

Denmark

1. Country facts

1.1 Political background

The Kingdom of Denmark is a constitutional monarchy and its chief of state is Queen MARGRETHE II. The head of the government is Prime Minister Anders Fogh RASMUSSEN (since November 27, 2001) appointed by the Monarch after the legislative elections in November 2001 in which his party won the most seats. Denmark has a unicameral parliament named Folketing (179 seats, including 2 from Greenland and 2 from the Faeroe Islands); members are elected by popular vote on the basis of proportional representation to serve four year terms.

Metropolitan Denmark is subdivided in 18 administrative divisions among which the Faeroe Islands and Greenland, which are part of the Kingdom of Denmark, and are self-governing overseas administrative divisions and have their own telecommunication companies.

1.2 Demography

- Population is 5,383,876 as of September 2002¹.
- Average population density is 124.4 inhabitants/km²

Denmark benefits from a benign geography and has several densely populated areas that provide an interesting customer basis for the development of infrastructure. Denmark's main urban centers are:

Table 1: Main cities in Denmark

City	Population
Copenhagen greater area	1,081,673
Copenhagen city	499,148
Aarhus	218,380
Odense	114,849
Aarborg	119,996

Source: Danmarks Statistics

¹ Danmarks Statistics

1.3 Telecom consumption habits²

- **Fixed telephony**

Table 2: Telecom consumption habits fixed telephony in Denmark

Fixed voice telephony	End 1998	End 2000	June 2002
Number of subscribers	3,496,000*	3,835,000*	3,909,000
Penetration rate for 100 inhabitants	65.8%*	71.7%*	72.7%
Call minutes per capita	n.d.	2,194.9	2,012.3

* NITA cited in Henten Anders, Center for Tele-information, Technical University of Denmark, 2002

- **Mobile telephony**

Mobile penetration increases rapidly in Denmark amongst others thanks to the very low tariffs for mobile telephony. The penetration rate has inclined from 62% in end-2000 to 77.3 % in mid-2002. The number of mobile subscriptions surpassed the fixed-line subscription in the fall of 2001.

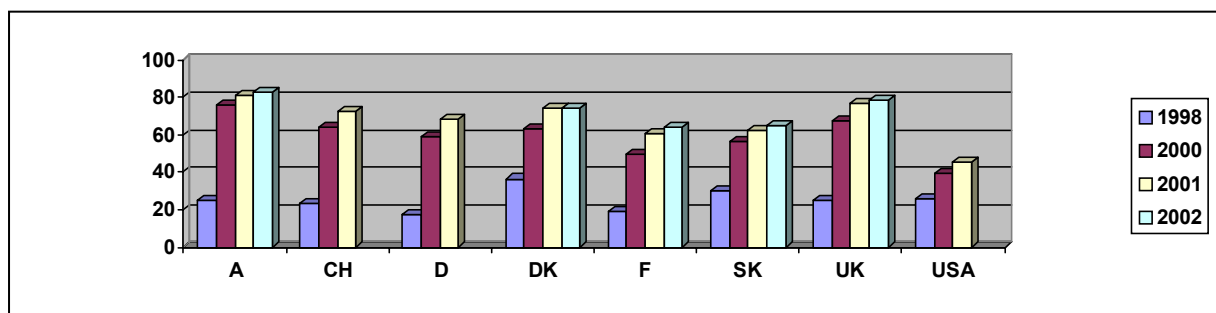
Table 3: Telecom consumption habits mobile telephony in Denmark

Mobile telephony	End 1998	End 2000	June 2002
Number of subscribers	1,931,000*	3,363,000*	4,154,488
Penetration rate %	36.3%*	62.9%*	77.3%
Call minutes per capita	n.d.	222.9	319.3

* NITA cited in Henten Anders, Center for Tele-information, Technical University of Denmark, 2002

In international comparison, Denmark ranks rather high in terms of mobile penetration, as shown in the figure below.

Figure 1: Mobile telephony subscribers per 100 inhabitants, international comparison, source ITU



² Except when specified, all statistics are retrieved from NITA, *Telecom Statistics - first half-year of 2002* and *Status 2000-Status report National Telecom Agency, December 2000*

- **Internet**

Denmark is positioned high in international comparison regarding to Internet consumption and ADSL penetration rates. The Danish government actively supports the roll-out of the ADSL technology within the country, and has set up a campaign to promote its use by the population.

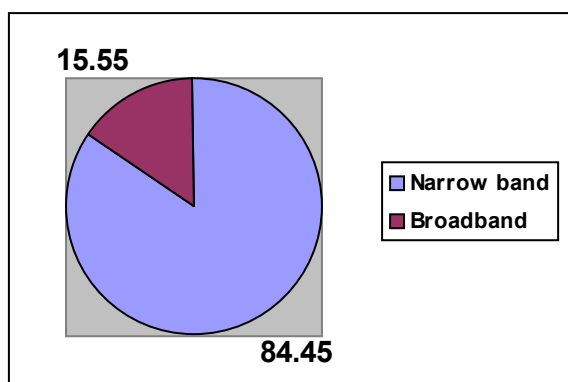
Table 4: Telecom consumption habits Internet in Denmark

Internet	June 1998	End 2000	June 2002
Penetration rate PC/ 100 inhabitants	27.91%*	33.61%*	66.6% (households)
Internet users ¹	800,000	1,684,000	2,282,470
Internet users per 100 inhabitants**	22.64%	46.9%	60.4%
Internet subscriptions per 100 inhabitants of which	n.d.	31.5%	42.5%
Narrow band***	n.d.	n.d.	84.45%
ADSL	n.d.	n.d.	10.2%
Cable Modem	n.d.	n.d.	5.35%
Subscription to ADSL per 100 inhabitants	n.d.	n.d.	4.32%
Subscription to cable modem per 100 inhabitants	n.d.	n.d.	2.26%
Surfing time per month/capita in hours	n.d.	n.d.	5.41***

*ITU , ** NielsenNetratings.com*** Including regular modem connection, ISDN and also FWA*

¹ In Denmark, the number of Internet users is not the number of people who use Internet at home, at the office, in schools or elsewhere determined by a sample survey. The Danes use the number of Internet subscriptions as indicator for Internet penetration in the country.

Figure 2: Narrow band and broadband penetration mid 2002 (% Internet subscriptions) in Denmark



Source: ITU

2. Brief telecom history

2.1 Historical background and liberalization process

The Danish liberalization process began in 1986, when Denmark parted from the traditional European PTT structure and established an Office of Telecommunications in the Ministry of Public Works. In 1986, there were four regional operators KTAS, Jydsk Telefon, Fyns Telefon, Tele Sønderjylland (founded in 1986) and the Telecom (also founded in 1986) for international telephony.

On November 14, 1990, the Danish Parliament passed the act which today forms the basis of a national telco in Denmark. The company was named Tele Danmark and was founded as a mother company to the old regional telcos and Telecom. The purpose was to create a Danish telco capable of facing competition in an open international telecom market.

In 1992, Denmark introduced competition in the cellular market by granting a GSM 900 license to a private operator, Sonofon. In March 1997, four companies were granted licenses to operate DCS (GSM-1800) services (Telia, Sonofon, Tele Danmark and Mobilix/Orange).

In April 1994, Tele Danmark was partially privatized and yielded DKK 18.5billion (2.49 billion €)³ from its first share issue (49% of shares). Among others, 40,000 Danish investors bought shares in the company. The Danish State kept 51%.

In May 1997, the parliament passed legislation which made Denmark a compliant with the EU Resolution on Liberalization of the Telecommunications Sectors (No. 93/C 213 of 07/22/93). On October 27, 1997, a strategic partnership was entered by Ameritech and TDC and in January 1998, Ameritech acquired 34.4 percent of the capital stock of TDC from the Danish State. Further, at the Extraordinary General Meeting held on January 19, 1998, TDC decided to buy back the Danish State's remaining shares. As a result hereof Ameritech increased its stake in TDC to 41.58 percent and at the same time TDC became a 100 percent privately owned company. In October 1999, Ameritech merged with SBC and as a consequence SBC now owns 41.58 percent of TDC. TDC is traded at the stock exchanges in New York (NYSE), London (SEAQ) and Copenhagen.

In June 1998, the Danish parliament passed final liberalization legislation, which provides access on equal terms to the fixed-line net. This legislation, and the sale of the government's shares in Tele Danmark a few months earlier, completed the liberalization and privatization process of the Danish telecommunications sector.

2.2 Incumbent operator

In 2000, Tele Danmark A/S changed its name to TDC. SBC-Ameritech owns 42.6 % of TDC and the rest is owned by TDC itself, floating on the Copenhagen and New York stock

³ International online Currency converter www.oanda.com. Interbank exchange rate DKK - € (21.01.03):
1€ = 7.43 DKK

exchanges. TDC is thus one of the rare totally privatized incumbents together with the incumbents of Spain, the UK, Canada, New Zealand and a whole range of Latin American countries.

TDC is divided into seven independent business units: TDC Tele Danmark, TDC Mobile International, TDC Internet⁴, TDC Cable TV, TDC Directories, TDC Services and TDC Switzerland. They separate legal entities and responsible for their own product area. TDC is active in Denmark, Switzerland, Belgium, Lithuania, Norway, Poland, Sweden, The Czech Republic, Germany, The Ukraine, Hungary and Austria.

As the incumbent, TDC Tele Danmark still benefits from its advantages in terms of infrastructure, customer implantation and reputation in Denmark. It is leader in every market, in spite of early and intensive market liberalization. Moreover, TDC seems to be making profit in other countries, especially in Switzerland where high prices to end-users allow the company to make interesting margins. TDC has recently announced its profits for 3Q and upgrades its expectations for the upcoming year. Unlike most operators in Europe, TDC has no debt burden.

Despite the fact that it has less than 50% of the share capital, SBC-Ameritech has a de-facto control over TDC Tele Danmark, commanding the majority of its Board of Directors.

