

The Telecommunications Market In Sweden From Monopoly To Competition

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Abstract

Sweden is an interesting example of introduction of competition on the telecommunications market. Sweden opened the whole market to competition without any restrictions. Countries that had liberated before Sweden such as United Kingdom went through a phase of duopoly and in the US the liberalization process took a long time and involved several steps.

The Swedish monopoly was de facto and not de jure. There was no formal regulation of the telecommunications infrastructure. The Swedish national telecommunications operator Televerket was owned and controlled by the government. After the decision to introduce competition, the Swedish Telecommunication Act was introduced in 1993 and a special regulatory agency was established.

The telecommunications industry is a network industry, which makes it more difficult to introduce and maintain fair competition. Still after ten years of an open market, the Swedish incumbent operator TeliaSonera has a very dominating position in spite of the quick development of new services such as Internet, GSM and broadband, which were novelties or not even introduced in the beginning of the 1990s when the market was liberated. Sweden has at the same time maintained a top position when it comes to the number of users, quality of services and other aspects. A new Electronic Communication Act was introduced in 2003 that takes into account the convergence between different media.

1. Background

Telecommunications have existed for more than 100 years. After the initial fascination, they seldom became first page news. That could possibly happen if the communications broke down at a critical moment. Telecommunications are “commodities”. We expect them to be there and function whenever needed. Experts employed by the government took all decisions about acquisition, installation and administration, choice of standard, type of equipment, design and even the color of the terminals. There were virtually no decisions left for the users. Countries differed regarding the pace specific services were offered to the citizens. Just to get a telephone line could in some countries be achieved in a week while in others it could take several years. There was no big debate about the necessity to change this situation.

Sweden was no exception. Swedish telecommunications were provided by a State-governed monopoly already from the first years of the 1900s. This monopolistic arrangement evolved and became a stable and strong regime during the next 70 years. It should be pointed out that the Swedish telecom operator, the government owned Televerket, was among the best in the world. Sweden had one of the highest telephone densities in the world with well functioning and cheap services. Televerket employees were proud and dedicated civil servants expecting life-long employment.

The change came during the 1980s. Suddenly, the telecommunications policy and telecommunications in general became a topic for political and public debate in Sweden. That was a radical break from the earlier confinement to the domain of engineering experts and administrators of the traditional monopolistic regime. Now, the functioning of the public telecommunications system and the question of its governance were politicized and the system as such became more “visible” in politics and the rest of society. The historical stability

and recognition of the system began to break down. A political process started that would totally reformulate the rules of the game.

The process of liberalization started and gradually evolved during the 1980s and early 1990s. It culminated with the introduction of the first Telecommunications Law in 1993, the establishment of a Swedish regulatory authority and change of the incumbent operator's status from governmental administration and authority (Televerket) into a company (Telia AB). Sweden became almost overnight one of the most liberal telecommunications markets and attracted early the interest from foreign and domestic investors.

Telecommunications became and today still remain a top subject for media from magazines in economics and finance to almost any other area to morning and evening dailies, TV and radio. Today, each and everyone has some knowledge about GSM, 3G, broadband, SMS, Internet, and e-mail.

It became gradually clear that the task to introduce fair competition in the telecommunications market is not easy. The regulatory authority became more involved with increasing workload. The telecommunications law had to be changed 15 times until a new Law on Electronic communications was enacted in 2003 taking into account the convergence of voice, text, image and data as well as that the same type of information can be transported with different techniques and over different infrastructures. The new law also takes into account the special characteristics of network industries.

2. Network industries

Network industries constitute a large part of the world economy. The two key network industries are telecommunications providing voice and data service including the Internet and computer software and hardware. Other network industries are e.g. transport (airlines, railroads, roads, ships), news, financial services (clearing houses, ATM networks, credit cards...) and postal services.

Network industries are also important from a public policy point of view as they often provide necessities. Monopolization as well as liberalization of network industries markets has significant social and political implications. Typically, to achieve fair competition requires heavy regulation since market forces alone are not sufficient, social considerations may be in conflict with efficiency and social and private benefits may differ substantially.

