by high tariffs, low competition and high customer loyalty to the former incumbent in Switzerland. Also, the Swiss *regulatory system* is mainly national and does not follow strict EU legislation in telecommunications. The relatively high amount of state shares (>50% in 2008) in the company particularly hindered attempts at internationalisation into Austria, the Netherlands and Ireland. The state even formalised its company interest in a strategy paper in 2006, which stipulates that Swisscom management is not allowed to take on any risky internationalisation projects. All this combined with a relatively risk-averse management can explain Switzerland's poor internationalisation performance. However, under the new CEO Carsten Schloter, further internationalisation into the broadband segment is visible today (in the acquisition of Fast Web in Italy). The situation is totally different in Sweden, where EU regulation has dominated company decisions since 2003. Moreover, government shares in TeliaSonera have decreased steadily (<40% in 2008), and discussion about full privatisation is on the move (see current possible take over by France Telekom). After the merger with Sonera in 2002, the company was no longer much affected by national Swedish institutions. Thus in 2002/2003, a *territorial institutional tipping point* occurred in Sweden, as international- institutional influences within all systems became more important. In terms of the *market system*, the definition of "home market" had changed, in that the Swedish market was no longer the unique home market, but the whole Nordic and Baltic region was included as well. Within the *regulatory system*, as already mentioned, formal international EU institutions became more important for the Swedish player. One reason for this is that today, TeliaSonera Mobile's main business growth takes place internationally. Secondly, Sweden is also a member state of the EU and has to adopt the same EU rules. However, the regulation of emerging markets is also very important for the company, as these markets are important growth drivers. Additionally, important changes have occurred within the *corporate governance system,* as the Swedish state is no longer a majority shareholder, and financial investors` interests, have become more influential on corporate decisions due to their increased shares. These interests influence management board elections and company organisation, but also internationalisation strategy. That is why the relationship between the CEO and the investment community is crucial today. Distrust and dissatisfaction between the investment community and the management board (especially the CEO Anders Igel) led to the appointment of a new CEO in TeliaSonera Mobile (Lars Nyberg) in 2007, following pressure from the new investment community. Furthermore, risky growth strategies in emerging markets are favoured by these investors, and the result has been heavy investment in Eurasia, even as far as Afghanistan, to satisfy demanding shareholders. However, the empirical results from Swisscom support the "success-thesis 3" as well, since Swisscom's laggard position following the previous internationalisation phases (1-2G pre-liberalisation and 2G boom period) led to a poor internationalisation performance. Swisscom management mainly imitated the international industry trend, which proved not to be a successful strategy in the end. In contrast to this, TeliaSonera Mobile managed to take its endogenous (national institutional) potential - materialised in the form of international first-mover aspects during the

starting phases of internationalisation - and turned it into sustainable strategic advantages (e.g., economies of scale) today (see also figure 39 page: 256).