Table 5: Tele Danmark Profile

Name	TDC Tele Danmark⁵		
Services	Full service: Fixed, mobile and Internet		
Date of entry	1990 as Tele Danmark, mother company of several regional telcos and the national telco named Telecom		
Ownership %	42% SBC-Ameritech, 56% Tele Danmark and free float		
Market shares 2002	Subscribers	Call minutes	Revenues
Fixed lines			
Subscriber lines	86%		
Domestic traffic		65%	n.d.
International traffic		53%	n.d.
Mobile	40%	37%	40%
Internet			
Dial-up	34%	n.d.	n.d.
DSL	79%	N/A	n.d.

2.3 Main competing operators

For a small country like Denmark, there are quite a few operators who have succeeded in conquering, what in international comparison has to be called, interesting market shares.

⁴ TDC Internet merged with TDC Tele Danmark on January 1, 2003.

⁵ Below TDC Tele Danmark will be referred to as TDC.

There is no legal obligation for telcos to register with NITA⁶ so it is very difficult to make an estimation of the exact number of telcos operating in Denmark.

- In the fixed voice telephony market, TDC still has a quasi-monopoly in the subscriber lines market (86% of the subscribers) but as far as traffic is concerned, TDC's competitors have gained important markets i.e. through intensive use of carrier selection codes. Competitors operate 35% of domestic traffic (there is no difference between local calls and long-distance calls) and 47% of international traffic. Tele2 is the leading competitor for fixed telephony in Denmark, followed by Debitel, Telia, Orange and Sonofon. The number of telcos is currently decreasing as fixed net operations have apparently not proven to be sufficiently interesting for market entrants. Both Orange and Telia have recently announced that they might stop their fixed net services.
- In the mobile market, there are 6 operators, the market leader being TDC with 40% of subscribers. It is followed by Sonofon owned by the Norwegian incumbent and BellSouth with 24%. Orange (France Telecom) and Telia, a subsidiary of the national Swedish telephone company, have also made inroads with 14% and 10% respectively. Debitel and Telmore (both MVNOs) share the remaining 12%.
- The Internet business segment is dominated by 5 main players: TDC, Tiscali, Cybercity (Debitel), Tele2 and Orange. Among these TDC, Tiscali, Orange and Cybercity offer ADSL services. The Internet market is quite competitive and although TDC is still dominant, its market share is only 34% for dial-up Internet. The development of ADSL shows another tendency though, in which TDC regains market shares very rapidly. In January 2001, CyberCity counted among its customers approx. one third of all ADSL subscribers in Denmark, and its competitors TDC and Tiscali had equal market shares. These figures have dramatically changed over the year, as TDC's market share has risen to 79 % in mid-June 2002. The Danish regulator made investigations in order to know whether TDC observed the rule of non-discrimination for the provision of pre-products to its competitors.

⁶ This legal flexibility is currently being discussed as operators militate in favor of compulsory registration.

Table 6: Main competing operators of the Danish telecommunications market

Name	Ownership	Nation wide market share		
		Subscribers	Dom. traffic	Int. traffic
Fixed telephony				
<i>Tele2Denmark</i>	100% Tele2 Sweden	3.36%	12%	11%
<i>Debitel A/S</i>	78% Debitel AG (Swisscom) 22% Investors	2.94%	n.d.	n.d.
<i>Telia</i>	100% Telia Sweden	2.38%	5%	7%
<i>Orange</i>	54 % France Telecom 14 % Danish Railways 32 % Investors	1.68%	3%	n.d.
<i>Sonofon</i>	56.5 % Telenor 46.5 % Bellsouth	1.4%	2%	3%
Mobile telephony				
<i>Sonofon</i>	56.5 % Telenor 46.5 % Bellsouth	24%	31.4%	N/A
<i>Orange</i>	54 % France Telecom 14 % Danish Railways 32 % Investors	14%	12.2%	N/A
<i>Telia</i>	100% Telia Sweden	10%	5.9%	N/A
<i>Debitel GSM (MVNO)</i>	100% Debitel GmbH, 94% owned by Swisscom	6%	4.4%	N/A
Internet				
<i>Tiscali</i>	100% Tiscali international	25%	n.d.	N/A
<i>Tele 2</i>	100% Tele2 Sweden	19%	n.d.	N/A
<i>Orange</i>	54 % France Telecom 14 % Danish Railways 32 % Investors	7%	n.d.	N/A
<i>Telia</i>	100% Telia Sweden	7%	n.d.	N/A
<i>Cybercity</i>	Consortium of private investors	6%	n.d.	N/A

Sources: NITA, *Telecom Statistics - first half-year of 2002 and Status 2000-Status report National Telecom Agency, December 2000*

3. Legal framework

3.1 EU directives

As a member of the European Union, Denmark complies with European law and is currently in the process of transposing the new European regulatory package into the Danish telecommunication law. In many regards, Denmark is ahead of European requirements and can thus limit the number of changes to a minimum amount. Most important changes will occur in the field of the market analysis and determination of market players with significant market power (SMP).

3.2 General national framework for telecommunications

The Danish telecommunication legal framework is based on so-called Agreements in Principle on Telecommunications Policy Aims adopted by the Ministry in charge and a majority of political parties. These Agreements in principle outline the main policy objective for the upcoming years and have to be translated into national law by the means of Acts and Executive Ordinances. They can also be completed with special political agreements on specific topics such as frequency policy.

The first agreement was based on the concept of ensuring 'Danish users the best and cheapest telecommunications services by the year 2000' and is dated 1995. The agreement established real competition in order to achieve the political goal of 'best and cheapest'. Based on this agreement, the government established a framework on how to implement total liberalization, which would come into force on July 1, 1996. Another legislative package including the Act on the National Telecom Agency was implemented with effect in July 1, 1997. As a result, Denmark was ahead of the EU in terms of liberalization, which set the date for total liberalization on January 1, 1998.

An assessment of the results obtained with the 1995 legislative package was initiated by the Ministry of Science, Technology and Innovation in 1999 under the title: 'Fair Competition and Real Freedom of Choice' and led to the revision of the telecommunications framework in the year 1999. The second layer of political objectives was laid in the Agreements in principle in September 1999 entitled 'The Danes admission ticket to the Network Society'. This framework agreement maintains the idea of best and cheapest services but its focus is on the development and innovation of telecommunications infrastructure. One of the leading leitmotiv of the new agreement is the idea of 'several channels to the home', meaning that structural competition can only be ensured when there are several ways to access the end-user (or the other way round, that the customers have several technical options to get their telecommunications services) without depending on the incumbent's infrastructure. Among these 'channels', the Danish regulator sees

- Local loop unbundling-raw copper (ADSL)
- Fixed wireless access
- Satellite access
- Power line access
- Optical fiber
- CATV networks
- 2nd and 3rd generation mobile

Recently, the government has shifted its strategy from the promotion of infrastructure to the stimulation of the demand side of the broadband technology in its report entitled 'From Hardware to Content- Strategy for Fast, Cheap and Secure Internet to all of Denmark'. Indeed, having realized that the availability of broadband Internet exceeded the demand by far, the government started to promote the advantages of broadband to the large public and also supported initiatives on Danish language websites development.

The next amendment to the national telecommunications law will be focused on the transposition of European law, but to a much tighter extent than most other European countries that have initiated the entire revision of their Telecommunications law. In many regards, Danish law is indeed ahead of the European Directives, in particular in the field of ULL and competition regulation. Public consultation on a drafted bill ended in November 2002 and will be submitted to Parliament in the spring so that the legislation can be adopted in July 2003 as requested.

The implementation of market analysis is the major challenge for the Danish regulatory system, as the number of markets to consider increases to 18, as recommended by the European Commission. Of course, the Commission gives guidelines as to which markets deserve special attention and does not oblige member states to take all of them into consideration. Nevertheless, the Danish believe that it will represent a consequent workload. In October 2002, the Danish had not started the market analysis yet and it was not decided either which institution would have to do it.

The National Telecommunications Law in Denmark is the

- Act on Competitive Conditions and Consumer Interests in the Telecommunications Market (National Telecommunications Law 2000)

replacing the

- Act on Certain Conditions in the Telecommunications Field (National Telecommunications Law 1995) based on the Political Agreement of December 6, 1995 on the liberalization of the telecommunications sector in Denmark.

Table 7: Content of the Danish Telecommunications Law 2000

<p>General provisions</p>	<ul style="list-style-type: none"> • Promote the establishment of a well-working competitive telecommunications market that enables the user to: Freely choose its operator, to communicate with other users irrespective of their operator, to freely compose usage of their telecom services, to retain their numbers irrespective of their operators or telecom service. • To ensure all users who wish so access to a number of basic USO services on reasonable terms and at affordable prices. • To ensure a number of basic user rights to end-users in connection
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	with agreements on delivery of telecommunications networks or telecommunications services.
Universal service	The appointed USO provider has the obligation to provide USO services as defined by the Ministry and below the maximum prices set by the National Telecom Agency as well as to provide these services free of charge under certain circumstances. Appointment of the USO provider is done by the National Telecom Agency following rules laid down by the Ministry.
Rates regulation	Rates regulation applies to operators with SMP, who are required to receive approval from NITA or the Competition Authority prior to the introduction of new tariffs on the end-user market. NITA does not set price-caps for services other than those falling under USO.
IC regulation	The Danes have introduced the LRAIC cost model in 2002 and have recalculated interconnection rates following this new method. For the determination of interconnection charges, primacy is left to negotiation between operators but the NITA can be asked to statue upon request by a telecom operator.

4. Key regulation actors

4.1 NRA

The Act on the National Telecom Agency defines the institutional profile, the responsibilities and functions of the National Telecom Agency as well as its reporting obligations and relations with other bodies involved in telecom regulation. The Danish NRA is a governmental institution under the Ministry of Science, Technology and Innovation. The NTA is goal-oriented and the Agency has a 4-year performance contract with the Ministry. The overall strategy for the National Telecom Agency's activities is discussed annually between the Agency and the Ministry.