Economides from Stern School of Business, New York University (Economides, 2003) lists several features of markets with network effects such as:

- Ability to charge prices on both sides of a network. Telecom service provider can charge subscribers when they originate calls or when they receive costs.
- The additional subscriber/user is not rewarded for the benefit that he/she brings to others by subscribing.
- The pace of market penetration is much faster than in non-network industries.
- "Winner-takes-most" - inequality of market shares and profits. This is especially true where firms can choose their own technical standards.
- Monopoly may maximize total surplus. This is especially valid under conditions of competing platforms. In non-network industries, typically both consumers' and total surplus are lowest in a monopoly. For network industries maximizing consumers' surplus would imply minimizing total surplus.
- No anti-competitive acts are necessary to create market inequality. Market inequality is natural for network industries.
- Free entry does not lead to perfect competition.
- The cost of entry may be higher, but the rewards of success may also be higher compared to non-network industries.
- Technical standards are of extreme importance in order to interconnect without high additional development cost, precondition for competition and to avoid "lock in" situations.

The telecommunications industry is a typical network industry. It is characterized by:

- Operators depend on access to each others network in order to be able to distribute their services
- Initial investments are big for a telecom operator
- After the investment has been done, there are normally no alternative usages for it
- The more users use a network, the better it will work for them
- There are increasing returns to scale of production and the marginal cost is negligible
- There are increasing returns to scale in consumption
- Mobile telephony is a special case as a frequency spectrum is a limited natural resource
- A critical mass is necessary in order to get any benefits from offered services

These factors raise a high entrance cost level for new market participants. General antitrust and competition law is not enough to create competition in this type of market.

3. From monopoly to the Telecommunications Act (1980 – 1993)

The Swedish monopolistic telecom operator Televerket was a public enterprise. In 1972 there were seven public enterprises in Sweden:

- Postverket (Post Office Administration)
- Televerket
- Statens järnvägar (State Railways)
- Domänverket (Forest Service)
- Vattenfall (State Power Board)
- Förenade fabriksverken (State Defence Industries)
- Luftfartsverket (Swedish Civil Aviation Administration)

The public enterprises were not independent legal subjects. They equaled public authorities in this respect. They did not own their assets in a legal sense. They were a part of the collective State property only administrated as public enterprises without full freedom in economical and personal matters.

The regime in Sweden was essentially a strong de facto monopoly but not formally regulated as such. It remained intact until major changes took place during the 1980s. The situation in the telecommunications market on the eve of liberalization in Sweden was characterized by:

- The powerful position of Televerket.
- Televerket was never linked to the postal service, which is in contrast to the situation in most other European countries.
- The special organizational form of Televerket contributed to its power and independence. As a public enterprise, Televerket had responsibilities more similar to those of a business enterprise.
- Televerket had a history as an equipment manufacturer going back to 1891. Televerket produced around 50% of the telecom equipment that was needed for its operations and the rest was purchased from external suppliers.
- Televerket controlled and regulated as an authority the frequency spectrum.
- There were special and strong links between Televerket and the Swedish telecom equipment manufacturer Ericsson. Televerket was a customer of that company (originally LM Ericsson) already from 1876, when the company was founded. Co-operation and joint product development took place as early as in the 1880s.
- A joint development company, Eltel Utvecklings AB, was created in 1970 (owned 50% by Ericsson and 50% by Televerket).
- All equipment connected to the telecommunications network had to be approved by Televerket

In addition to telecommunications, many other sectors were liberated and deregulated/re-regulated during the same period. Sweden adapted quickly to the trend of general liberal tendencies in the world economy. Liberalization in Sweden was part of a large international movement including the U.S., UK and other countries.

Deregulation of the telecommunications sector in the U.S. started in the 1960s and the break up of AT&T took place in 1984. In the UK British Telecom began to operate under a license in 1981 and two years later a regime of duopoly was established with two fixed telephone and two cellular operators.