- Convergent strategies in the 3G multimedia period between Sweden and Switzerland mainly resulted from internationalised technological and financial systems. However, a national innovation system in the mobile field is no longer visible in Sweden today. As Anne Morris (2007) states, Sweden maintains its reputation as a technology hot bed, especially in specialised regions like Kista, where many SMEs have developed new mobile technologies. However, in comparison with new "lead countries" in mobile data like Japan and other Asian nations, Sweden is no longer a leading player. Within the *technological system*, global user-producer interaction (global purchasing alliances) along the value network are important, as is the scanning of lead countries like the US and Asian nations. Within the *financial system*, the increased influence of financial interests on the corporate governance of all privatised companies can be seen. This has led to heavy investment in growth markets in emerging countries today, as well as to the ongoing (however slower) consolidation of actors in the developed markets. Especially the Swedish player today is more influenced by international institutions today (EU regulation, international markets, international technological developments).
- The starting point of this thesis was the divergent internationalisation performances of TeliaSonera Mobile and Swisscom Mobile. What has become clear in this third phase of internationalisation is that besides the importance of international institutions in Sweden today, only knowledge gained from the former national-institutional development path can contribute to a full understanding of the details of Switzerland and Sweden's current divergent internationalisation performances. That means that *national path dependencies* led to Telia's merger with Sonera (e.g., good historical contacts between the Swedish and Finish states, collaboration in such technologies as NMT, etc.). Also, today's international geographical focus in Eurasia and Eastern Europe resulted from this merger, as Sonera brought businesses in Eurasia, Turkey and Russia into the Swedish company. This in turn can be traced back to national Finish path dependencies (which are, however, not a central topic of this thesis). Additionally, the learning effects gained from internationalisation, e.g., making majority investments to gain full control of assets (to further invest in geographic areas with similar customer habits), contributed to Telia's current strategy and affected the internationalisation performances of both companies. Thus Sweden and Switzerland's present divergent internationalisation is only understandable by taking into account "path and place dependent" aspects, e.g. the co-evolution of the company with its national institutional environment and individualised learning aspects. This examination of path-dependency influence is possible now after two decades of international activities. What became also evident is that the starting position of a company in the earlier phases of internationalisation, as either "leader" or "laggard," can also affect its current internationalisation strategy and performance. As was shown at the Swedish example TeliaSonera Mobile managed to convert its national institutional advantages into sustainable strategic advantages, e.g. international economies of scale. Its recipe for success in corporate internationalisation was mainly to follow an individualised development path built upon national institutional potential.

Finally, the main objective of chapter 6, "Discussion and Conclusion," is to answer the central question of this research and to outline the role of national institutions in our understanding of the divergent corporate internationalisation strategies of national core companies with similar starting conditions, as identified in the case study of former monopoly companies in mobile communications in Switzerland and Sweden. To do so, the main findings of the Swiss and Swedish studies are presented and discussed according to the central questions and theses. Altogether, empirical examination of the former Swiss and Swedish monopoly players Swisscom Mobile and TeliaSonera Mobile shows that while international industry-segment-specific trends undoubtedly play an important role in shaping internationalisation strategies, the individual national "path and place dependent" elements are key to the divergent strategies of national champions internationalising out of similar starting conditions. In Switzerland, it is mainly the late deregulation of the market, the high quality services and the high national-customer loyalty, as well as the large state shares in the company and the light national regulatory system that led to the outcome of Swisscom's poor internationalisation strategy. On the other hand, the relatively "successful" internationalisation performance of TeliaSonera Mobile in Sweden is mainly the result of an early, supportive governmental belief system combined with visionary and entrepreneurial managers, the genuine in-house engineering culture in Televerket, which together led to the build-up of superior national capabilities (knowledge) in mobile technologies, the relative absence of any regulation, the early market-oriented organisation of the company, early competition in mobile telephony (almost from day one), investment in new mobile

technologies, technological first-mover advantages and early collaboration among the Nordic countries (see for a complete overview figure 39 below).

Altogether, the empirical findings support the central thesis of the research project: *"An approach based on evolutionary economic assumptions, where differences in company strategies are traced back to institutional selection environments, highlighting the influence of "space" and "time" on company strategies, may contribute to a further understanding of different internationalisation strategies and performances among national core companies in the same industry segment."* Thus this thesis may also function as a guideline to help decision makers who are liberalising economies, such as in the energy sector, to be aware of the systemic dependencies between national and international drivers of internationalisation strategies, and to take into account the "lessons learned" from telecommunications when developing new national (regulatory) institutions and corporate strategies. The main lesson to be gleaned from corporate internationalisation in mobile communications is to avoid simply to follow international industry "best practices", as this strategy did not prove sustainable in telecommunications. A sustainable internationalisation strategy should instead be based on endogenous, national institutional potential, identified and used by decision makers at the right time.