The actual NRA, the National IT and Telecom Agency (NITA) was founded in April 2002 as a merger of the State Information Service and the former regulatory agency, the National Telecom Agency NTA⁷. The NITA acts as an advisor to the Ministry. As such, it reports to the Ministry each year its annual status report that was delivered for the first time in 1998. The Status Report covers NITA's activities for the past year and, based on the experience gained during the year, contains possible recommendations for the amendments or extensions of the legislation on telecommunication. The annual status report contains a description of activities in key areas which contribute especially to realizing the telecommunications policy's objectives defined by the Ministry. The annual Status Report is presented and discussed with representatives of telecom users, companies and other relevant organizations.

The activities of the NITA are the following:

⁷ This was a decision of the new government to combine two organizations with partly overlapping competencies and also put together IT regulation and Telecom regulation in order to have a better overview of the whole sector.

General activities

- Supervision of telecommunications services and networks.
- Assisting the Minister in preparation of new regulations concerning the telecommunications sector.
- Providing advice to users of telecommunications and companies.
- Collection of fees.
- Acting as first instance body in appeal cases.
- Reporting annually to the Ministry of Science, Technology and Innovation.
- Advising the Ministry on any need to amend or extend existing legislation for the telecommunications sector, based on the commercial, structural or technological development of the telecommunications market etc.
- Collect and publish statistics on various matters within the telecommunications sector deemed to be necessary for a well-functioning competitive market.
- Cooperate with international organizations and other administrations in the field of telecommunications.

Specific supervisory activities

Interconnection and promotion of competition:

- Supervision of interconnection agreements.
- Settlement of disputes arising from interconnection agreements.
- Accounting supervision.
- Issuing of licenses for the establishment and operation of mobile communication networks, for the provision of associated basic services and for the use of frequencies.
- Administration of matters concerning regulation.
- Permission to lay down cables for telecommunications purposes.

User relations:

- Specifications of USO terms, appointment of USO providers, calculation of any loss in providing USO services, price regulation of USO services, approval of subscriber terms and conditions.
- Secretarial assistance to the Service 900 Board.
- Specification and approval in the radio and telecommunications field.
- Inspection and control in relation to interference.
- Market control.
- Approval of equipment.

Frequencies and numbering:

- Management of the frequency spectrum.
- Allocation and assignment of frequencies.
- Administration and assignment of numbers, addresses and number series.

The activities of the NITA are quite clear-cut especially with regards to collaboration with other organizations such as the Competition Authority. A few gray areas remain regarding the

list of tasks that came along with the merger of the NTA and the State Information Service in April 2002.

- **Decision-making**

Decisions are made independently from the Ministry. Any decision can be overruled by the Telecommunications Boards, regular courts, and also the Ministry in case administrative procedures were disrespected. According to the NITA, the number of decisions being appealed is rather low.

- **Staff and budget**

In October 2002, the NITA had 229⁸ members of qualified staff and trainees. Educational backgrounds are law, political science, journalism and engineers of which many come from the former Post and Telegraph Agency and can have up to 40 years of service with the Agency. It is a good period for the NITA to recruit personnel as there are many well-trained engineers on the market due to massive layoffs by telcos. Average service time used to be 2.5 years, but this figure has been increasing over the years, maybe parallel to the interest of the work and also, because applicants tend to be more experienced and willing to stay in the public service than before.

NITA's budget is mainly financed through the perception of fees. The 2003 budget estimation foresees a contribution of 21.78 million € (62%) for numbering and frequencies fees and 7.56 million € (23%) for various services (online library, portals for other governments). Unlike the old NTA, that had to have an even balance between expenditures and income, the new NITA also receives a 3.88 million € (11%) contribution from the Danish government. Another 4% come from administrative fees. The total budget for 2003 is 35.13 million €.

4.2 Ministry

The Ministry of Science, Technology and Innovation is in charge of the:

- Preparation of the governmental telecommunications policy at national and international level.
- Preparation of the public telecom legislation, including price regulation.
- Deciding on universal services obligations.
- Regulation of radio frequencies and numbering.
- Regulation of competition and price issues.
- Supervision of the NITA.
- Secretarial assistance to the Telecommunications Boards and the National Telecommunications Council.

The Ministry and the NITA are not structurally separate, as the NITA is a government agency supervised by the Ministry. Collaboration between the two institutions is rather strong, which could lead to think that there is political interference within the regulators work. However, as the Danish government is no longer owner of the incumbent operator, tight collaboration or

⁸ UE, 8th Implementation report, Case of Denmark

even interference have not the same consequences as in other countries in which the Ministry has an interest in the economic results of the incumbent.

Each year, the Ministry presents an IT and Telecommunications policy report to the Danish parliament (the Folketing) in which it examines how the market and competitive situation in the telecom sector have actually developed and gives the status of interconnection regulation etc. in the sector⁹.

The 2002 version focuses on the need to consolidate ongoing policies focused on the development and improvement of IT hardware throughout Denmark. However, at the same time, it recommends a shift of focus towards the actual, value-added, and new technologies among which Internet is perceived as a major challenge for the Danish population. In its report, the Ministry sets out its policy objectives for the upcoming year:

- Continue to improve the quality and quantity of hardware.
- Continue to encourage fall of prices.
- Provide information to the Danes about quality and tariffs of telecommunication services.
- Strengthen the use of IT among the Danish population.
- Anchor the IT use in the Danish education system.
- Increase confidence in Internet services.
- Ensure relevant information to the Danish, especially in Danish language.
- Improve security of the Internet, for both companies and individual customers.

4.3 Competition Authority

The Danish Competition Authority (*Konkurrencestyrelsen*) is an independent body under the Ministry of Economic and Business Affairs. It is the secretariat of the Competition Council and the Danish Energy Regulatory Authority. The Danish Competition Act rules all issues and decisions regarding competition in Denmark. The Competition Council is the decision-maker, consists of 18 members and a chairman, meets once a month. It decides on major cases and test cases on the basis of submission made by the Competition Authority.

Danish law states that any matter regarding competition regulation shall be dealt with by the Competition Authority and not by a sector-specific regulator. As a result, telecommunication issues that have a direct influence on competition (i.e. interconnection prices) have to be approved by the Danish Competition Authority.

Nevertheless, there is a distinction between the General Competition Law that constitutes the legal base for the Competition Authority and telecom specific competition law. Telecom specific competition law is contained in the Act on Competitive Conditions and Consumer Interests in the Telecommunication Market.

⁹ Ministry for Science, Technology and Innovation, Government's IT and Telecommunications Policy statement and IT action Plan: *IT for All - Denmark's Future* and its Annex *Denmark's IT Status, 2002*.

Cooperation between the NITA and the Competition Authority is based on the rules of telecommunication legislation under which binding opinions may be requested from the Competition Authority/ Competition Council. These binding opinions are requested on:

- Interconnection agreements submitted by the NITA.
- The Universal Service Obligation (USO) and the proposed maximum prices as submitted by TDC, the USO provider.
- Accounting supervision (e.g. in relation to cross-subsidization).

As for mergers, in principle, it is the Competition Authority that decides without consulting the NITA but there have not been any mergers yet in the telecom sector that fall under Danish law as the amounts of the mergers have been either too low (below 511 million € - no regulation required) or too high (5.38 billion € - falls under European law). If it happens, the NITA would certainly be consulted on this matter.

As far as collaboration between the two institutions is concerned, experience has shown that complaints relating to competitive conditions in the telecommunications field will often be addressed both to the NITA and to the Competition Authority. Both institutions aim at enhancing coordination to avoid this situation. Recently, the one-shop principle has been applied to make sure that telecommunication service operators or users have one single interlocutor, the NITA. With regards telecom to specific competition issues, the Competition Authority gives binding statements with a feedback from the NITA. If the case only falls under the General Competition Law, complaints will be sent directly to the Competition Authority. Some large cases revealed that it is impossible to make a clear distinction between what relates to the General Competition Law and Telecom specific Competition law.

Efforts are being made to ensure mutual information about:

- decisions that could be of mutual interest;
- agreements in the telecommunications area bearing on competition law;
- EU cases that are of mutual interest¹⁰.

The appealing of decisions falls under different regimes: They can be appealed against at the Telecom Complaints Board if they fall under specific sector law or at the Competition Appeals Body and later to the ordinary courts if related to general competition law. Both institutions work at the same time and will issue a decision after several months. The period of time can be a problem; indeed the maximum of 6 months is a long period in the telecom sector.

The new EU regulatory package questions the competition control system as it fosters a roll-back of ex ante regulation in favor of the competition authority. In Denmark, respective competencies are currently being discussed, and the Competition Authority believes that it is competent enough to overtake some of the regulators tasks, such as market analysis.

Indeed, the Danish Competition Authority considers having enough technical expertise to fulfill its function and believes that their general knowledge is sufficient as most matters are

¹⁰ NITA, Contribution to the Commission's hearing on the 8th Implementation Report, September 2002

transversal. In its opinion, there are no reasons why the telecom sector should be considered so different from other sectors and have its own specific regulation. The Competition Authority believes that Denmark has reached a point where competition is mature and the sector is starting to resemble any other sector where there are natural monopolies. According to the Competition Authority, the main difference between General Competition Law and sector specific regulation law is the ex ante and ex post aspect of regulation. But, as the Competition Authority recently went over from a punitive to a prohibitive regime, ex ante rules are now also applicable in General Competition Law. Prohibition rules are comparable to ex ante regulation in the sense that they are precisely fixed before any complaints occur and operators are obliged to comply (example, when Sonofon and TDC set prices for service providers, they have to submit them to the Competition Authority before they are applicable).