Televerket presented a report already in 1978 that forecasted strong future competition. The report pointed out that competitive threats were particularly serious for Sweden since Sweden had no legal protection of the monopoly.

The main principle before the 1980s was that the network as well as all equipment connected to it e.g. exchanges, telephones and other devices, should be installed, owned and maintained by Televerket. The Swedish requirements regarding telecom equipment were stricter than in other countries as Sweden had a unique system. Imported telephones had to be modified before they could be connected to the network. The monopoly on the subscriber equipment market was abolished completely by 1989. A new law on terminal equipment was established from 1993 as a result of the Swedish membership in the European Economic Area,

A new private company, Comvik, received in 1981 permission to operate a mobile telephone network with connection to the public telephone network under the conditions to only use 26 frequencies with Televerket remaining responsible for the frequency management and equipment technically approved by Televerket.

Another private company from the same holding group, Tele2, became ten years later the second Swedish operator with a full range of public and private services for companies and households.

The liberalization of the Swedish telecommunications market was a fact with the establishment in 1992 of Telestyrelsen (National telecommunications Agency), later Post- och Telestyrelsen.

The separation process of transferring the exercise of public authority from Televerket to a separate regulatory body was a gradual process. In 1981 Televerket still had full responsibility for terminal equipment and frequency management. From 1989 full competition for all categories of subscriber equipment was introduced and Televerket was responsible for its approval. By the Telecommunications Act from 1993, the National Telecommunications Agency was responsible for equipment approval, frequency management and in addition had overall responsibility for licensing.

Post- och telestyrelsen (former Telestyrelsen)

Telestyrelsen, the Swedish National Telecom Agency, was founded on 1 July 1992, and changed its name to Post- och telestyrelsen, the Swedish National Post and Telecom Agency, on 1 March 1994.

Post- och telestyrelsen (PTS) describes its objectives in the following way: *“The National Post and Telecom Agency, PTS, is the authority that monitors the telecommunications, IT, radio and postal sectors. The objective is that everyone in Sweden should have access to efficient and fairly priced communications within these sectors and that the radio spectrum is utilised in the optimum way.”* (www.pts.se).

PTS has three main objectives:

- To promote healthy competition, to supervise price trends and to ensure the development of functioning postal and telecom markets. Consumers should have a broad range of products and services at reasonable prices. Operators wishing to start or conduct postal and telecom operations must apply to PTS for a license. PTS is also in charge of the Swedish numbering plan and allocates number resources to telecom operators.
- To support efficient usage of resources especially scarce resources such as frequency spectrum. PTS is responsible for allocating frequencies within Sweden, as well as coordinating its operations with other countries. Those who own or want to use radio transmitters must apply to PTS for a license. The authority also investigates cases of radio interference.
- To represent consumers' interests by means of controlling that products and services offered on telecom and post markets have good quality, availability and security. They should also function properly in the

event of crises or military emergencies. PTS work covers emergency planning, as well as looking after the interest of the disabled.

- To issue regulations and to ensure that existing legislation is followed.

STATTEL-delegationen

The STATTEL commission was set up in 1991 and consisted of representatives from government agencies. The Government allocated to the commission the task of proposing means to improve the efficiency and service level of telecommunications within government administration. Agencies were to be offered services encompassing the whole field of telecommunication - telephony, telefax, video, electronic mail etc. - in accordance with the following directives:

- Telephony services, which meet the needs of the agencies in this decade.
- Widely used common telephony services based on standards
- Simplified procedures for provision and operation by procuring services instead of constructing and operating networks
- Procurement with competition when possible
- Improved service level to the public, between agencies, and within agencies
- Considerable cost reduction, with a goal of 25% savings compared to present costs.

The timing for the establishment of STATTEL commission was strategically chosen in connection with the beginning of the liberalization of the telecommunications market. The Swedish government was committed in getting competition to this market. By procuring telecom services (data and telephony), Sweden attracted foreign investors and operators to establish themselves on the Swedish market. In 1994 STATTEL signed a frame contract with France Telecom for providing data communication services and in 1996 there were two contracts awarded to Telia and France Telecom for providing telephony services. These contracts were the biggest telecom contracts in Sweden. At the time of awarding these contracts, Sweden was the only country in Europe with a fully liberated telecommunications market.

