

# DANISH TELECOMMUNICATIONS POLICY

## CONFLICTING CONSIDERATIONS

by

Anders Henten and Thomas Wulff

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## Introduction

On 30 November 1995 a political agreement was reached by a wide majority in the Danish Parliament to complete a liberalisation of the Danish telecommunications market 18 months ahead of the 1998 European target. A set of telecommunications acts that carry out the political agreement are being passed during the 1996 Spring and Autumn Sessions of the Danish Parliament. In the political agreement it is expected that the liberalisation of the telecommunications market will result in immediate benefits to customers as well as stimulate the development of the Danish telecommunications market. This is seen in the title of the memorandum of the Ministry of Research from July 1995, "Bedst og billigst gennem reel konkurrence" (Best and Cheapest by way of Real Competition).

Telecom reform in Denmark is now therefore moving at a faster pace than that established by the EU for Member States. This marks a significant change from the policy of the 1980's. Then, Denmark was among the more reluctant countries to infringe upon the privileges of the traditional monopoly operator. Its current policy marks a significant change from 1990 when the Government formed the present national operator, Tele Danmark, by a fusion of the four regional monopoly telephone companies and the State-run international operator, instead of allowing these companies to compete in the national market. The aim was to strengthen the position of a Danish operator in both a national and international context and to avoid "destructive rivalry" between the regional operators.

While the policies of 1990 underscored the desire to strengthening the domestic operator in preparation for future international competition, the policies of today give priority to the demand side (best and cheapest). There has been a major change in policy emphasis from an industrial policy orientation to an infrastructure and market development policy orientation giving priority not to the telecommunications sector itself but to telecommunications as an infrastructure for other economic and social activities.

For the dominant national operator, Tele Danmark, this poses a problem. The company was established specifically to become a strong operator, but it is now told it must accommodate new operators. This, of course, resembles the situation in many countries where there is a conflict between wishes to open up the telecommunications market on the one hand and to support the national operator on the other. However in Denmark the paradox of the situation is more acute as it is only 6 years since Tele Danmark was formed.

Today the conflict in political demands is mainly perceived by Tele Danmark, while there is a general political consensus to maximise competition. However, the conflicting political demands on the telecommunications sector may at a future point develop into very disparate views and policies on how the sector should develop.

## **A brief history**

Since 1897, the Danish State has had the sole right to establish telecommunications. In practice, the State granted concessions to regional companies.

Before 1986 the Danish telecommunications sector consisted of three regional companies, covering Zealand, two thirds of Jutland, and Funen respectively. The latter was owned by local municipalities and the two former were limited companies with the State as a majority share-holder. Southern Jutland (the region reunited with Denmark in 1920 after having been part of Germany since the second Danish-German war in 1864) was a State Telephone area, while the General Directorate of P&T handled inter-regional and international traffic.

In 1986-1987 a 100% State-owned limited company, South Jutland Telecom, was formed as the fourth regional operator, and the handling of inter-regional traffic was transferred to the regional companies. This created a situation with four regional operators and the State Telecom Service (handling international traffic and certain services) as five telecommunications companies. Regulatory powers were divided between the Teleinspectorate and the Ministry of Communications' General Directorate of P&T.

In 1990 Tele Danmark was created as a holding company equipped to take over and integrate the four regional telephone companies and the State Telecom Service. This change was completed by the end of 1995.

Also in 1990, the regulatory powers were collected in the newly formed National Telecom Agency with the Ministry of Communications as the policy body. The National Telecom Agency is independent of the operators, including Tele Danmark. The Minister of Research (who today is also responsible for Communication) has delegated most of his administrative responsibilities in the area to the Agency. These include supervision, setting down tariff principles and principles for terms of subscription, licence-issuing and deciding on complaints. However, it has been generally felt that the line between Government and regulator is unclear, and that the Agency must have clearer responsibilities and independence in order to regulate effectively in a competitive market.

Since 1987 a number of areas have been liberalised:

- local cable-TV networks (1987)
- terminal equipment and private in-house networks (1989-90)
- public mobile telephone services (competition law passed and second operator's licence issued 1990-91)
- data transmission - including resale of leased line capacity (1993)
- resale of voice services (1994)
- satellite services and networks for certain internal uses (1995)

In 1994, a new form of tariff regulation was introduced, according to which Tele Danmark's tariffs for basic telephony and leased lines (the two remaining exclusive rights areas) became subject to a price cap of NPI-3 on average and at least NPI-1 for certain important individual tariffs<sup>1</sup>. The price cap was introduced in connection with the floating of Tele Danmark's shares in order to clarify the company's future financial basis for potential investors. After the flotation of shares in 1994 the Danish State owns 51% of Tele Danmark. The remaining 49% are owned mainly by institutional investors.

Until 1 July 1996 Tele Danmark retained its exclusive right to operate and provide fixed network infrastructure for voice telephony and leased lines. This meant that in order to have a fixed telecommunications connection, one had to be a customer of Tele Danmark. Though others could provide services such as carrying voice traffic on lines leased from Tele Danmark, the inability of other operators to provide the direct customer link has had the effect of limiting third-party traffic to a relatively small niche business.