Up to a certain extent, the Competition Authority is thus convinced that the present situation in Denmark allows a shift of powers from the sector regulator to the General Competition Authority.

4.4 Dispute resolution and appeals

The Danish dispute resolution mechanism has become famous by its apparent ability to reach consensual agreements in very little time. At first, parties must negotiate. If they do not achieve an agreement within a period of 3 months, the case can be brought before the NITA, which takes up negotiations for the purpose of conciliation. The mediation period may not be extended to more than six months in total and cannot be shortened to less than a month. If the arbitration has not led to an agreement, one or more of the parties may ask for a decision by the NITA.

Any decision made by the NITA can be appealed. Cases have to be brought to the Secretariat of The Telecommunications Complaint Board & the Telecommunications Consumer Board who prepares the cases for these two different Boards. The secretariat is currently composed of 9 persons (started of with 3 and had 11 at climax) with legal background and the two boards are each composed of 7 experts appointed by the Minister. These experts have very different backgrounds; they can be engineers, lawyers, economists, politicians, or academics. The fact that the people of the secretariat do not have any technical background is slightly hindering and there have been discussions as to whether support from a telecom consulting company is necessary.

The whole appeal system was founded in 1996 and is financed through the industry by the means of numbering fees. The secretariat presents an annual budget to the NITA and receives the requested sum. Until now, the secretariat and the boards have never exceeded their annual budget.

The TC Complaints Board and TC Consumer Board were set up after the model of similar institutions existing in other industry sectors such as banking, insurance or real estate. It can be considered as a typical Danish solution that seems to have proven its relevance in the past.

The two appeal bodies are:

- **The Telecommunications Complaints Board**

This is an independent body in charge of dealing with complaints from operators about decisions made by the NITA:

- Decisions concerning competitive conditions and interconnection in the telecommunications sector.
- The assignment and use of numbers resources and frequencies.
- Some decisions concerning the mobile area (Section 16 of Act no. 468 of 12 June 1996 on Public Mobile Communications amended by Act no. 396 of 10 June 1997).
- Complaints about the case administration of the NITA, in matters concerning the appointment of USO providers, the laying down of terms and the fixing of maximum prices.

The TC Complaints Board is the first appeal body for telecommunications operators and services providers. It was constituted at the same time as liberalization became effective in Denmark, and has had an average of less than 10 cases a year since its foundation. Complaints always involve TDC and other companies who contest TDC's monopolistic heritage.

As far as the TC Complaints Board is concerned, cases are dealt with in 3 to 6 months and experience has shown that at least 25% of NITA's decisions are overruled by the TC Complaints Board. As one can expect, this has often led to tensions between the Board and the NITA.

The fee for submitting a case to the TC Complaints Board is very low: 4,000 DKK (approx. 540 €) which encourages companies to appeal when they believe to profit from them. Despite that, the number of appeals remains relatively low which, according to the secretariat and the NITA, is a proof that NITA's decisions are generally well accepted.

The TC Complaints Board decisions can be overruled by a court, but this does not seem to be a popular undertaking in the Danish TC industry; indeed, so far only one decision has been appealed in court. It resulted in the court ordering the TC Complaints Board to make a new decision, but the case had lasted for 2 years and in the meantime, the market had changed dramatically, making any new decision obsolete.

- **The Telecommunications Consumer Board**

This is an independent body in charge of dealing with complaints about NITA's first-instance decisions in all individual cases concerning the USO provider observance of existing terms and observance of sector-specific consumer protection rules regarding all providers of networks and services.

The decisions taken by the Telecommunications Consumer Board can not be brought before other administration authorities. So far, only 10% of NITA's first-instance decisions have been overruled by the TC Consumer Board. A large majority of the cases have to do with bills, whatever the amount of the bills is. Bringing a case before the Telecommunications Consumer Board is cheap, end-users only pay an administrative fee of 20 €. Decisions are supposed to take 3 months according to the Executive Order but can need a little more time (approx. 6 months) when there is a high number of cases.

It is possible that in the near future, the industry creates its own appeal board for consumers, in which case the Telecommunications Consumer Board such as it is now would no longer exist. This internalization is expected to lead to fewer complaints as telcos have no interest in dealing with many cases. At the same time, fears exist around the quality and user-friendliness of such a board, although the board would work together with the General National Consumers Board. It also seems that recent changes in legislation have created some uncertainty for customers who now have greater difficulty in finding out where they should address their complaints.

4.5 Owner of incumbent operator

Unlike many other European and industrialized countries, the Danish State is no longer a shareholder of the former state monopoly, which is owned by the American Company SBC, Tele Danmark and private investors. As a result, there are no such problems as governmental protectionism of the incumbent. At the same time, as several Danish telecom specialists put it, TDC Holding is internationally owned and active, and its focus lies thus very little on the Danish market alone. Good acceptance of regulatory intervention and the comparatively consensual character of Danish telecommunications regulation are often named as results of TDC's international profile. Of course, that does not mean that TDC does not take advantage from its former position as a state monopoly; just not with the same intensity as other, more protected incumbent operators.

4.6 Competing operators

A majority of the telecom operators active in Denmark are members of a professional association called Telecom Industry in Denmark. It is not like, as in most other countries, this association was founded explicitly against the incumbent; in Denmark TDC is part of it. The association represents the industry in discussions with the NITA or the Ministry but most of the time, competing operators act on their own to defend their interests. Indeed, given the advanced stage of competition in Denmark, it happens only rarely that operators reach a common point of view on regulation issues. Most companies defend their own business strategies independently from other companies and their only concern is not, as in many other countries, to offset the advantages of the incumbent.

5. Regulatory functions

5.1 Allocation of scarce resources

5.1.1 Frequencies

The NITA is the body in charge of frequency management and the control of the use of frequencies. Among NITA's tasks we can find:

- Developing plans for the use of the radio frequency spectrum.
- Developing and carrying out of a number of frequency administrative methods addressing various degrees and forms of frequency scarcity.
- Taking the necessary initiatives for solving acute frequency scarcity problems.
- Issuing frequency licenses.
- Specification and approval of equipment.
- General aspects of radio-communications technology.
- Co-ordination of the Danish use of frequencies in relation to other countries.
- Inspection and control of interference.
- Market control under the Radio Communication and EMC Act and the Satellite Earth Station Equipment and Telecommunications Terminal Equipment Act.

The Danish national frequency plan was published on January 1, 2001 and consists of a frequency strategy and a table of frequency allocation. It is available on NITA's website. There is no reported frequency scarcity in Denmark so far. Frequencies are delivered according to three modalities:

1. First come, first serve.
2. Beauty contest: Since the year 2000, there have been 3 beauty contests granting 4 licenses for 2G operators, 2 licenses for TETRA purposes and 7 licenses to operate FWA.
3. Auctioning: For instance for 3G licenses.

5.1.2 Rights-of-way

There are no major problems regarding rights-of-way except the sometimes tiresome procedures for operators to obtain authorizations. The NITA has planned to facilitate the situation by offering guidance to the operators on the relevant legislation and organizations in the country, and by informing local authorities about the need for mobile operators to set up masts and antennas.

5.2 Enhancing competition

5.2.1 Licensing

Denmark's licensing regime is extremely liberal as a service provider is not required to obtain a license for the provision and the establishment of services or infrastructures covered by the Executive Order No. 786¹¹ (fixed voice telephony and Internet). Companies do not need to take any action or await a decision from the National IT- and Telecom Agency before launching the service, and no specific payment from the service provider is required. Operators do not even need to register with the NITA. Interconnection to other networks is subject to the telecommunications regulation on competition and interconnection. The provision of the service must be in full compliance with the Executive Order No. 786 and with community law and general national law. Only providers of mobile communication services are obliged to have an authorization to use the frequencies.

3G licensing

In October 2001, four 3G licenses were awarded to TDC Mobile, Telia Mobile, HI3G (new entrant), and Orange. The licenses were granted at reasonable prices, after European experience had shown considerable tempering of the predicted commercial potential of UMTS technologies. The sale of the four licenses yielded a total amount of 3.8 billion DKK (511 million €) or 95.8 € per capita. In comparison, the early and very lucrative selling of UMTS licenses in Germany amounted to more than 48.66 billion € or 628.8 € per capita.

5.2.2 Granting access to infrastructures to new companies

- **Interconnection rates and agreements**

Interconnection agreements in which one of the parties has significant market power have to be submitted to the NITA directly after the establishment of the agreement. The NITA supervises the establishment of such interconnection agreements and also takes care of dispute settling between the parties involved.

As far as interconnection tariffs are concerned, overall prices have fallen by 23-69 % since mid 1999 depending on the traffic. In international comparison, Denmark has the lowest interconnection prices in Europe. The latest decision on interconnection charges became effective on March 1, 2002, and the reductions of prices contained in TDC's Reference Interconnection Offer were motivated by NITA's policy to harmonize interconnection charges with the lowest prices found in country comparison (principle of best practice)¹².

Following the government's policy to offer the best and cheapest services, the NITA has to intervene strongly on the pricing of pre-products in order to obtain low prices at end-user level. TDC opposes this policy and argues that it discourages infrastructure investment. This

¹¹ Executive Order No. 786 of 19 September 2002 on the provision of Telecommunications Networks and Services.