Telecommunications Act

The Swedish telecom market changed radically with the introduction of a new telecommunications law. There was no need of formal regulation since there was no monopoly. Behind the idea of liberating the telecommunications market was a deep belief that consumers benefit from competition since competition will stimulate new services and price reductions. The Telecommunication Act has since its inception in 1993 been complemented with several amendments.

4. Ten years of Competition (1993 – 2003)

Sweden has almost 9 millions inhabitants and telecommunications are well developed. There were at the end of 2002 according to Swedish Statistical Board (SCB):

- 562 000 fixed telephone lines
- almost 8 millions contract subscriptions and cash cards for mobile services. More than 50% of users have cash cards.
- 2 900 000 Internet connections
- 372 000 ADSL connections.

The total turnover in the Swedish telecommunications market in 2002 amounted to SEK 46.5bn (including fixed telephony, mobile telecom services and Internet for both households and companies) Table 1 shows the development excluding Internet. Operators' average revenue per household and month was SEK 534. The fixed telephony share of the total turnover has steadily declined and made up 60% in 2002. See table 2. Mobile telecom services have over the last ten years steadily been growing with 16% per annum. TeliaSonera (Swedish incumbent

operator – earlier Telia and Televerket) has a declining but still very dominant position with 64% market share for fixed and mobile communications in 2002. See table 3.

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Mobile telecom services	3 000	3 400	4 342	6 047	7 424	8 420	10 741	12 658	14 392	16 247	17 295
Fixed telephony	18 000	19 100	19 456	20 438	21 621	23 102	24 725	25 713	26 164	26 566	25 756
	21 000	22 500	23 798	26 485	29 045	31 522	35 466	38 371	40 556	42 813	43 051

Table 1 Mobile telecom services and fixed telephony excl. Internet– revenues from consumers in millions SEK. (PTS, 03 06 05)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Mobile telecom services	14%	15%	18%	23%	26%	27%	30%	34%	35%	38%	40%
Fixed telephony	86%	85%	82%	77%	74%	73%	70%	67%	65%	62%	60%

Table 2 Mobile telecom services and fixed telephony excl. Internet - revenues from consumers in percentage (PTS, 03 06 05)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
TeliaSonera	98%	97%	96%	92%	88%	86%	82%	76%	71%	68%	64%
Other operators	2%	3%	4%	8%	12%	14%	18%	24%	29%	32%	36%

Table 3 TeliaSonera market share for mobile telecom services and fixed telephony. (PTS, 03 06 05)

During the last ten years, the revenues for telecommunications have more than doubled more then doubled. See table 1. The major part of the growth of revenues comes from mobile telecom services but the growth rate is declining. See table 4.

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Mobile telecom services	13%	28%	39%	23%	13%	28%	18%	14%	13%	6%
Fixed telephony	6%	2%	5%	6%	7%	7%	4%	2%	2%	-3%
Total	7%	6%	11%	10%	9%	13%	8%	6%	6%	1%

Table 4 Mobile telecom services and fixed telephony – percentage of revenue growth from a consumer. (PTS, 03 06 05)

Table5 shows that TeliaSonera’s dominant position is slowly becoming less pronounced.