In the mobile area, Tele Danmark has about two thirds of the rapidly growing Danish market. May 1996 penetration figures are estimated at 20% of the population (1 million subscribers). Sonofon (owned by American Bell South, Swedish NordicTel, and the Danish companies Great Nordic and Incentive) has the remaining third. Sonofon was licensed as second operator when GSM was introduced in Denmark, and started operation in 1992.

### **The change in policy**

Early in 1988 the Danish Government and major interest groups negotiated a plan to liberalise all telecommunications terminal equipment gradually from 1988 to 1992. However, after the European Commission passed a Directive on liberalisation of terminal equipment in May 1988, it responded that the Danish plan and a number of other national plans were incompatible with the Directive. After some dispute and a ruling at the European Court it became clear that the Commission's Directives were binding for national governments.

The 1987 Commission Green Paper on telecommunications had been seen as a policy paper to be negotiated among Governments and ultimately lead to nationally approved

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<sup>1</sup> NPI is the Danish retail price index excluding indirect taxes

Council Directives. However in 1989 it became clear the Commission was willing to exercise its right to pass Directives in cases where public companies or companies holding a public concession were maintaining a situation in violation of EU competition rules<sup>2</sup>. The Danish Government could therefore no longer rely on support from some other EU Member States to slow down the process of liberalisation outlined in the Green Paper.

The Danish Government, liberal at the time, was not in principle adverse to competition, but the Danish telecom sector was generally viewed as fully developed and well-functioning. In contrast to most of Europe, Denmark and the other Nordic countries already had universal-service and a modern, reasonably efficient telephone system. The plans for the formation of Tele Danmark generally implied an attempt to defend the Danish telecommunications market from undesirable rivalry among the regional operators and disruptive foreign entry, while at the same time creating a major national player that could compete on the European market. Also, there was an informal understanding that Tele Danmark should use national suppliers for its network infrastructure to a greater extent than had been the case with the regional companies. At the time of the formation of Tele Danmark in 1990, it was envisaged that provision of voice telephony would not be liberalised until the end of the century, and it was not anticipated that there would ever be a need to liberalise infrastructure. In accordance with the common view at the time, telecommunications infrastructure was seen to be a natural monopoly.

Shortly after the formation of Tele Danmark, the policy was modified in favour of an unenthusiastic compliance with EU Commission Directives. Notably the second national mobile operator was licensed in 1992. In 1994 the responsibilities for telecommunications and for the Government's policies on information technology and research were joined in the Ministry of Research, and a new perspective on telecommunications as a basic infrastructure for general societal development of information technology services has paved the way for a more ambitious pro-competition view on the telecommunications sector.

### **The new telecommunications laws**

The set of acts that were passed in the Spring 1996 Session of the Danish Parliament include the following:

- Abolition of the exclusive rights of Tele Danmark to operate and provide fixed network infrastructure for voice telephony and leased lines. The establishment and operation of terrestrial telecommunications infrastructure is now wholly liberalised with the exception of operation of mobile networks on limited frequency bands.
- *Mobile Communications Act* and *Interconnection Act*. These acts concern the licensing of operators (in the mobile area) and questions of interconnection – both between operators and between operator and service providers. It is generally the case that op-

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<sup>2</sup> Cf. the Treaty of Rome, article 90 (3)

erators with significant shares of any given market (i.e., more than 25%) shall grant interconnection at cost-based prices and on terms that are objective, transparent and non-discriminatory. The Mobile Communications Act will form the basis for the forthcoming bidding for DCS 1800 licenses. With regard to analog mobile communications (NMT) and GSM, the existing operators will be licensed.

- *Universal Service Act.* It is set down that Denmark in the future shall have Universal Service regarding telephony, ISDN, leased lines (< 2 Mbit/s), and services for the disabled. The obligation to provide Universal Service will rest on Tele Danmark until 1997 and probably also after that. Under specified circumstances the holder of the Universal Service Obligation shall have deficits incurred in its provision covered by a Universal Service fund. This fund is to be financed by operators proportionately to their market share. It can be expected that Tele Danmark will be the largest contributor to the fund for a number of years.
- *New Boards of Appeal.* Among the provisions in the above acts are parts of a new regulatory structure. Two boards of appeal will be set up – one dealing with consumer matters, the other with matters that arise among operators and/or service providers. Rulings by the National Telecom Agency may be appealed to the relevant board and not to the Ministry. Also the Minister's right to instruct the National Telecom Agency in concrete matters is cut off by giving the National Telecom Agency a mandate directly from Parliament in the acts.

In the Autumn Session of the Danish Parliament, an additional set of acts based on the political agreement is proposed. They include:

- *Extended regulation of competition and interconnection.* This includes setting down guidelines for cost calculation in networks in order to assess interconnection agreements. This regulation is intended to make the Interconnection Act, mentioned above, effective in a competitive market environment.
- *Radio Frequency Regulation,* to introduce objective principles for frequency allocation, assignment and revocation.
- *Numbering Regulation,* to introduce criteria for equal access to numbering resources and number portability.
- *Regulatory Act,* to establish a direct parliamentary mandate to an independent regulator, and to decide relations to the general Competition Council and the Consumer Agency.