Additionally, a theoretical added-value can be identified for other industries in general. The case study illustrates that as long as conventional theories and interdisciplinary work neglect the influence of power relations, informal institutions and co-evolutionary processes (as was shown in chapter 2.2.3), an industry-segment-specific detailed analysis of a company's internationalisation path - considering categories of "international industry trends" and "national-institutional path and place dependencies" - may provide a more realistic understanding of the complex nature of internationalisation processes, particularly of divergent strategies among national core companies in the same (sub-) sector. Thus the main contribution of this thesis to the existing literature on corporate internationalisation is to present a consistent evolutionary economics framework that only need be modified according to industry-segment specifications. Furthermore, this thesis is an argument in favour of more industry-segment-specific case studies, out of which one can extract hypotheses in order to prepare industry-segment-specific internationalisation models. Thus, further research may be done in the field of different (sub-) sectors. Also, the importance of the interplay of formal and informal institutions (such as hierarchies) might be of interest, as well as the role of power relations in shaping institutional frameworks. The way in which strategic "hype scenarios and industry conventions" occur, and how they influence corporate strategy-making in general, could be of further interest as well.

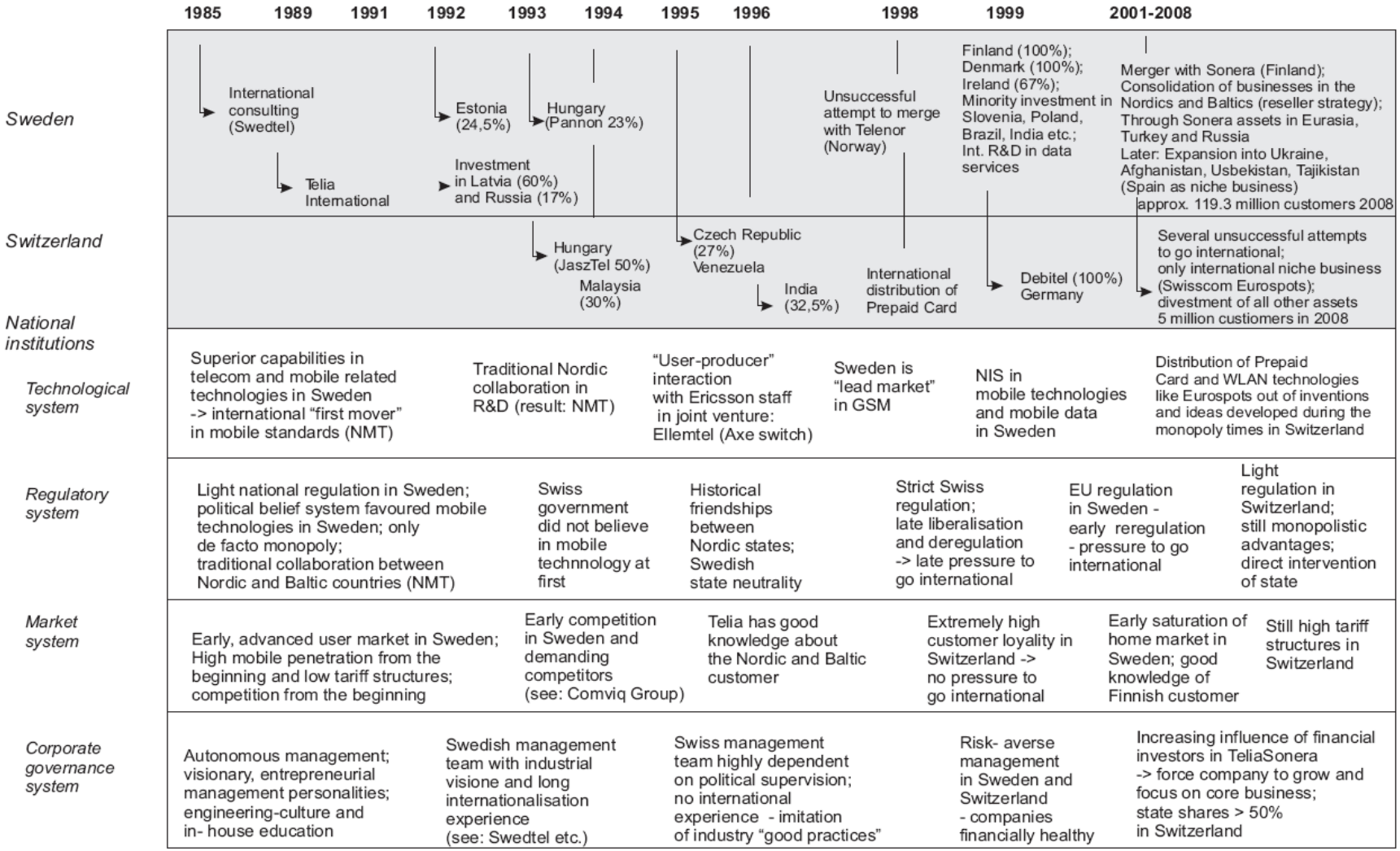


Figure 39 Main differences in internationalisation strategies in Switzerland and Sweden according to a national institutional perspective (Source: Author based on ARs of both companies 1997-2008)

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8.3 World Wide Web

Site **Date**

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- Facts&Figures
  1. Statistics (publications)
- The OFCOM
  1. Annual reports

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- The Commission
  1. Statistics
  2. Annual reports

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- Documents

www.itu.int/ITU-T/publications/recs.html 07.08.2007

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www.pts.se 01.07.2007

- Documents and Statutes
  1. Reports

www.swisscom.ch 01.07.2007

- Swisscom Mobile

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- Company Profile
  1. Market and competitors
  2. Geographical focus
  3. Market attributes
  4. Market shares
  5. Infrastructures
  6. Market trends

www.swisscom.ch 28.01.2008

Innovation

Site	Date
www.swisscom.ch	01.08.2007

- Investor Relations
    1. Share information
    2. Share price calculator
    3. Acquisitions/disposals

www.swisscom.ch	01.08.2007

- Corporate Governance
    1. Guidelines and standards
    2. Group structure and shareholders
    3. Board of directors
    4. Executive Board
    5. Risk management

www.statistic.admin.ch	03.03.2006