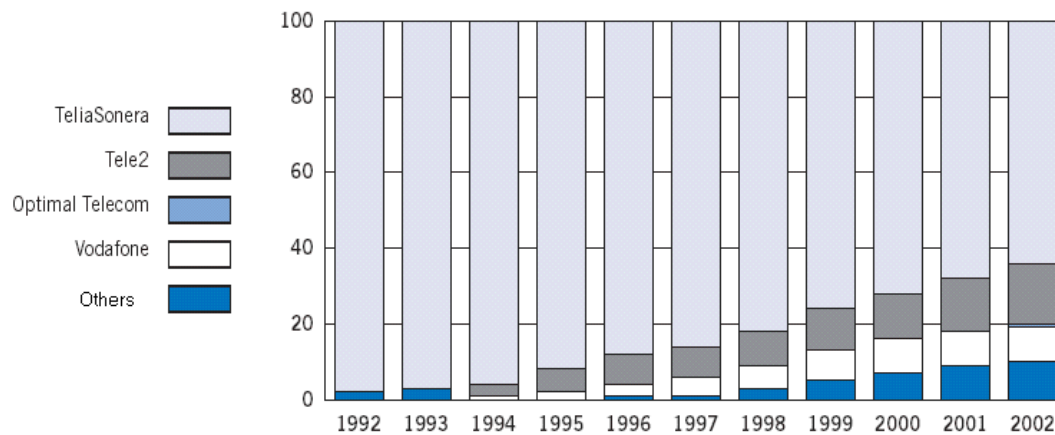


Table 5 Market shares for fixed telephony and mobile telecom services (turnover) (PTS-ER-2003:5)

The price per minute for a national call has changed a lot during the last ten years. Still in 1993 there were three zones: local, regional and national. From 2000 there is only one zone – Sweden became round. The price per minute for a national call steadily declined until 2000 and has since then been stable. See table 6.

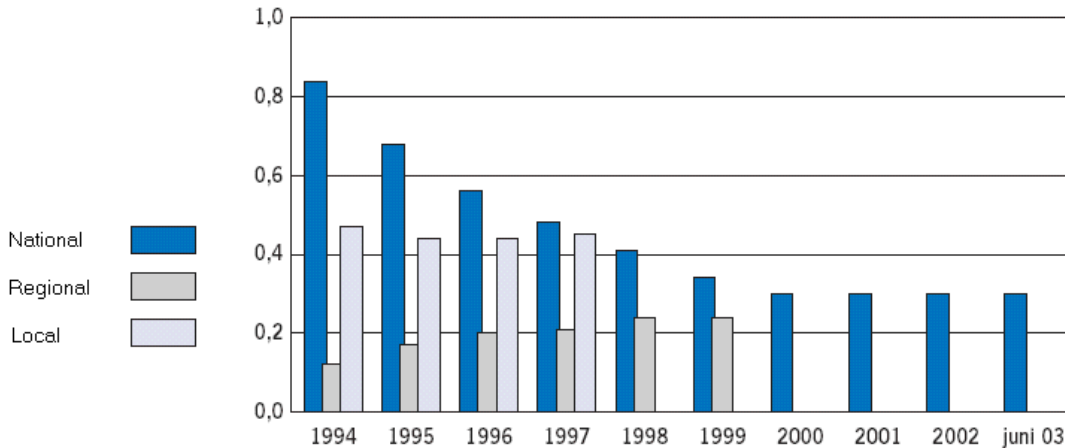


Table 6 Price for 1 minute of a 3-minutes call based on TeliaSonera price list from December 2002.(PTS-ER-2003:5)

There are eleven operators licensed by PTS for fixed telephony and five for mobile telecom services. TeliaSonera still has a dominant position but other operators are slowly catching up. See tables 7-8.