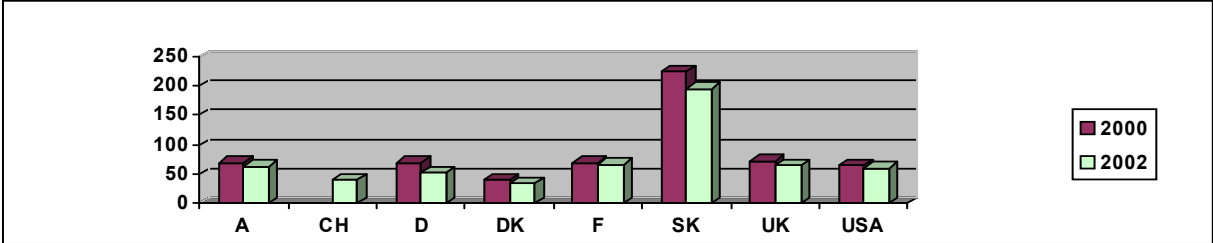
¹² Best practice comparison was first done with Norway, and when charges for interconnection increased there, the NITA took into consideration best practice in France, Ireland and the UK.

problem is very common and the argument of infrastructure investment is used by all incumbents who face competition on the service level. Whether statistics actually confirm a negative tendency in infrastructure investment is not clear, nor which would be the causes of such a tendency (competition at service level, finalization of the digitalization of networks, explosion of the IT bubble and/ or depressing stock markets).

- Leased lines**

Leased lines are a significant element in building alternative infrastructure- especially in the backbone network. In 1999 and 2000, the National Telecom Agency informed TDC that its tariffs for leased lines were too high and urged the company to lower its prices. As a result, prices have substantially dropped and are now very low in international comparison.

Figure 3: International comparison of price index of Leased lines, basket of national leased lines of 2 Mbps, OECD average 100, Source ITU



There is an on-going discussion in Denmark on the roll-back of regulation in the field of leased-lines based on a study by the NITA. According to this study, obligation falling upon operators with SMP could progressively be withdrawn especially for international connections¹³.

- Unbundling of the local loop**

Denmark has had one of the most successful unbundled access processes in Europe. Denmark has introduced full access to the local loop in the summer of 1998. In April 1999, TDC published its first standard offer for raw copper and the first specific agreement was made between TDC and Cybercity in May 1999. By August 2001, 18 providers had made agreements on access to TDC's raw copper. 16 of those now have full unbundled access to TDC's raw copper. Annual charge for the lease of raw copper is 99 € and shared access is half of it. The price level for the lease of raw copper is the lowest in the whole EU, 10% cheaper than in the second cheapest country Sweden, and 33 % below EU average.

Table 8: Monthly rental for a fully unbundled line in Denmark

Monthly rent for a fully unbundled line	8.2 € (Cheapest in EU)
EU average	13.2 €
Most expensive in EU (Holland)	17 €
Most expensive in Europe (Norway)	21€

Source: Local loop unbundling and broadband development in Europe, Marc Fossier, France Télécom, 8 July 2002, Brussels Public Hearing

¹³ EU, 8th Implementation report, Case of Denmark, 2002

Of course, these charges are only indicative, and do not take into account other costs related to effective competition through the ULL such as installation charges, customer acquisition and customer service. However, lower retail prices are usually tagged to less expensive unbundled lines, and the fact that Denmark has the highest DSL penetration rate in Europe for instance, is not a coincidence, given that TDC charges the lowest monthly copper loop rental. On the other end of the spectrum, the UK, where the monthly fee is more than double that of Denmark, suffers from one of the lowest DSL penetration rates among the world's wealthiest nations. By July 2001, Denmark had 40,000 unbundled lines¹⁴. In July 2002, TDC had 'only' 86% of the subscriber line market. As a result, and given the lukewarm records of most other countries, Denmark is considered as a success story in Europe in terms of unbundling.

5.2.3 Facilitating access to end-users for new companies

- **Carrier pre-selection and call-by-call carrier selection**

Call-by-call carrier selection was introduced in August 1996 and pre-selection on January 1, 1999, that is, ahead of European deadlines. Both features have encountered great success among the population. Indeed, in June 2002, the penetration rate of carrier pre-selection (including call-by-call and pre-selection) was 78.8% whereas in 2000, this rate was 43.7%.

Table 9: Registration to carrier selection codes in Denmark

	June 2000	June 2002
Call-by-call	1,173,502 (70%)	1,871,072 (60.68%)
Pre-selection	502,292 (30%)	1,212,361(39.32%)
Total	1,675,794	3,083,433
Increase	————— + 84% —————>	
Total number of subscriber lines	3,835,017	3,908,770

Source: NITA Telecom Statistics - first half year of 2002

- **Number portability**

Number portability in the fixed net was introduced on October 15, 1999. The feature encounters significant success. In the first year of introduction (2000) 163,000 numbers were ported from one carrier to another, the year 2001 witnessed another number porting of 133,000 and an additional 131,000 in the year 2002.

Mobile number portability was introduced in the second half of 2001, and made 83,000 people change operators in only 6 months. In the year 2002, another 142,000 customers opted for this feature.

¹⁴ BBC News, 02/12/2002

The Danish number portability feature is unique in the sense that it allows number portability between mobile and fixed telephony. In other words, a user can have the same number at home and on its mobile phone. While this feature procures great comfort to the users, it also makes it difficult for appellants to know whether they are calling on a fixed telephone or on a mobile (with much higher termination charges). NITA's price guide gives information on that, and so do the charge advice facilities within the operators.

5.2.4 Guaranty of stable and fair market conditions

- **Legal certainty**

Unlike many European countries, Denmark seems to offer adequate legal certainty to new market players wishing to do business on the Danish telecom market. The fairly strong legal certainty in Denmark is due to several factors, among which the attitude of the incumbent that does not systematically appeal NITA's decisions. Other factors are the relative fast process with which the NITA makes its decisions and the equally rapid intervention of the telecom-specific Appeal Boards. Basically, appealing a decision of the NITA should have no suspensory effect, except for specific cases mentioned in the law (Bill on Competitive Conditions and Consumer Interests in the Telecommunications Field, section 110). As a result, most of NITA's decisions are enforced straight away, and for those that are appealed and suspended, a final decision should be delivered within 6 months. Appealing of decisions made at second instance can be done at the higher courts, but, according to the Secretariat of the Telecom Consumer and Telecom Complaints Boards, this has only happened once and has upheld the opinion of the Telecom Complaints Board.

- **Sanction power**

The NITA is allowed to fine companies when they do not provide requested information, provide falsified information or when they do not comply with decisions issued by the NITA or the Appeals Board. Fines shall be substantial enough to dissuade operators from disrespecting the rules established by the regulatory system. It seems that the Danish regulator uses fines to a much lesser extent than most of its European counterparts. Here again, this could be an indicator of the consensual character of the Danish telecommunications market.

- **Control on predatory pricing**

The NITA is in charge of controlling end-user prices that could distort competition on the market. The most recent case that the NITA has had to deal with was the pricing strategy for ADSL applied by TDC, which, according to the competitors, was distorting for competition and de facto eliminated competitors from the market. Indeed, in January 2000 CyberCity counted among its customers approx. one third of all ADSL subscribers in Denmark, and its competitors TDC and WorldOnline had equal market shares. One year later, these figures had dramatically changed, as TDC's market share rose to 79 % in mid-June 2002. The NITA made investigations in order to find out whether TDC observed the rule of non-discrimination and pricing. After, the NITA decided that there was no abuse on TDC's behalf; the case was submitted to the Competition Council, who issued a similar decision in the beginning of 2003, stating that there was no evidence of predatory pricing.

5.3 Guaranty of public service

5.3.1 Universal service

The content and terms for the provision of universal service are laid down in the Terms for TDC Tele Danmark A/S's Handling of Certain USO Services in the Telecommunications Sector. As stated in this law universal service is provided by TDC (until December 31, 2007). The NITA uses a price-cap mechanism to set maximum prices for USO services. Every other year, the NITA calculates the real price falls for the upcoming years. The latest decision was taken in April 2002 and covered price falls for 2004 and 2005. TDC could get compensation for the provision of US if it could prove that it constitutes a financial burden. Until now, TDC has not requested such compensation.

As part of its universal service obligation, TDC shall provide telephone cells, basic telephone lines and ISDN lines, directory inquiries, routing of distress calls, special services to the handicapped as described in the Annexes to the Terms for TDC Tele Danmark A/S's Handling of Certain USO15 Services in the Telecommunications Sector as well as 64 Kbit/s and 2 Mbit/s leased lines. Minimum quality for all of these services is laid down in the law.

5.3.2 Consumer protection and quality control

Consumer protection is a major task of the Danish regulator, which has an entire division dedicated to informing, supporting and guiding the consumers with their telecommunications services.

For instance, since 1998, the NITA publishes a paper or interactive Internet guide entitled *Hallo, hallo - Ved du hvad det koster?* (Hello, hello, do you know what it costs?). This guide is updated quarterly and is based on a number of typical usage profiles. Each usage profile highlights the five least expensive companies in the market. Since May 2001, updating has been based on data from teleprisguide.dk. The guide is available on NITA's website www.itst.dk but only in Danish. The site receives more than 500 visitors a day, showing that it is a highly appreciated service. The plan is to make it possible to include comparison of prices for international telephony and high-speed Internet access. According to the NITA, and unlike what other regulators say, consumers who spend enough time trying to find out about their consumption habits can determine very precisely which operators they should choose.

The NITA also informs consumers about the quality of the services that they buy, by the means of an interactive Internet feature allowing the end-users to measure and benchmark the quality of their Internet connection for instance. Furthermore, NITA's website contains a multitude of information on customer rights and their ability to complain about telecommunication companies.

¹⁵ Universal Service Obligation

On July 1, 2001 a new rule on charge advice became effective, and obligates operators to set up a charge advice facility for customers. After 1 year of implementation, operators contest the need for such a service by arguing that there is no real demand for it.

6. Evaluation of the regulatory system

6.1 Assessment of the NRA

6.1.1 Resources and Expertise

The NITA seems to benefit from sufficient and well-qualified staff and has no problems in recruiting skilled personnel, especially since many telcos have started to lay off their own collaborators. In terms of financial resources, the fact that NITA's budget is in majority financed by the private sector through the perception of fees seems to have a positive impact on their work and on their collaboration with private companies, who see an incentive to cooperate. Since January 2003, the part of the governmental financing has increased to 27% (formerly 3%) in order to finance the activities of the former State Information Service.