- Special Statistics ICT
    1. Expenditure on ICT
    2. Mobile teleworking in international comparison

www.telefonica.es:	01.06.2006
www.teliasonera.com	28.01.2008

- Vision and Strategy
    1. Business concept
    2. Shared values
    3. Strategy
- Our operations
    1. Mobility services
    2. Eurasia
- Markets and Brands
- Division of responsibilities
    1. Leadership team
- Products and Services
    1. Residential customers
    2. Business Customers
- Investor Relations
    1. Financial information
    2. Shareholder information
    3. Share data
    4. Reports&Presentations
- Sponsoring (Alliances)

Site	Date
www.teliasonera.com	01.08.2007

- Corporate Governance
  1. Shareholders
  2. Nomination committee
  3. Composition, responsibilities and duties of the Board
  4. Inside information

www.totaltele.com	13.11.2007

- Sweden a technological hotbed by Anne Morris

www.wikipedia.de	07.08.2007

- Mobile discounter

8.4 Interviews

Sweden and Finland

Code	Name	Institution	Function	Date of Interview
INTSwe-1	Juan Jimenez	Morgan Stanley	European Telecoms - Equity Research	09.03.2007
INTSwe-2	Nicolas Saillez	ING Equity Markets	European Telecom Analyst	09.03.2007
INTSwe-3	Bengt G. Mölleryd	Evli Securities	Senior Analyst - Doctorial thesis 1999, about telecom industry in Sweden	11.03.2007
INTSwe-4	Nils Veidsdam	IT Företagen (Company Association Sweden)	Consultant	12.03.2007
INTSwe-5	Pontus Grönlund	Deutsche Bank AG	Analyst; Helsinki Branch	14.03.2007
INTSwe-6	Hannu Turunen	DNA Finland	Director, Business Development	15.03.2007
INTSwe-7	Bertil Thorngren	Stockholm School of Economics; Center for Information and Communications Research (CIC) SSE	Prof. Dr.Econ.; VP in charge of Corporate Strategy at Telia, and from serving as a Board Member at private as well as governmental organizations 1997 appointed Head of the Center for Information and Communications Research (CIC) at SSE (see also INTSwe-16c)	2007/2008
INTSwe-8	Poul Ernst Jessen	Danske Equities	Equity Research	20.03.2007
INTSwe-9	Tuomas Haanperä	Finish Regulator FICORA	Economics; telecom market telecoms Finland	21.03.2007
INTSwe-10	Ola Nilsson	Telenor	Head of Investor Relations	21.03.2007
INTSwe-11	Lars Torstensson	Tele 2	Head of Investor Relations	21.03.2007
INTSwe-12	Antti Kohtala	Ministry of Telecommunication Finland	Economist	23.03.2007
INTSwe-13	Christopher Palmberg		Senior Researcher	15.03.2007
INTSwe-14	Olli Martikainen	ETLA; The Research Institute of the Finnish Economy	Professor ETLA Finnland; Former member of Sonera	29.03.2007
INTSwe-15	Sven Lindmark	Chalmers Institute for Technology Management and Economics in Göteborg	Professor ETLA Finnland; Former member of Sonera	04. 03.2007
INTSwe-16a	John Geary (Group Interview)	TeliaSonera	International Relations Director	07.05.2007
INTSwe-16b	Claes-Göran Sundelius (Group Interview)	TeliaSonera	Vice President Regulatory Affairs	07.05.2007
INTSwe-16c	Bertil Thorngren (Group Interview)	TeliaSonera	Dr.Econ. Center for Information and Communications Research (CIC); Stockholm School of	07.05.2007