Central aspects of the new Danish telecommunications legislation:

- Abolition of the exclusive rights of Tele Danmark
- Universal Service regulation and Consumer Protection provisions
- New competition regulation (principles for interconnection agreements)
- New mobile operators in DCS 1800
- Establishment of independent regulator and separation of telecommunications policy from regulation
- Regulation of scarce resources (frequencies and numbers).

Table 1. The new legislation, an overview

### **Public consultation**

Reactions in Denmark to the new telecommunications legislation are, to a large extent, positive. There is a prevailing agreement that a liberalisation of the provision of telecommunications infrastructure and services is a correct political step, and it includes support from a large majority of political parties.

Industry representatives and interest groups also have expressed satisfaction with the main policy direction taken by Government and Parliament. This applies both to the incumbent operator Tele Danmark, to newer entrants, to associations of equipment manufacturers and telecommunications business users, to the Consumer Council, etc. It also applies to trade unions in general. Notably the trade union of telecommunications employees has accepted the liberalisation of the sector. There is also general agreement about increasing the independence of regulation as is planned for the Autumn Session of Parliament.

There are, of course, areas of contention and divergent interests. This applies, first and foremost, to the question of asymmetric regulation. The Government and the Ministry of Research have largely embraced the principle of asymmetric regulation. Prospective entrants however do not feel that the proposed legislation goes far enough, while Tele Danmark, believes the legislation has gone too far. Even though new entrants normally are champions of deregulation while incumbents normally argue for maintaining regulations, the situation here has been reversed. Tele Danmark now contends that general competition laws in the area of telecommunications are sufficient while new entrants demand strong regulation – of Tele Danmark.

Although it is not surprising that companies defend their economic interests, the self-serving character of the arguments is striking. The debate does not concern the best form of liberalisation programme for market development, but is merely an expression of the narrow economic interests of the major players as illustrated in table 2.

	Tele Danmark	Sonofon	Telia
Telecom regulation	General competition laws	Asymmetric	Asymmetric
Discount prices by Tele Danmark	Allowed	Allowed when cost based	Allowed when cost based
Inter-connection	An obligation for all infrastructure providers	An obligation for all infrastructure providers with market share of more than 25%	An obligation for all infrastructure providers with market shares of more than 25%
Inter-connection prices	Market negotiations: Cost + profit	?	Marginal cost pricing for access
Mobile licences	Assignment on basis of frequency scarcity. Holders of NMT and GSM licences should be allowed to acquire DCS 1800 licences	Assignment on basis of frequency scarcity. Holders of GSM licences should be allowed to acquire DCS 1800 licence. NMT (run only by Tele Danmark) should be phased out quickly.	Assignment on basis of competition prioritisation. New operators should have right of priority
National roaming	No obligation to offer national roaming	No obligation to offer national roaming	Obligation to offer national roaming

Table 2: Positions of telecommunications operators

Table 2 illustrates that Tele Danmark advocates that general competition laws are sufficient, as Tele Danmark has a near de facto monopoly in most areas of both services provision and infrastructure. The second GSM mobile operator, Sonofon, as an incumbent mobile operator agrees with Tele Danmark that operators should not be obliged to offer roaming. The company agrees with the prospective entrant, Telia, that there in general should be an asymmetric regulation giving priority to new operators on the market in order to create real competition. This is also the position of the Danish Government and is a basic principle in the Ministry's memorandum "Bedst og billigst gennem reel konkurrence" (Best and Cheapest by Way of Real Competition) from 1995.

The principle of asymmetric regulation should, according to the new operators, be applied to the right of Tele Danmark to offer discount prices. While Tele Danmark wishes to be able to offer discount prices like other operators, the new operators emphasise the principle of cost-based prices and argue that the application of this principle will prevent Tele Danmark from predatory pricing.

Telia and Sonofon both find that the principle of asymmetric regulation should be applied to interconnection. The companies are very clear that it should however only be the dominant operator (with a market share of more than 25%) that should be required to offer interconnection (as provided for in EU regulation). Furthermore Telia holds that interconnection prices should be based on marginal costing.

While Telia finds that new operators should be given priority when licensing new DCS 1800 operators, Tele Danmark and Sonofon as existing GSM operators hold that a GSM licence should not preclude a DCS 1800 licence and they argue they should be preferred because a combination of GSM and DCS 1800 could optimise total frequency economy.



The difference between the positions of the new operators Sonofon and Telia reflects the fact that Sonofon already holds a GSM licence while Telia is a prospective entrant with big aspirations concerning the Danish telecommunications market.

Apart from points of difference among operators, a number of other questions have been raised in the consultations and public debate concerning the new legislation, e.g., the extent and financing of the Universal Service Obligation and the tariffs for these services, and the question of compatibility with EU regulations since the Danish legislation precedes EU directives on many issues.