6.1.2 Independence vis-à-vis political interests and transparency

Independence vis-à-vis the Ministry is not structurally guaranteed as the NITA is a government institution under the Ministry of Science, Technology and Innovation. In practice however, the NITA receives no instructions from the Ministry and has a large catalogue of competencies for which it does not need to obtain approval from the Ministry. The whole Danish situation is largely different from countries where the incumbent is still partly state owned, as in Denmark there are no reasons for the Ministry to intervene in favor of the incumbent.

As for transparency, here again, the NITA has a good record as it reports extensively on its work to the population and the industry. For instance, the NITA organizes Interconnection Forums three times a year to discuss interconnection issues with the operators and to communicate on NITA's work in the field. Furthermore, it publishes very detailed statistics every six months on the state of the market, telecom consumption and market shares¹⁶.

6.1.3 Efficacy and credibility

The NITA enjoys a good reputation of efficacy and credibility within the industry and also in international comparison. The reasons for this could be that it is able to address problems in a timely fashion and also that its efforts in terms of mediation between operators have led to a positive working environment beneficial to the sector. Of course, the Danish regulator does not have to cope with the ambiguous objectives that other regulators have to deal with, in countries where the incumbent is still state-owned. The NITA also benefits from (and contributes to) the relatively consensual character of the telecommunications market. In particular, the incumbent does not systematically challenge the regulator's authority by taking decisions to court. Actually, according to the NITA, only one decision has been brought to

¹⁶ NITA, half-year statistics, published on NITA's website in English and Danish, www.itst.dk

court in the Danish telecom liberalization history. All other decisions were either accepted or appealed before the Telecommunications Complaints Board.

One area in which the NITA, and more generally speaking the Danish regulatory system has been outstanding, is its communication strategy vis-à-vis the population, the industry and international partners. From the start, the regulatory strategies have been clearly conceptualized and expressed according to the Agreements in Principle of 1995, 1999 and 2002. In particular NITA's credo of 'best and cheapest telecommunications services' was intensively diffused to advertise its plan of action in the field of regulation. This very simple sentence has not only yielded results in terms of effective achievement of cheap and good telecommunications services, it also contributed to the fame and prestige of the Danish regulator who, from the beginning, addressed a clear message to the public and the industry.

6.2 Flexibility of the whole regulatory system

The Danish regulatory regime seems to be quite flexible and capable of addressing all major issues that fall under its scope of work. The Danish government sees it as a priority in being at the forefront of the market liberalization and technological innovation. The market liberalization started rather early in Denmark and has been scrupulously monitored by the institutions in charge of regulation. On a very regular basis, the Ministry or the NITA carry out or commission studies to analyze the latest data available and rethink the pertinence of current IT and telecom strategies. For instance, when it became clear that broadband rollout exceeded the demand by far, the Ministry shifted its strategy towards the promotion of Internet use instead of solely infrastructure. This also led to the new institutional structure of NITA, a merger of the former regulator and the State Information Service, an institution in charge of E-government, IT content and Internet security matters.

As a general rule, the Danish regulatory system seems rather up-to-date and flexible. Legislative changes are made frequently to reflect technological or commercial evolutions and strategy-wise, there is also enough flexibility to incorporate important issues whenever they appear.

7. Outcome performance indicators

7.1 Competition

- **Dynamic number of operators on the market**

There are numerous operators on the Danish telecommunications market, some of which succeeded in conquering significant market shares from the incumbent. In the mobile sector, there are 6 operators (of which 2 MVNOs), which is not bad, considering that Denmark's population is below 6 million. For fixed telephony and Internet, 5 major players dominate each market but there are also many smaller companies. As there are no licensing requirements for public telephony operators in Denmark, except for those using radio-frequencies, the NITA cannot monitor the precise number of operators on the market.

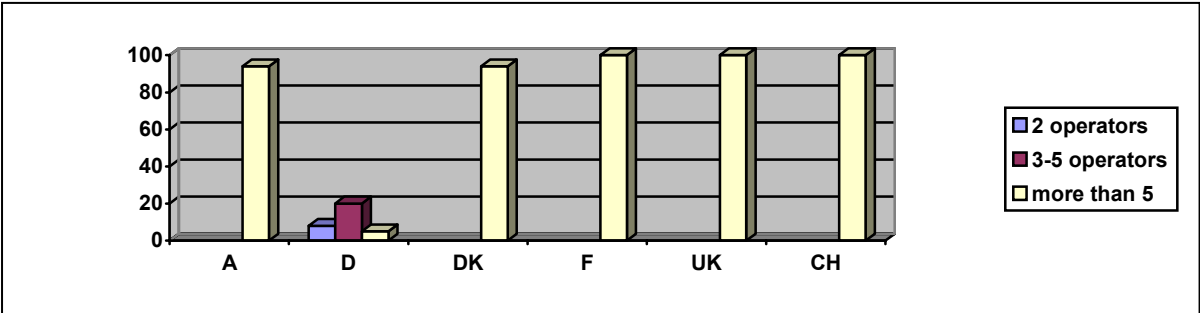
The fact that there are very low licensing requirements in Denmark could have a positive effect on the entry of new market players but probably not a very important one. There are other more determining factors that account for the number of operators on the market, and especially their ability to remain in that market. Legal and planning certainty, the presence of features favorable to competition such as carrier selection, unbundled local loop or number portability, control of abusive practices by the incumbent, and realistic wholesale prices are some of the elements that have a direct or indirect influence on the number of operators in a given market. In all of these elements, the regulator has a certain intervention power that can be measured in terms of pro-activity, market knowledge, and expertise as well as rapidity of intervention and decision. The Danish regulator is expected to create the most attractive conditions possible for new entrants, while at the same time preserving consumer interests. Its role is important, but there are other factors that influence companies, such as business models, international ownership, the level of private investments and the conjuncture in general and the demand of services, upon which the regulator has a limited influence.

- **Choice for the consumers in terms of operators/technologies**

For a specific service, most Danes have a greater palette of choices in terms of technologies and operators as many of their counterparts in Europe.

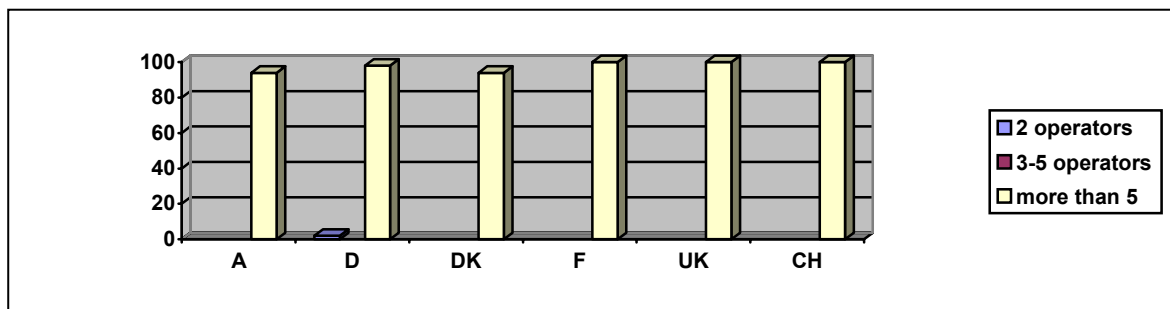
In the mobile market, there are no less than 6 operators for a population of less than 6 million. For fixed telephony, there are 5 market leaders on the traditional copper pair network and a number of other smaller operators, as well as for operators for telephony over cable and powerline in some urban areas. As demonstrated in the graphs below, a solid majority of the Danes can choose between more than 5 operators for any type of telecom service, including the subscriber line connection.

Figure 4: % of population that can choose between different operators for fixed telephony local calls



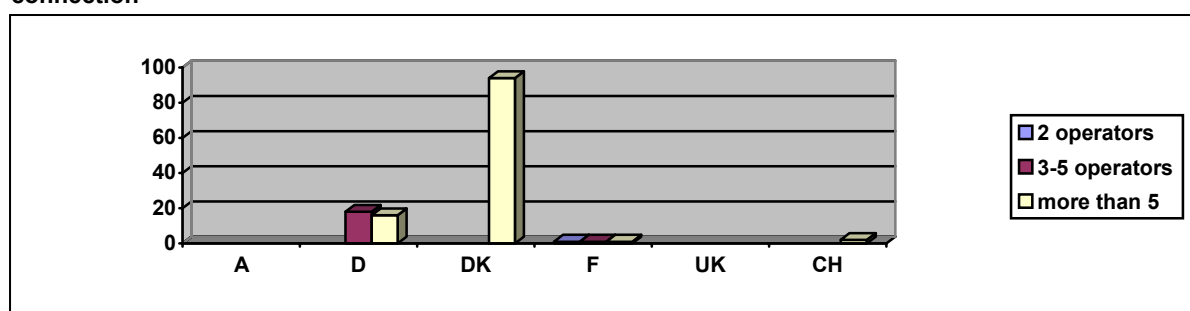
Source: WIK Consult Auszug aus dem 8. Implementation Report der EU -erweitert um die Schweiz, 2003

Figure 5: % of population that can choose between different operators for fixed telephony domestic long distance and international



Source: WIK Consult Auszug aus dem 8. Implementation Report der EU -erweitert um die Schweiz, 2003

Figure 6: Percentage of population that can choose between different operators for subscriber line connection



Source: WIK Consult Auszug aus dem 8. Implementation Report der EU -erweitert um die Schweiz

The reasons behind these results are multiple, such as early liberalization, early local loop unbundling and carrier selection. Following the Danish regulatory regime's strategy of several channels to the home, choice should become even wider in the near future, with the development of alternative accesses to broadband (FWA is accessible to 95% of private households and optical fiber networks have been deployed by the Danish Railway Agency Banestyrelsen, several municipalities and power companies). Of course, alternative technologies also ask the question whether competition is available within each of these market segments. For cable Internet access for instance, it seems to be the case as TDC's subsidiary TDC Cable TV has a market share of only 30%, while its main competitor Telia Stofa dominates the market with 61% of the cable subscriptions in Denmark¹⁷.