			Economics; Former Member of Topmanagement Telia (see also INTSwe-7)	
INTSwe -17	Helena Stromback	Ministry of Communications Sweden	Civil cervant, Economist	09.05.2007
INTSwe-18	Anders Eriksson	Ericsson Sverige AB	Head of Account Management Telia	11.05.2007
INTSwe-19	Jens Sjörberg	PTS	Economist	11.05.2007
INTSwe-20	Jens Carlberg	Ministry of Communications Sweden	Civil servant	28.05.2007
INTSwe-21	Reijo Svento	FiCOM (Industry organistion)	CEO	28.05.2007

Switzerland

Code	**Name**	**Institution**	**Function**	**Date of Interview**
INTCH-1	Uwe Neumann	Credite Suisse	Analyst Private Banking	30.08.2006
INTCH-2	Rüdiger Schicht	Boston Consulting Group	Senior Consultant	06.07.2006
INTCH-3	Markus Karras	Accenture	Senior High Tech Consultant	11.07.2006
INTCH-4	Roman Schwarz	Tele 2 Switzerland	CEO Switzerland	11.07.2006
INTCH-5	Odmund Braten	Sunrise/ TDC Switzerland	Head of Strategy and Business Development	19.07.2006
INTCH-6	Thomas Grob	OFCOM	Telecom econometrics and statistics	04.07.2006
INTCH-7	Peter Baer	ComCom	Secretary of commission at ComCom	27.07.2006
INTCH-8	Fulvio Caccia	ComCom	Former Präsident of ComCom; New CEO SICTA and ASUT	06.07.2006
INTCH-9	Oscar Derrer	Comfone	Former member of Swisscom Management	04.09.2006
INTCH-10	Walter Heutschi	Comfone	Former CEO Swisscom Mobile 1992-1999; Founder of TOGEWA; Chairman of the Board of Directors of Comfone	05.07.2006
INTCH-11	Peter Trinkel	Swisscom Mobile	Current Head of Strategy Swisscom Mobile; Former CDO Orange Switzerland	07.07.2006
INTCH-12	Geraldine Phillipe	Comfone	Former legal counsel Swisscom. In 1997 she was involved in shaping mobile regulations within the Telecom Act of Switzerland.	13.07.2006
INTCH-13	Simon Schubiger	Swisscom Innovations	R&D Engineer	23.08.2006
INTCH-14	Anders Elleby	Swisscom Group	Former strategy chief Swisscom mobile; Now a member of the topmanagement of the Swisscom Group	23.08.2006
INTCH-15	Toni Stadelmann	Comfone	Electrical Engineer From 1975 to 1987 he held a number of management positions at	24.07.2006