The Universal Service Obligation was proposed by the Government to include not only basic telephony and special services for the disabled but also ISDN and leased lines (under 2 Mbit/s). Concerns were expressed by Telia, among others, that the inclusion of ISDN could lead to a situation where Tele Danmark could get this new network service financed by competing operators. Tele Danmark, on the other hand, has been concerned that deficits might arise in particular USO areas, in contrast to the policy of the Government where costs and revenues on the USO will be calculated as a whole before compensatory funding is considered. After the EU Council meeting in Spring 1996 financing of deficits on the USO shall only include telephony and services for disabled in the rest of the EU. The new Danish regulation has been changed accordingly: While the Danish USO continues to include also ISDN and leased lines, the fund shall only cover deficits incurred in the provision of telephony and services for disabled.

Tariff regulation has been the most debated point in Danish news media. The Consumer Council has pointed out that profits of Tele Danmark have grown steeply in recent years and amount to 20-25% of total revenue. The Council has criticised that fixed charges and local call tariffs are high compared to a number of neighbouring countries. As a result the baskets of services that will be regulated by price caps will include a specific residential customer basket giving weight to fixed fees and local tariffs corresponding to actual Danish usage patterns.

Since the legislation in Denmark precedes the European Commission requirement for total liberalisation by 18 months and EU regulation is not entirely finalised, there may be some uncertainty with respect to the stability of the Danish legislation, i.e., whether it will have to be amended after the finalisation of EU regulation. The three most debated areas have been the interconnection obligation (shall it be limited to operators with market shares over 25%), the extent of the Universal Service Obligation, and the independence of regulation. The two first questions are settled in the proposed Spring legislation but all three remain recurring themes in the Danish debate.

## **Dividing lines**

Judging from the media debate and the Government's public consultation on the proposed legislation it appears most interest groups have turned against Tele Danmark. Today, the main division in the area of telecommunications policy runs between Tele

Danmark and everyone else – except possibly for the employees of Tele Danmark and their trade union.

That there is an antagonism among current and potential future competing operators, as was seen in the consultation responses, is quite natural. Furthermore, business users have for the last decade requested a higher degree of competition in the telecommunications sector in order to improve services and cut prices. What is striking today is that Tele Danmark seems to be so isolated and that there is so widespread general agreement to fight the monopolist and establish asymmetric regulation of telecommunications.

What we have here is a conflict of political interests. In 1990 and the years immediately thereafter, the main direction of policy was to strengthen Tele Danmark. Today, the opposite may be said to be the case. Both policies affect Tele Danmark and the whole of the Danish telecommunications market.

While the national telecommunications policy was viewed as an industrial policy in 1990 there has since been a shift to viewing telecommunications policy primarily in terms of infrastructure and network development. Today the general political sentiment is that competition should be maximised and new operators must be provided entry into telecommunications provision in Denmark. The idea is that real competition will bring along improved services and lower prices which will lead to greater welfare and increased efficiency in the whole of society.

Although one position has replaced another, the old one is still alive. In the Ministry there are both national industry policy interests in strengthening Tele Danmark and a newly found aspiration for increasing competition. The result is that the Minister has been attacked from both sides. Competitors, users and industry interests accuse the Ministry of catering too much for the interests of Tele Danmark, while Tele Danmark expresses that the company has been let down.

The company is itself a result of the policy that is now being abandoned shortly after its formation. Tele Danmark considers itself to have kept its obligation under the original deal. Yet, under the new legislation, the company may be required to allow foreign competitors into its markets at less than full cost prices in contradiction to the original prospect of retaining full rights over the use of its network indefinitely and a monopoly on basic services until the turn of the century. For Tele Danmark, the perceived contradiction between the different policy directions all the more acute since the new entrants on the Danish market are not a number of weak, new operators that require special breasting, but rather large operators from other countries: first and foremost Telia from Sweden and Global One representing Deutsche Telekom, France Télécom and Sprint.

It has not helped Tele Danmark that the company at times has behaved like an elephant in a glass store. The company has responded to customer complaints concerning inconceivable telephone bills by stating that its bills are, by definition, correct; and Tele Danmark according to the Consumer Council has followed what it has termed an Uncle Scrooge strategy by resisting rate reductions based on its very large profits in recent

years. When attacked by the Consumer Council for these large profits and presumably too high tariffs, Tele Danmark's blunt answer has been that national tariffs may be lowered when exposed to competition.

When Tele Danmark was created in 1990, the political intention was that it should become a strong Danish operator in the international environment of the upcoming deregulated telecommunication sector. This was expressed as late as in 1994 when Tele Danmark shares were floated on the international markets in 1994, in that the revenue from the sale did not go to the State but to Tele Danmark. This is a major reason for the present wealth of Tele Danmark. It was intended as a fund to strengthen the company against international competition and for entering international markets, and it is now a major backbone in the rather active strategy of Tele Danmark in the international field, expressed in the recent acquisition of 16.5% of Belgacom, in the bidding for Telecom Eireann, and other international ventures.

The present direction of Danish telecom policy was introduced as part of a broader information society vision by the Danish Government in 1994<sup>3</sup>. The coherence of the numerous different, and sometimes conflicting elements of this vision can be questioned. However, the realisation of the vision may depend on the dominant national operator, Tele Danmark, to implement elements of it, even if this runs contrary to traditional competitive market behaviour.