The regulator's role behind the choice for consumers is essentially linked with its functions as a market watchdog and expertise consultant for the government. These include creating conditions to stimulate long-term investment by all operators, as well as cable companies, to ensure effective infrastructure competition between different broadband technologies and deployment strategies. The more pro-active the regulator, the more chances that competitors remain in the market and that alternative technologies are developed. By providing information to the consumer about the different products and technologies available, the regulator also stimulates the demand side and ensures that the consumers actually benefit from the choices that are offered to them. In Denmark, the NITA has monitored the government's policy to develop several channels to the home, but as elsewhere, some technologies have rapidly captured the essential part of NITA's interest, such as ADSL for

¹⁷ See 2002 second half-year statistics NITA <http://www.itst.dk/wimpdoc.asp?page=tema&objno=95024114>

broadband access and copper pair for fixed telephony. Other less developed and less demanded technologies such as FWA, cable modem or telephony over powerline are still in a pilot phase and receive much less attention from the regulator.

In order to obtain structural competition between and within technologies, the NITA continues to make sure there are no tendencies towards a return of monopoly (this risk exists in the ADSL market), that consumers are informed about the choices at their disposal, and that new technologies are encouraged to support competition between technologies.

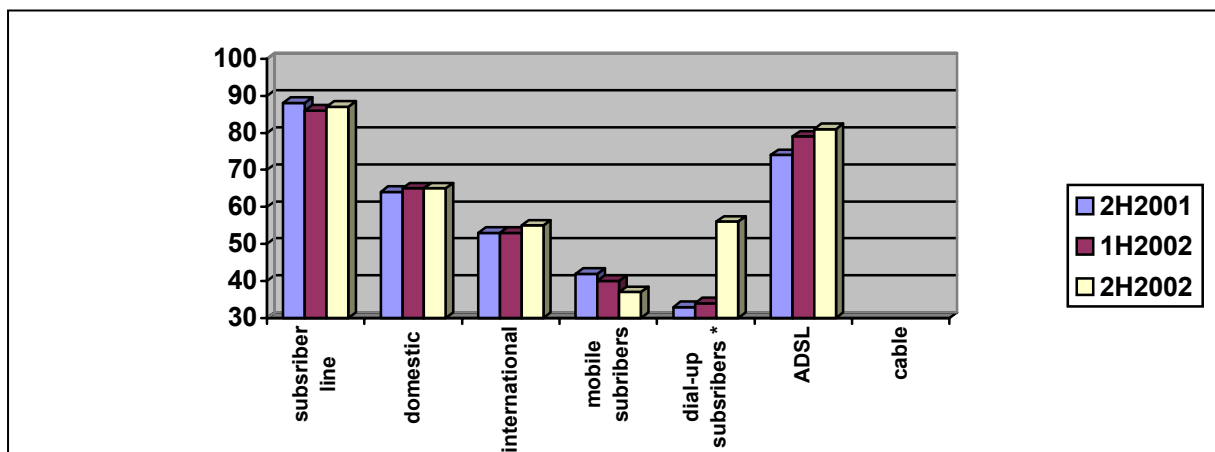
• **Market shares of the incumbent**

The market shares of TDC have decreased after liberalization, as in all other liberalized telecom markets around Europe. As elsewhere, the strongest competition is in the mobile, long-distance and international fixed telephony markets. In the fixed market, falling market shares of the incumbent are mainly the result of the early introduction of carrier selection and some extent the unbundling of the local loop. Registration to carrier selection codes amounted to 78.9% of total number subscriber lines in the first half of 2002 with 1,212,361 carrier pre-selection subscriptions (31% of total number subscriber lines).

In the broadband market, market shares were quite equally divided between 3 operators in the first year of ADSL, but that situation has changed in the past year, with TDC achieving a market share of 81% in the end of 2002. Figures for cable modem are not available.

Although the Danish market tends to be well rated in most studies on competition¹⁸, there is an undeniable tendency, not only towards consolidation, but also towards a re-monopolization of the fixed markets on behalf of the incumbent.

Figure 7: Market shares of TDC in 2002 in %



* In 1H2002, all Internet subscriptions are taken into account, in 2H2002 only those that have been active in the last 6 months

Source NITA, TDC Annual report 2002, own calculations

¹⁸ See competition indexes of WIKconsult or Market Research Center

The fact that TDC's market shares are increasing is not per se a bad signal for the consumers, but it contradicts with the will of the Danish regulatory regime to achieve competition in every telecom market. It raises questions about the ability of carrier selection and ULL to yield effective competition in the market and about the need for additional and permanent regulatory intervention. In particular, now that CbC, CPS and ULL have been introduced and closely monitored by the regulator, what is the regulator supposed to do to prevent re-monopolization of the market?

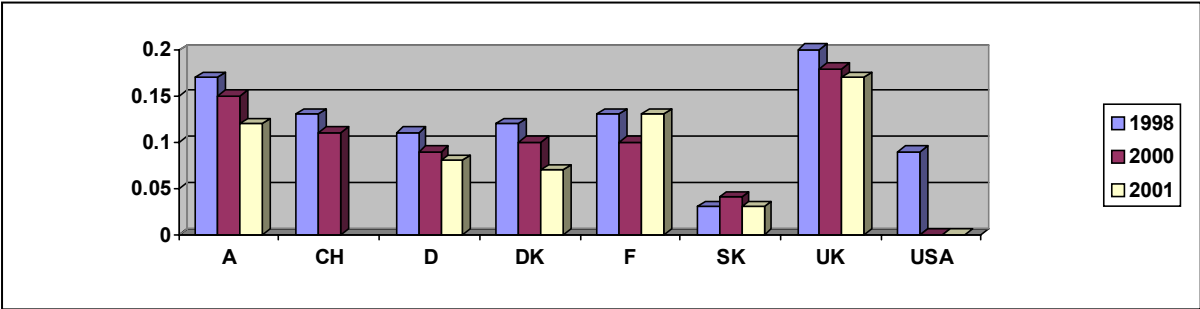
Among the things that the NITA does, regular and detailed market share observation¹⁹ is certainly a good method to detect tendencies toward re-monopolization. Close price observation (necessary for the updating of the price guide) also allows the NITA to spot possible predatory pricing on behalf of the incumbent. As the NITA has investigation power, it does not have to wait upon a complaint from another operator to carry out investigations. However, whether in the end the NITA can intervene on suspected predatory pricing also depends on the Competition Authority's opinion in the matter. In the ADSL case, the NITA has been unable to intervene when competitors complained about predatory pricing by the incumbent. After the NITA investigated TDC's compliance with interconnection obligations (dates of delivery, etc.) there was no conclusion incriminating TDC, and the case was referred to the Competition Authority for the investigation of retail prices. In the meantime, TDC's market share in the ADSL market increased to 81% in the end of 2002. Recently, the Danish Competition Authority confirmed NITA's investigation and TDC was exculpated from all reproaches.

Given that even in Denmark, a supposedly very liberalized market, structural competition is still not available, asymmetric regulation remains a necessity and the role of the regulator herein is fundamental, in terms of monitoring, alerting, investigating, and informing the public and authorities about the evolution of the telecom markets.

- **End-user prices**

As a general rule, Danish end-user prices are low in international comparison, as shown in the tables below.

Figure 8: Fixed voice Telephony, 3 minute local call, average charge in PPP €, Source ITU



¹⁹ NITA, half years statistics, available on NITA's website in Danish and English

Figure 9: Fixed voice telephony, 10 minute domestic long-distance call, average charge in PPP €, Eurostat

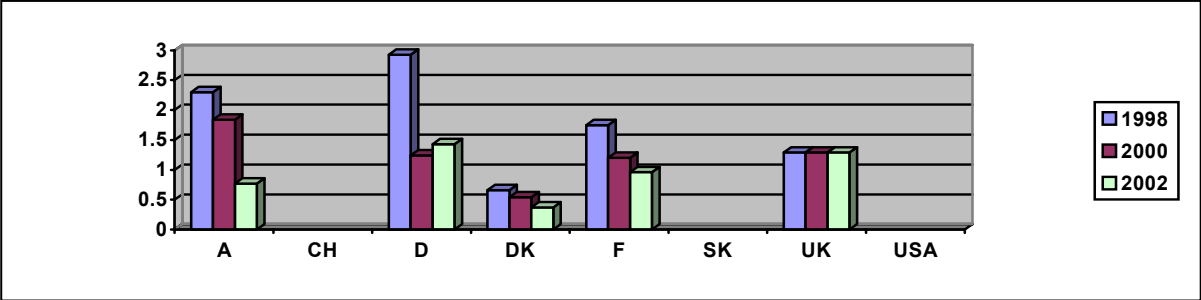
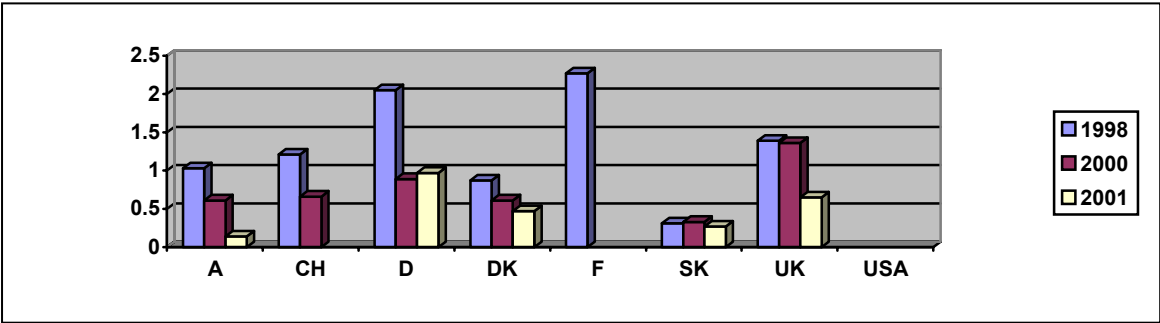


Figure 10: Mobile telephony, 3 minute local call, average charge in PPP €, ITU



With respect to prices, the Danish regulatory regime definitely had and has a major impact on the telecom market. It has been the objective of the Danish regulatory regime to ensure the best and cheapest telecommunications services for the Danes since 1995, and the government has dedicated itself to the achievement of this goal through solid and continued intervention. First of all, the Danish regulatory regime exerts strong control on the end-user prices of the incumbent and decides every other year on the price drops that should occur for the next two-year period. Furthermore, the Danish regulatory regime has foreseen that close wholesale price monitoring and international best practice comparison is considered an effective method to ensure that prices remain as low as possible. In other words, as soon as the regulator notices that in other European countries, interconnection tariffs have become cheaper than in Denmark, intervention is requested to lower the Danish prices.