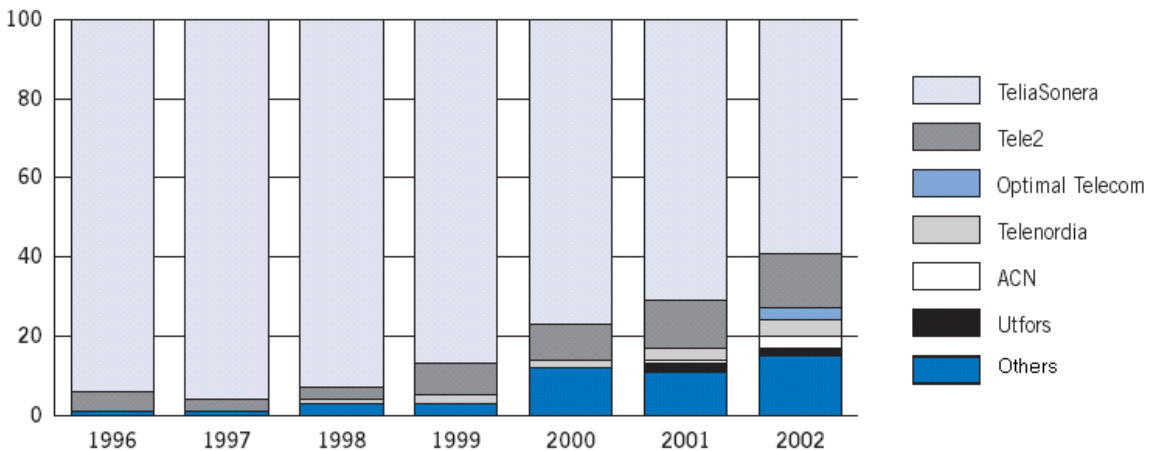


Table 7 Market shares for national calls – traffic revenues (PTS-ER-2003:5)

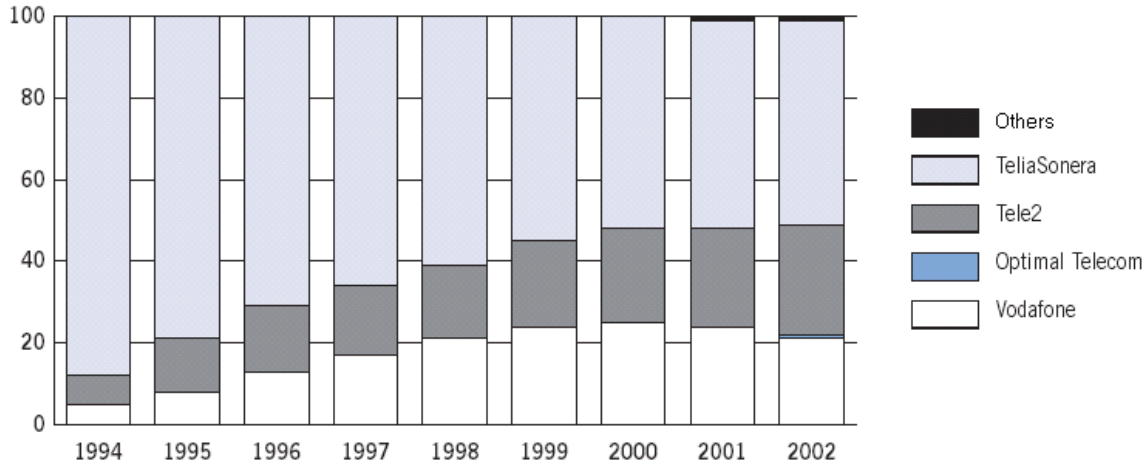


Table 8 Market shares based on total market turnover for mobile telecom services (PTS-ER-2003:5)

There has been an enormous though sharply declining growth in all aspects of Internet. See tables 9-10:

- Growth of the total number of Internet customers in 1996 was 337%, already two years later it dropped to 122%. In 2002 the growth of Internet customers was 13%
- Growth of Internet customers with access over 56 kbps in 2001 was 268% and 2002 58%.

There are several new players on the Internet market. Even on this market segment TeliaSonera has a dominant position. TeliaSonera owns and controls most of the subscriber lines (local loops). The new regulation is forcing TeliaSonera to open local loops for other service providers than the owner.