This may be seen as a reason for the Danish State to retain a majority share in Tele Danmark, in order to be able to impose its broader policy objectives. It may not be so at the moment but the situation could occur and may at any rate be seen in this light by potential new entrants and international observers.

There is thus a potential for conflict between the information society vision and the competition policies presently being advanced. While the new policy emphasis on requirements for vigorous competition are shaping the discussions in Danish telecom policies of today, the conflicting interests between vigorous competition policies and information society visions is likely to shape discussions in the telecom landscape of tomorrow.

### **Telecom indicators**

The total size of the telecommunications services market in Denmark is estimated to be about 22 billion DKK (3.9 billion US\$) in 1995 of which Tele Danmark alone covers 18.6 billion DKK. The rest is gained by the second mobile operator Sonofon (0.6 billion DKK), VANS/ VAS operators (estimated at 2 billion DKK), and resellers.

Denmark has one of the world's highest penetrations of telephony, both fixed and mobile as is illustrated in Figure 1. With 61.5 fixed network installations per 100 inhabitants in 1995 Denmark has the fifth highest penetration rate among OECD countries.

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<sup>3</sup> Ministry of Research *Info-Society 2000* Schultz, Copenhagen (1994)

Only Sweden has a markedly higher rate (67.7 in 1994). Mobile service penetration in the Nordic countries has traditionally been the world's highest, and mobile penetration in Denmark is estimated to have reached 20 per 100 inhabitants by May 1996.

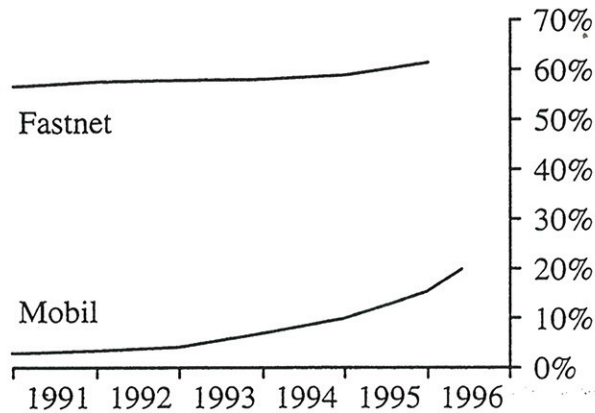


Figure 1. Penetration of direct fixed exchange lines and mobile phones in Denmark, 1990-1995. Sources: Annual reports of the National Telecom Agency, annual report 1995 of Tele Danmark, and Ministry of Research: *IT i tal 1996 1996*

A smaller part of the growth in fixed network connections are ISDN connections. By the end of 1995, there were 13,600 ISDN2 subscribers and almost 500 ISDN30 subscribers, compared to 5,700 ISDN2 subscribers and 160 ISDN30 subscribers at the end of 1994<sup>4</sup>. ISDN has thus “taken off” in 1995, but is still at a relatively low level of penetration compared to the leading countries.

57% of the 2.3 million Danish households are connected to cable TV networks; 705,000 homes subscribe to the cable TV packages of Tele Danmark. 135,000 subscribe to the cable TV operator Stofa which is now owned by Telia, while the rest have organised various local networks<sup>5</sup>.

Denmark has one of the world's highest penetrations of PCs. Approximately half of Danish homes have a PC and 12% have a modem<sup>6</sup>. However, Internet development is slow compared to the other Nordic countries. In January 1996, there was 1 Internet host per 100 inhabitants in Denmark while the figure in the leading country, Finland, was 4.1<sup>7</sup>.

4 Source: Tele Danmark *Årsrapport 1995* (Annual report 1995)

5 Sources: Tele Danmark *Årsrapport 1995* (Annual report 1995), Annual report of Stofa 1995, Foreign and Commonwealth Office and DTI *Sector Report Denmark Telecommunications*, London (1994)

6 Ministry of Research *IT i tal 1996* Schultz, Copenhagen (1996)

7 Communication from OECD

By the end of 1995, 61% of fixed network telephone subscribers were connected to digital exchanges<sup>8</sup>. The fact that the telephone system is well-functioning has been the main reason for not pressing the speed of substitution of analog local exchanges. However, in order to be able to supply new intelligent network services, digitalisation has been speeded up lately and is due to be finalised by the end of 1998, according to Tele Danmark<sup>9</sup>.

Table 3 illustrates the productivity of Tele Danmark as measured in terms of number of fixed lines. As a comparison, it may be mentioned that the Nordic best in 1994 was Finland with 191 main lines per employee, while the Nordic average was 173 main lines per employee.

	1985	1990	1991	1992	1993	1994	1995
main lines per employee	150	164	166	170	183	190	195

Table 3: Number of main lines per employee in Tele Danmark, 1985-1995. Source for the figures until 1994: National Telecom Agency 1985-1995. Source for 1995 figure: Tele Danmark *Årsrapport 1995* (Annual Report 1995).