			Swisscom (Former Chef technical officer; Director of International Business and deputy Director at Swisscom Mobile)	
INTCH-16	Andreas Dürsteler	Swisscom Innovations	CIO (Chef Innovation Officer)	28. 08.2006
INTCH-17	Günther Pfeiffer	Swisscom Group	Chef Human Ressources	19.09.2006
INTCH-18	Martin Steinert	IIMT; ICT and Utility Management; University of Fribourg	Research Assistant and PhD student	01.09.2006
INTCH-19	Sabine Teufel	IIMT; ICT and Utility Management; University of Fribourg	Professor and Head of Research Group	26.07.2006
INTCH-20	Kurt Rathe		Senior researcher corporate governance in telecommunications	01.02.2005
INTCH-21	Sonja Bietenhard	Forum Mobil Berne	CEO	18.07.2006
INTCH-22	Josef Erni	SICTA	Project manager	18.07.2006

As well as further explorative telephone interviews with: Jan Strobel (Researcher in the field of institutional path brakes and telecommunication in Sweden), Mischa Paterna (Telecoms expert; former topmanagement member of 02 Germany), and experts I met during the Nice-Project in Berne (Networking ICT Clusters Europe).

9 Attachments

9.1 National regulatory institutions: in detail comparison Switzerland and Sweden

Figure 40 National institutions within the 1-2G pre-liberalisation period (Source: Author)

Comparison of national regulatory institutions	Sweden	Switzerland
Ownership; legal form	Since 1853 until 2000 state-owned company	*De jure* monopoly since 1922 until 1997 100% state owned
Regulatory bodies	Televerket under the supervision of the Ministry of Transport and Communications	Ministry of Transport and Communications (DETEC)
Meaning of the sector for the country	Becomes important	Low
Technology policy	NIS in the field of superior user-producer interaction (Telervket and Ericsson); Televerket has superior R&D competencies in-house and its own manufacturing unit	None
Power	Main actors: Televerket and state	State
Organisation	Relative autonomy of Televerket – state's basic interests and goals; early market orientation	State-led, low market orientation
Political belief system	Equality and solidarity (price level, access etc.), but also system efficiency becomes more important	Equality of access (geographical disparities); solidarity, especially with rural areas and population
Formal regulatory instruments	Universal service laws; price regulation; coverage	TVG 1922; Universal service laws (price and quality of service), coverage
Licences	Telverket organises licence issues; the Swedish Telecommunication Administration; Comviq receives licence in 1981	Ministry organises licence issues; 1978, first licence given to Telecom PTT; 1997, further frequencies
Price regulation	State wants telecommunications to be cheap and universally accessible	National *ex-post* regulation by national government; high prices
Competition	Televerket *de facto* monopoly since the 60s; only small scale local competitors; 1981, Comviq (later Tele2) appeared; opening of infrastructure competition in 1992	Infrastructure competition since 1992 Service competition not until 1998
Competition in equipment	1980-1989	1989
Competition in services	From start to 1981	1998
Special national regulation	High technology standards and high coverage; good universal service	High technology standards and high coverage; good universal service
State relationships	International collaboration among the Nordic and Baltic countries. good relationship with other small countries (Switzerland)	Neutrality – good relationship with Nordic countries
Belief System in the company	High entrepreneurial spirit – market orientation	Entrepreneurial spirit within the limits of state controlled interests
Prices	Traditionally very low tariffs – rapid diffusion	Traditionally high price levels – high quality services

Figure 41 National institutions within the 2G boom period (Source: Author)

Comparison of national regulatory institutions	Sweden	Switzerland
Ownership; legal form	Since 1993 limited liability, company under state ownership; since 2000 privatised	Since 1998 privatised and stock company; 1998: 62%
Regulatory bodies	Since 1993 PTS and Ministry of Transport and Communications	Since 1992 OFCOM and since 1998 ComCom, as well as Ministry of Transport and Communications (DETEC)