As a result, Danish wholesale prices are among the absolute lowest in the world and could be regarded as a major explanatory factor for low end-user prices in Denmark.

Figure 11: Price index of leased lines, basket of national leased lines of 2 Mbps, OECD average 100, Source OECD

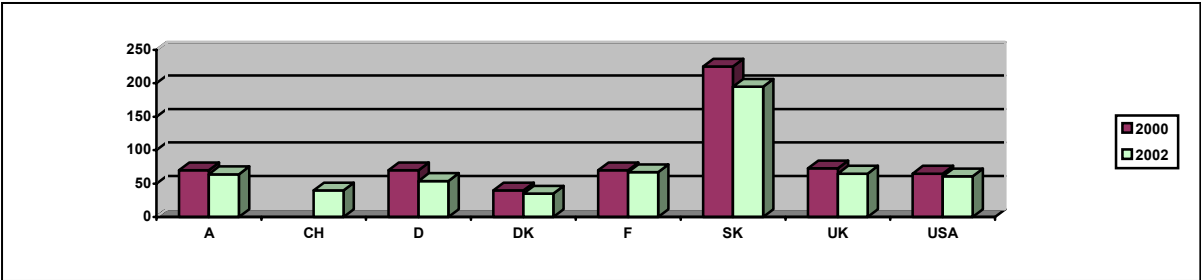
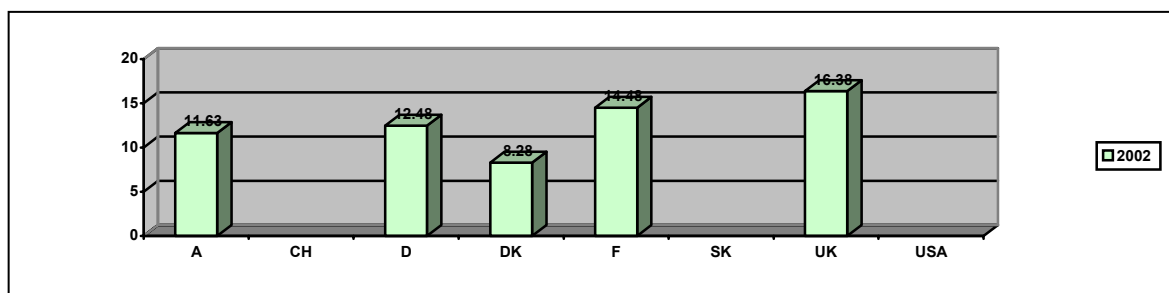


Figure 12: Unbundled local loop, full access, in €



Source: Squire Sanders, Legal Study on Part II of the Local Loop Inquiry, February 2002, Brussels Cited in WIK Consult, Stand der Schweizer Telekommunikationsmarktes im internationalen Vergleich, 2002

The actual impact of the regulator on price-drops for end-users is once again limited by the legal framework set by the legislator. In Denmark, the regulator has opted for close monitoring of prices and can start investigations on prices from operators with SMP when those are suspected to be irrespective of the cost-orientation principle. The dynamism and responsiveness of the regulator and its efforts to effectively maintain prices at the bottom level have a manifest impact on the setting of prices.

7.2 Public service

Denmark's policies in favor of consumer interests are well developed in most industrial sectors and in the telecommunications sector as well. General rules about consumer care and information have been implemented within the NITA and led to the creation of a Consumer Department in charge of information, support and guidance to the end-user. Some of the outcomes of the department are a comprehensive price-guide, mediation and dispute settlement procedures, special assistance to disabled people, surveillance of retail prices etc.

- **Availability of services throughout Denmark**

The availability of services is good in Denmark as shown in the list below.

ADSL 100%	Leased lines 2 Mbps 100% (included in USO)
ISDN 100% (included in USO)	Voice telephony over cable: Available
Cable modem available (Penetration rate CATV 58%)	Voice telephony over powerline: Available
FWA availability 95%	

Sources: NITA, operators, RegTP German regulator

The Danish regulation on universal service guarantees that a number of listed services, including ISDN lines, have to be made available in the whole country at affordable prices. Additional to these, the Danish government actively promotes the availability of new technologies within the country, in particular broadband Internet access for all the Danes mainly through DSL solutions. Indeed, the Danish government sees it as a priority to be at

the forefront of technological innovation in Europe and to stimulate the deployment and multiplication of services throughout the country. As such, we can say that the Danish regulatory regime is quite favorable with regards to the availability of services. In order to sustain a wide offer of services and technologies, the Danish regulatory regime also seeks to stimulate the demand-side, by implementing content-related initiatives and informing the public about telecom-related security.

As far as the regulator is concerned, the NITA only has a limited influence on the availability of services in the country. On the one hand, the legal certainty that it provides by making rapid and coherent decisions is essential to legal and planning certainty and thus to investments. However, this legal certainty can be challenged by the telecom-specific appeal bodies. On the other hand, by informing consumers about new technologies (through its website and press releases) it sustains the demand for new technologies and indirectly contributes to their deployment.

Whereas external factors such as topography, population density and the business models of the different telcos have great influence on the deployment and diversity of technologies within the country, the NITA has an important role to play as a consultative expertise body to the government that can catalyze and promote new policies in favor of greater availability and diversity of services.

- **Quality of services (QoS) throughout the country**

The quality of Danish telecom services is good, but probably not very different from most other OECD countries. Intensive regulatory pressure on the quality of services is a positive contribution and ensures that quality remains high. The Danish regulatory regime foresees the definition of quality standards for USO but not for the services of other telcos.

However, it is possible for consumers to test and complain about the quality of their telecom services thanks to NITA's work in the area of QoS surveillance. For instance, a Danish internet user can test the speed of his/her Internet connection online by visiting the regulators website. NITA's important consumer service also takes care of consumers that are dissatisfied with the quality of their telecom services and the NITA is compelled by law to deliver an answer within 5 days to consumer complaints.

- **Information to the public**

The Danes are offered ample information about existing telecom services, consumer rights, prices for telecommunication products, information for disabled users, etc. With regard to this indicator, the Danish regulatory regime receives a good appreciation. The regulatory regime of course predefines a minimum quantity and scope of information to be delivered, but it is the regulator's task to make information as good, as broad and as accessible as possible.

The NITA has a direct impact on the quality and quantity of information delivered to the public, as it develops and organizes the instruments, documentation and consumer services destined for the public. In comparison with other countries, information delivered by the NITA is often more up-to-date, easier to access, broader and more consumer oriented, which is not surprising given the strong consumer protection culture in Denmark. The NITA seems to

enjoy a good reputation among the end-users as demonstrated in the assessment that the NITA carries out each year. The Danish consumers can expect an answer within 5 days, when they send a request to the regulator.

NITA's consumer orientation is not an exception in the Danish context. Indeed, sociocultural factors and the strength of consumer associations have a strong impact on the quality and quantity of information delivered by the Danish administration and agencies. Also, this is reported to be true in many other sectors, such as housing, banking or insurance.

8. Conclusion

Globally speaking, the Danish regulator has a rather positive record after 5 years of existence. The NITA has promoted, implemented and closely monitored competition policies and has been very active in the consumer area, by informing and assisting consumer about new technologies, new products and new features. As a consultative body to the Ministry, it has provided extensive information and advice in the telecom market and to of the consumers and their needs. As one official of the NITA puts it: "The regulator has regulated pretty much everything that they could regulate. Now there should be a shift of focus to the end-user and on how the regulator can encourage the use of the facilities by the Danish consumer."

As a general rule, the NITA is cited as an example in international comparison and so is the liberalized telecom market. Although this is certainly true to a certain extend, it must not be forgotten that the regulator benefits from a clear political framework for telecom regulation and that the Danish Incumbent is fully privatized and rather collaborative vis-à-vis the regulator.

As a matter of fact, the Danish government has elaborated clear medium-term strategies to shape the telecom liberalization process and has not hesitated to make early determinant and challenging decisions. Proof is that Denmark has always been ahead of European legislation. Evidence shows that in Denmark, there is a clear and consensual political agreement about the objectives of competition within the telecom sector and the methods to achieve them. Strong focus on the consumer also seems to have yielded positive results rather than a burden for telcos. As an official of the NITA says: 'Competition policies and consumer policies should go together because otherwise, you keep offering solutions and services to people who are not aware or do not care that they exist'.

Another element that facilitates the work of the regulator and the outcome of telecom regulation is the fact that TDC is totally privatized and has a collaborative attitude towards regulation. NITA's decisions are not systematically appealed and the incumbent shows less strategic incompetence and reluctance as in other countries such as Germany.

The reasons for 'success' are thus not only imputable to the regulator but also to the coherence, clarity and collaborative spirit of the regulatory system as a whole.

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