Telecommunication tariffs in Denmark are, most often, considered to be low. In OECD comparisons, Denmark is among the absolutely cheapest for most services. However, in the Danish public debate OECD comparisons have been put into question. The reason is that fixed tariffs for telephony (installation and subscription) and local telephone tariffs are relatively high in Denmark compared to other countries, and it is being questioned whether the baskets of telephone tariffs composed by OECD duly reflect the weight of these tariffs for residential customers.

	<i>Residential</i>			<i>Business</i>		
	Denmark	OECD average	Ranking (cheapest in OECD)	Denmark	OECD average	Ranking (cheapest in OECD)
1990	214.43	324.40	3	329.97	840.22	2
1991	240.85	344.42	5	356.98	869.18	2
1992	242.37	337.81	5	353.19	831.77	2
1993	244.76	334.67	5	356.66	813.83	2
1994	242.90	333.87	5	353.95	795.63	3

Table 4: Time series of the OECD residential and business telecommunication baskets, 1990-1994. Note: Expenses for 1 year, excluding taxes, in US\$ based on PPP. Source: *Communications Outlook 1995*, OECD, Paris, 1995.

What stands out is that a “rebalancing” of tariffs has been conducted at a relatively early stage in Denmark, namely in the late 1980s and the early 1990s. This rebalancing has meant a relative increase of fixed tariffs in comparison with traffic sensitive tariffs

<sup>8</sup> Tele Danmark *Årsrapport 1995* (Annual report 1995)

<sup>9</sup> Tele Danmark *Årsrapport 1995* (Annual report 1995)

and an increase in local tariffs and a decrease in regional, national, and international tariffs. After the rebalancing the ratio between a local call and a national is down to 1:2. This rebalancing of tariffs may partly explain the very contradictory interpretations of tariff developments.

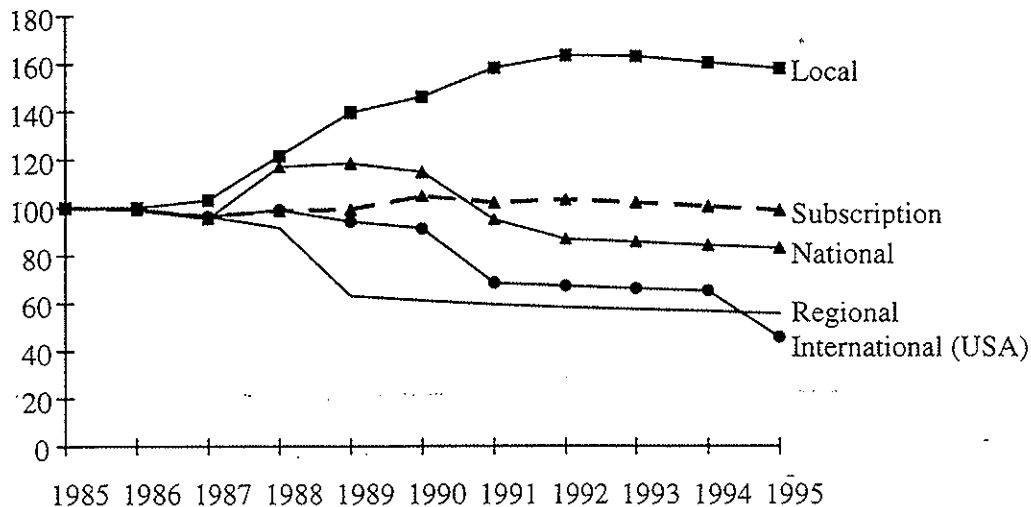


Figure 2. Index of telephone tariffs in Denmark, 1985-1995 (1985=100) (Deflated prices) Note: Installation is not included in the figure because the installation service up until 1988 included a telephone hand-set making comparison impossible. In 1992, the installation tariff fell from 1,700 DKK to 1,550 DKK.

Source: Annual reports of the Danish National Telecom Agency.

## Competition

A breakdown of Tele Danmark's activities may be seen in the following table:

Business area	Share of total revenue
Domestic telephony	39 %
International telephony	16 %
Mobile telephony	9 %
Leased lines	5 %
Business installations	15 %
Service activities	3 %
Data	2 %
Cable TV	2 %
International projects	1 %
Other	8 %
100 %	

Table 5. Tele Danmark's activities in 1995. Source: Tele Danmark Årsrapport (Annual Report) 1995.

Today Tele Danmark's competitors are mainly on mobile services, data traffic, value-added services, cable TV, and customer premise installations.

Customer premise installations have been liberalised since 1990, but Tele Danmark as the network operator retains a significant share. Computer network companies and electrical installation companies are, however, gaining increasing market shares.

Cable TV installations have been partly liberalised for almost a decade and have been fully liberalised recently. Tele Danmark has about half of the market, and other operators, notably Telia-owned Stofa and a large number of independent antennae organisations, share the other half.