Comparison of national regulatory institutions	Sweden	Switzerland
Meaning of the sector for the country	High	Average
Technology policy	NIS in the field of mobile communications	
Power	Telia in the middle of the 90s, shift to Ericsson; power of large users groups	Swisscom, state; power of large users
Organisation	Total market orientation	Increasing market orientation – learning by doing
Political belief system	Turn toward more efficiency and market orientation; solidarity less important	Turn toward market orientation but solidarity and access-equality is still very important; shift to more market orientation and competitiveness of the country; cost orientation
Formal regulatory instruments	Establishment of PTS; telecommunication law of 1993;	1992, new telecommunications law; 1997, liberalisation of the market, 1998, privatisation of Swisscom
Licences	Open invitation to apply procedure specified in telecommunication law of 1993; "Beauty contest" 1995 (1); 1998 (2); 2002 (1) Tele 2; Telia, Nordictel/Europolitain/ Vodafone	Licence authority is ComCom; registration for MVNO services at OFCOM; national frequency allocation plan – based on international prescription as well. auction, 1998 (3)
Price regulation	Price caps – regulated by PTS Higher price level	National *ex-post* regulation by national government; falling prices, but still high in international comparison
Competition	1990 Nordictel gets a licence from the government, not from the Swedish Telecommunications Administration (which was closely connected to Telia); fully underway since 1992	Full since 1998; DiAx – January 1998/ 2001; Sunrise Orange – June 1999
Special national regulation	Low sanction power of PTS – court appeals and delays	*Ex-post* regulation – insecurity caused by competitors; low sanction power of ComCom; competencies between regulating bodies not clear; telecommunication law too unspecific; legal uncertainty
State relationships	Neutrality; good relationships with the Nordic and Baltic countries	Neutrality
Belief system in the company	Total market orientation – high professionalism	Slow shift from state-led company to market-orientated company
Interconnection	National Interconnection Method closed to LRIC since 1993 with formal Telecommunications law; PTS should mediate in inter-connection; however PTS has less power to drive solutions through	National Interconnection Method; interconnection disputes
Local loop unbundling	March 2000 (still not satisfying)	-
National roaming	Difficult to get area coverage and fair roaming contracts	Orange's national roaming agreement with Swisscom; later Sunrise and Tele2 High prices for leased lines; ComCom's decision to stop this ruled out by the court
Monopoly Advantage	Local loop, NMT	Local loop, sites, customer bonding, good relationship with state; leadership in the national company associations
Prices	Prices are stable between 1993-1998 (even rising after liberalisation)	Price drop of about 14.7% in 1999 and 16.7% in 2000

Figure 42 National institutions within the 3G multimedia period (Source: Author)

Comparison of national regulatory institutions	Sweden	Switzerland
Ownership; legal form	Since 2000: Swedish state 70%; later in 2002 with the merger: 45.3% and 2007: 37.3%; discussion to fully privatise the company	2006: 53% state ownership and discussion about further privatisation
Regulatory bodies	Since 1993, PTS and Ministry of Transport and Communications	Since 1992, OFCOM and since 1998, ComCom, as well as Ministry of Transport and Communications