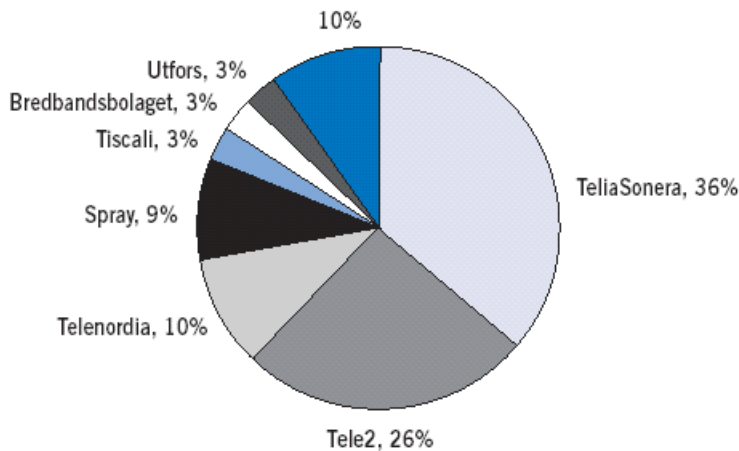


Table 9 Market shares – all Internet customers (PTS-ER-2003:5)

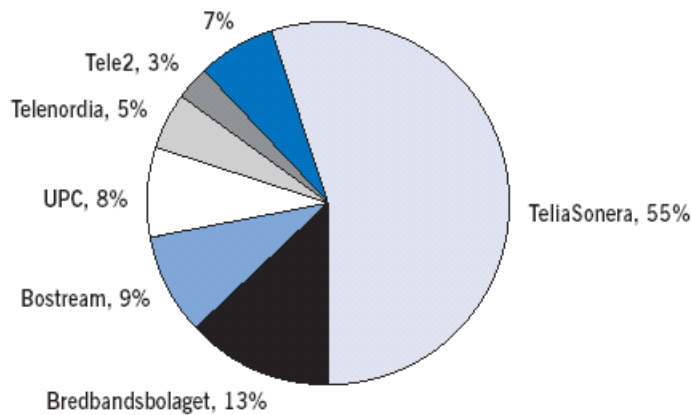


Table 10 Market shares for Internet customers with capacity over 56 kbps. (PTS-ER-2003:5)

Electronic Communications Act

The Electronic Communications Act replaced the Telecommunications Act from 1993 and the Radio communications Law. This law deals with electronic communications and communications services provided in networks. The law is not dealing with the content of services. The objective of this Act is to create a common and technique-neutral law for all types of electronic communications due to difficulties to distinguish between data and telephony.

5. lessons learnt and further research questions

The telecommunications industry is one of the most dynamic industries of our time. Here are some lessons from the Swedish experience:

- Equal rules and free entry to the market were not enough to introduce fair competition on the Swedish telecommunications market. Most of the amendments to the 1993 Telecommunication Act depend on the need to introduce rules forcing the incumbent operator to give other operators access to its network resources. There was overconfidence in market forces that opening of the market would lead to many new entrants that could relatively quickly become real competitors to the incumbent operator.
- Televerket argued for regulation of the Swedish telecommunications market because they feared that competition from many newcomers would become too fierce. This had no real ground. The fact that the telecommunications industry is a network type of industry was not much taken into account.
- The technical development makes it difficult to distinguish between different techniques. Internet did not even exist in 1993 and digital mobile telephony (GSM) was not much bigger than analogue systems (NMT). Today, it is almost impossible to imagine living without these services. Already, broadband connections are rapidly increasing in numbers and soon 3G (UMTS) mobile communications will provide us with anywhere and anytime connections for voice and data. The incumbent operator also dominates in these new markets.
- Consumers need protection and guarantees to receive a broad range of services with good quality, availability and security at the right prices. The move from yesterday's – almost no service and – no choice to today's wide array of ever-changing services and necessity to choose among contracts, price schemes and other components can be very confusing to consumers.

To have a better understanding of the likely results of the introduction of competition in the telecommunications market, it is of interest to study:

- If the liberalization processes in other network industries e.g. electricity, airlines and railways have given similar results.
- Most of the developed countries have now introduced competition in the telecommunications market. Thus, it is possible to make a comparative study between different countries.
- If the starting position for different countries in terms of the number of subscribers, installed infrastructure and consumers' ability to buy and use equipment and services varies, how then to get the best of competition and what are the most favorable conditions to do so?
- What is the importance of technical standards for fair competition and their pros and cons for stimulation and hampering the development of new techniques.

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