Sonofon has roughly one third of the mobile market. Tele Danmark and Sonofon have fought intense price wars to gain new customers for their mobile services. Mobile handsets have been sold at prices down to 1 DKK with a heavy subsidy from the mobile operators and an obligation for the customer to subscribe for a minimum period (subsidies being disguised as provisions for the retailers for selling the accompanying service subscriptions). Penetration may be estimated to be around 20% but the market shows no signs of saturation. Competition is likely to increase when DCS 1800 licenses are issued after a tender. It may be expected that at least one new network operator will be licensed, possibly Telia which has announced great interest in the market. With the new regulation, independent service providers are to be given access to mobile networks at cost-based prices as provided in the interconnect provisions mentioned above.

Already Tele Danmark is experiencing competition for the major business customers. Telia among others operates as an international telecommunications operator, while the Global One consortium carries a significant amount of data traffic. Tele Danmark's recent response to competition on international traffic to USA among others is noticeable in Figure 2.

Tele Danmark as such plays no significant role on the c. DKK 2 billion VANS/VAS market. Business services in the form of EDI are, to a large extent, provided by danNet which is jointly owned by Tele Danmark and IBM Danmark, and there are a couple of other major service providers handling data exchange for public and private customers. Also, a number of small service providers operate from premium rate numbers.

With the liberalisation of Tele Danmark's exclusive right to operate and provide fixed network infrastructure for voice telephony and leased lines, Tele Danmark may in the future experience competition in any of the listed areas.

The possible entry of new operators of basic telephony services could change Tele Danmark's present situation markedly. In the proposed Interconnection Act it is stated that dominant operators shall give access to their networks at cost-based prices.

With network competition, a number of new market actors may appear. Both the Danish State Railways (DSB) and the electrical power companies own fibre-optic cable networks which they may either themselves put into telecommunications operation or lease to others.

### **Domestic strategy of Tele Danmark**

On the *services* side Tele Danmark gives priority to:

- Development of content services taking as a point of departure a segmentation of markets. Already, Tele Danmark has implemented a functional division between the residential and the business markets.
- A more flexible tariff structure.
- New services based on a combination of fixed and mobile networks.
- Development of systems for customer services.
- Exploitation of new possibilities in the multimedia area. Tele Danmark gives priority to establishing itself as an Internet connection and service provider.
- Exploration of possibilities in cable TV networks in relation to services based on a combination of computer/telephony integration and entertainment<sup>10</sup>.

On the *network* side Tele Danmark gives priority to:

- Harmonisation of existing networks. Because of the former regional structure of Danish telecommunications networks are to some extent different in terms of architecture and technology.
- Increased usage of advanced network software, in order to improve operations and services in relation to changes in network structure and error correction.
- Extension of the national ATM (Asynchronous Transfer Mode) network.
- Finalisation of the digitalisation of local telephone exchanges by the end of 1998.
- Usage of the new mobile technologies, DCS 1800 and DECT<sup>11</sup>.

The number of *employees* in Tele Danmark has decreased from 18-19,000 in the late 1980s to 16,500 by the end of 1995 at which figure it seems stable. One reason for the stability is that the company is moving into new business areas, for instance computer retailing and Internet provision. Another reason is that profits of Tele Danmark have been considerable and growing since its establishment, thus the necessity of cutting the number of employees has not been acute. The political situation of Tele Danmark and the additional trouble and expense that internal labour problems would create, in terms of both reduced labour efficiency and public reputation, could be an additional reason.

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10 Tele Danmark *Årsrapport 1995* (Annual report 1995)

11 Tele Danmark *Årsrapport 1995* (Annual report 1995)



A large portion have civil servant-like status and thus a right to 3 years of severance pay plus pension if dismissed.

In summary, the domestic strategy of Tele Danmark is based on incremental rather than radical improvements of networks and services. The company's strategy may be looked upon as somewhat inconclusive, however it may also be considered as a broadly based strategy giving priority to a wide spectrum of activities.

Network operation and basic services constitute a diminishing part of the company's operation. However it is a major source of income for the company, and it also is a key market: if Tele Danmark is able to retain its market on network infrastructure and basic services, it must be expected that the company will also retain a large part of other liberalised markets as long as customers prefer to buy their communications services from a single supplier.

### **International strategy of Tele Danmark**

Internationally Tele Danmark has acquired many international holdings, listed in table 6. It has very ambitious plans, although most of its ambitions have yet to be realised. A foreign revenue share of just 1% is a far cry from the up to 50% which was suggested as a long-term goal a few years ago<sup>12</sup>. In 1995 there was some debate in the Danish news media concerning failures of Tele Danmark on the international scene. The consultancy firm Mercer produced a report concluding that Tele Danmark has the necessary capital but is lacking international experience<sup>13</sup>.