Comparison of national regulatory institutions	Sweden	Switzerland
		(DETEC)
Meaning of the sector for the country	High	Average
Technology policy	NIS in the field of mobile communications	ICT becomes more important in political discussion, but however still no direct sectoral policies
Power	Ericsson a dominating player in the Swedish sectoral innovation system	Until 2002, ministry and Swisscom – now with new FMG 2007, more competition; but low in comparison internationally (no full implementation of EU recommendations)
Organisation	Total market orientation	Gradually increasing market orientation (however: local loop)
Political belief system	Total market orientation; solidarity less important	Turn toward market orientation but solidarity and access equality is still very important - Swisscom still National Champion
Licences	3G 16.12.2000 (3) – 2 new operators; MVNO Europolitain/Vodafone/ Telenor; (Orange); Tele2 and HI3G – "beauty contest" resulted in winner with highest promises for coverage; Swedish law; national interests; IT nation – learning effect with licence procedure	31.01.2001 3G (4-3); MVNO UMTS licences cost Swisscom 50 million CHF in December 2000; Orange; TDC (Sunrise) and Swisscom (3 withdraw); 2003: further GSM frequencies to Tele2 and In&Phone
Price regulation	Price caps – regulated by PTS Higher price level	National *ex-post* regulation by national government; falling prices but still high in international comparison
Competition	Full since 1992	Full since 1998
Special national regulation		Since July 2002, 10 times higher; electromagnetic radiation regulation; *ex-post* regulation
State relationships	Neutrality; good relationships with the Nordic and Baltic countries	Neutrality
Belief system in the company	Total market orientation – high professionalism – international orientation	Market orientation, but still not with a lot of knowledge in international business
Interconnection	LRIC; since 1997, reform of the telecommunication law and in accordance with EU regulation – operator with SMP status should give competitor cost-oriented interconnection (Telia) – interconnection prices were reduced after 2000; PTS decides on further reduction in 2002; in 2002, also Vodafone and Tele2 have SMP status	LRIC since 2000; further extension in 2003 and 2007 regarding easier access to national roaming and fair interconnection tariffs; however, legal proceedings and delays continue
Local loop unbundling	December 2000 (still not satisfying) -- with EU regulation; problems related to monopolistic advantages, which cause excessive barriers to market entry	Since 2007, but not attractive for competitors (only for 4 years)
National roaming	Especially in 3G, 2 new licence holders, which meant more attractive roaming contracts should be offered – hope for more competition; but again, PTS has no sufficient mediating power	Prices decreased in metropolitan areas; very high in areas where Swisscom has the monopoly
Monopoly advantage	Local loop	Local loop, sites, customer bonding, good relationship to state
MVNO	In May 2000; no interests from market players to have MVNO – PTS; no possibility to implement them	Allowed in Switzerland but competitors agreed they did not want any – however, now there is a MVNO by Aldi (Salut Mobile), also other discounting strategies
Number portability	September 2000: caused falling prices only in 2004 (MVNO)	March 2000: no effect on the Swiss market
Prices	Prices have been declining since 2004 – MVNO	Stagnation from 2000 - 2005; declining prices today because of MVNO and new entrants

9.2 Formal declaration (Erklärung)

Erklärung

gemäss Art. 28 Abs. 2 RSL 05

Name/Vorname: Brandt, Daniela

Matrikelnummer: 04-103-289

Studiengang: Wirtschaftsgeographie

Bachelor ☐ Master ☐ Dissertation **X**

Titel der Arbeit: The role of national institutions in the internationalisation strategies of wireless service providers in Switzerland and Sweden

Leiterin der Arbeit: Prof. Dr. Paul Messerli

Ich erkläre hiermit, dass ich diese Arbeit selbständig verfasst und keine anderen als die angegebenen Quellen benutzt habe. Alle Stellen, die wörtlich oder sinngemäss aus Quellen entnommen wurden, habe ich als solche gekennzeichnet. Mir ist bekannt, dass andernfalls der Senat gemäss Artikel 36 Absatz 1 Buchstabe o des Gesetztes vom 5. September 1996 über die Universität zum Entzug des auf Grund dieser Arbeit verliehenen Titels berechtigt ist.

Bern, 15 Juli 2008
Ort/Datum

.....
Unterschrift

9.3 Curriculum Vitae: Daniela Brandt

Contact:

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Education:

1998	University entrance diploma from secondary school Ignaz-Kögler-Gymnasium, Landsberg am Lech
1998 -2004	Studies in Geography, Business Administration and Politics at the Ludwig-Maximilians-University in Munich
05.2004	Diploma in Social Geography, with majors in Business Administration and Politics, at LMU Munich

Master's thesis:
"Firm innovation through cooperation and networking within knowledge-based clusters.
The Munich Biotech Case".

09.2004 - 12.2008	Scientific Assistant and PhD student at the University of Berne; Research Group for Economic Geography and Regional Studies in Berne (Switzerland) (teaching experience)

Work experience:

Full-time traineeships:

06.2000 - 09.2000	Intraplan Consult GmbH (Traffic engineering) in Munich
02.2001 - 04.2001	Viag Interkom in Munich: GIS

Part-time traineeships:

05. 2001 - 10.2001	BT Ignite (British Telekom) in Munich/Department: Transmission (GIS)

Project experience:

03.2006 - 05.2006	"NICE"-Project (Networking ICT Clusters Europe) in collaboration with the BEDA (Business Development Agency Berne)