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12 Børsens Nyhedsmagasin 1995 (18)

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Country	Company	Tele Danmark's holding (MDKK)	Tele Danmark's share of venture
<i>Western Europe</i>			
Sweden	Telenordia	80	33%
	Inter Nordia Communications	2	50%
	HD Divine	< 1	10%
	Nordiska Satellitaktiebolaget	5	25%
Norway	Nordic Satellite Distribution	18	33%
Germany	Tele Danmark Internetz	4	100%
	Tele Danmark Tele und Daten	39	100%
	Mini Ruf	28	20%
Netherlands	ADSB Telecommunications	< 1	33%
<i>Eastern Europe</i>			
Poland	Polkomtel	4	19%
	North-South Link	-	25%
Hungary	Pannon GSM	61	19%
	Pannon Distributions	11	100%
	Kelet-Nógrád-Com.	15	20%
	Rába-Com.	12	20%
Ukraine	Ukrainian Mobile Communications	11	16%
Lithuania	Comliet	1	25%
	Mobilios Telekomunikacijos	7	25%
<i>East Asia</i>			
Hong Kong	Honeycomb	-	33%

Table 6. International holdings of Tele Danmark, end of 1995. Note: A number of these ventures are in mobile telephony, but they also cover fixed networks, data communications and satellite TV. Source: Tele Danmark Årsrapport 1995 (Annual Report 1995).

Tele Danmark's part in the Danish Baltic Telecommunications Group (that has built the Vilnius-Kaunas cable in Lithuania), the Danish-Polish Telecommunications Group (that has built the North-South Link in Poland) and the Danish-Russian Telecommunications Group (that has established a link from Denmark to Japan and Korea through Russia) should also be mentioned.

Tele Danmark has in the Spring 1996 acquired 16.5% ownership of the Belgian incumbent Belgacom as a partner in the consortium ADSB Telecommunications (with Ameritech Corporation and Singapore Telecom) that owns almost half of Belgacom.

The international aspirations of Tele Danmark started in Eastern Europe after the break-up of the former Eastern Bloc. Danish telecommunications companies could benefit from a history of operation in Eastern Europe, especially in Russia, plus goodwill and

lack of capital in local companies. Lately, Tele Danmark has also started looking towards Western Europe and to the Far East.

The economic foundation for the international ambitions of Tele Danmark is the large (by Danish standards) capital fund partly acquired in connection with the floating of shares in 1994. Tele Danmark by the end of 1995 had 12.3 billion DKK (2.2 billion US\$) of liquid funds.

In the international alliance game, Tele Danmark has joined up with BT and MCI and the Norwegian operator Telenor and Telecom Finland. In the late 1980s, the Nordic incumbent operators joined together in the VANS operator STS. However, this joint venture withered away and Telia entered an alliance with the PTTs of the Netherlands and Switzerland and Telefónica of Spain. These partners, especially the Dutch and the Swiss, were more in line with the interests of the Swedes. They were active in similar environments - small countries with large transnational companies. Although there was never any great enthusiasm for STS, after its closure, Tele Danmark tried to revitalise collaboration between the Nordic operators but the Swedes rejected it.

In Denmark, the Unisource/Uniworld alliance is represented by Telia which will try to become the second network operator in Denmark. Another powerful international alliance, Global One, between Deutsche Telekom, France Télécom and Sprint is also present in Denmark. For the moment, international alliances seem to be relatively stable and Tele Danmark is clearly in alliance with BT and MCI and with the Norwegian Telenor in the Nordic context. Therefore BT is not itself present in the Danish market, while Tele Danmark and Telenor with BT have formed Telenordia to compete on the Swedish market - as a counterpart to Telia's threat on the Danish market.

Tele Danmark is of course aware that domestic market shares will be lost after July 1996. However, because the enterprise structure in the Danish economy consists of relatively many small and medium sized enterprises, the market is less lucrative for new foreign operators than markets with large transnational firms whose custom may at once provide a large market share. Furthermore, the largest contender in the Danish market, Telia, unlike Tele Danmark is not flush with liquid resources which may cause the company to select a slightly more cautious course than was originally proclaimed.

## **Conclusion**

Telecommunications remains an area with substantial public policy interests in Denmark. The decision to establish Tele Danmark in 1990 was an expression of a wish to preserve a strong Danish player in the upcoming European liberalised telecommunications market, and public policy interests have proceeded to shape the development of the telecom sector. While the establishment of a national champion, and the later liberalisations to accommodate EU-directives and curtail its monopoly power, may be seen as a policy evolution, the significant shift in policy emphasis has created a number of conflicts. These conflicts shape the debates in Danish telecom policies presently. However, in the future another conflict may arise related to the possible utilisation of Tele Dan-

mark as an instrument for a realising the visions in the Danish information society policies.

The State owns a controlling majority of Tele Danmark. Some advocate the selling of state shares in the company and claim that state ownership produces a tendency for the state to give preferential treatment to Tele Danmark. However, the Minister of Research, who is responsible for telecommunications, has stated recently that such a step is not on the agenda. This makes sense if the state control of Tele Danmark is viewed as a means to secure expressed political and social goals such as good universal service and an equal access to societal information.

The theme of policy debates in the Danish telecommunications area may thus change in the coming years from the relative merits of a national champion versus an internal competition policy to the benefits of competition policy versus public policy directed to implementing an information society vision. The new telecom legislation is not likely to resolve this issue, at in any event, Tele Danmark will continue to play a central role as a focal point for public policy development.

As a result, Tele Danmark will also continue to be the object of conflicting interests. The market orientation and the public goals of the information society policies in part point in opposite directions. Both are the result of legitimate political objectives, and will have to be reconciled through realistic and pragmatic policymaking.