

Facts about the Mobile. A Journey through Time.

History

In 1956, the Swedish telecom companies, TeliaSonera and Ericsson created the world's first fully automatic mobile telephone system. This was the first time ever that calls could be made and received in the car while using the public telephone network system. It was now fully automated and could be done without an operator connecting the call. This was pioneering work and attracted masses of international attention. The system, Mobile System A (MTA), had now been developed by two engineers at the Swedish state-owned company then known as Televerket. Ericsson provided the switchboard and base station while Svenska Radioaktiebolaget (SRA) owned by Ericsson and Marconi provided the telephones.

Less than ten years later a more modern system called Mobile System B (MTB) was launched which used transistors in order to enhance the telephone's calling capacity and improve its operational reliability.

By 1981, the so called first generation of mobile telephone systems also known as the Nordic Mobile Telephone System (NMT) emerged. According to Östen Mäkitalo, seen as the father of the mobile telephone, "*NMT was the first modern telephone system, the mother of all mobile telephones. Everything after that are actually just copies*". During his 30 years that he worked at Televerket and TeliaSonera, he was both the brain behind NMT and, together with Ericsson's main GSM developer Jan Uddenfeldt, one of the main architects of today's GSM system. NMT was the starting point in the mobile revolution, and Sweden and the Nordic countries were in the forefront. NMT was a huge commercial success and after 10 years the system had over one million subscribers in the Nordic region.

NMT was replaced by the second generation telephony system, Global System for Mobile Communication (GSM) which was the result of a joint European project. GSM is a success story and no other technology has been used by so many people in such a short period of time. When the GSM system was introduced in 1991, there were 16 million mobile users altogether in the world. Now 15 years later, 2006, there are 2.5 billion whereby, 2 billion are using GSM. By the end of 2007 the number of mobile users is expected to exceed three billion, and as yet there is no sign of it slowing down.

During 2002 the third generation mobile telephone system, 3G, was launched.

The mobile telephone – from an exclusive 40-kilo device – to a handheld device

When the first car-telephones came out in 1956 they were very exclusive. They were very bulky and the car-telephone took up most of the trunk space in the car and weighed 40 kilos. Besides that, it cost almost as much as an ordinary small car at the time, around SEK 6,500 – SEK 7,000 which corresponds to around SEK 70, 000 nowadays. The telephones consumed so much power that the car batteries could hardly meet their demands and after just a couple of phone calls the batteries required recharging. The system had a bandwidth of 30 kilometres and was only available in the two major Swedish cities, Gothenburg and the capital, Stockholm.

During the 1970's the MTD system was met with great success and was popular in many VIP-vehicles. However, telephones became much smaller over the years and weighed only nine kilos with approximately 600 subscribers in Sweden.

The first portable telephones appeared with the launch of NMT. In 1987 Nokia introduced Cityman while at the same time Ericsson introduced their Hotline Pocket. They weighed about one kilo and had 30 minutes talking time. Though they were still very exclusive and sold at as much as SEK 30 000, the mobile telephone made a dramatic breakthrough largely due to the fact that they had become much smaller in size.

These days phones are so small that they easily fit into your trouser-pocket. Price, short stand-by or talking time is no longer a problem as there is a whole range of models – ranging from budget models to more luxurious ones.

The mobile from a social perspective

The mobile has changed people's lifestyles and way communicating. It makes day-to-day communication so much easier and has meant that we can communicate with each other whenever we choose without having to be in a particular place. This leads to more social contact between family members, friends and colleagues. It also means that many practical matters can be dealt with in a more efficient and comfortable way and a lot of things can be done even when we are "on the go" and in our spare moments, which was not possible in the past.

On the other hand, the feeling of always being reachable, never being able to be left in peace, is sometimes experienced as being very problematic. The mobile phone can create a feeling of always being on call or watched over because the phone makes us contactable wherever we are. Yet again, for some people it is the contrary. The feeling of not being contactable is stressful. The mobile phone creates a pleasant, calm feeling of being in control, being in touch and being part of a community.

With this mobile technology, information and new services become readily and easily available. Besides just communicating, we can access specific information, the news, images, pay for parking, get directions, etc. The list is very long and growing all the time.

The mobile and globalisation

The world is getting smaller, thanks to the mobile phone. We can roam the world and have access to all the information and communication we could ever want thanks to this technology and its global standards. Without developments in mobile telephony, globalisation would not have taken place as fast as it has over recent years.

The mobile and importance for economic and trade development

The mobile telephone is a development factor in the world economy. In Europe, America, Asia and Africa it is helping to create more jobs and increased growth. Now that the mobile phone dominates in the industrialised nations, it is the developing countries that are now experiencing the largest growth in mobile telephones especially during the last five years.

The increase of subscribers/users 1991-2005

Technology	Increase %	Increase by X times
Fixed telephony	231%	2
Mobil	13550%	135
PC	610%	6
Internet	21909%	219

Source: International Telecommunication Union, ITU.org, Genève

As yet there are no total figures regarding the contribution of mobile phones to economic activities and employment on a global scale. It is however estimated that the combined incomes for mobile operators for all mobile traffic amounts to approximately \$US 600 billion and in addition to this, is the sales of infrastructure for mobile networks and telephony. There are also several national and regional studies showing the socio-economic effects of the mobile phone. In 2004 mobile services generated €105 billion in the EU-15 countries, equivalent to 1.1% of the EU's total GNP. Mobile services gave direct and indirect employment to 2.8 million EU citizens altogether. In a similar survey in the USA, it was estimated that direct and indirect employment amounted to 3.6 million people in 2005 which corresponds to 2.5% of all jobs in the country. In Venezuela the telecom sector generates 16% of the GNP, which makes it the country's most important source of income after oil.

According to Leonard Waverman, Professor in National Economics at the London School of Economics, there is a clear link between the number of mobile users and economic growth in society. The conclusion is that if penetration increases by 10 percentage points this gives an increase in GNP of 0.3 percent. The significance of the mobile telephone, according to Waverman, is even greater in developing countries than in the industrialised world, because it opens up previously unthought-of opportunities for people to communicate.

People in developing countries attribute very high value to the opportunity to use a mobile phone. They invest a significantly larger portion of their disposable income on mobile phone use than people in richer countries do. The importance of being able to stay in touch with the surrounding world and to gain access to information is rated so high, that they are prepared to use a large part of their income on a mobile phone. Farmers, fishermen, craftsmen, small traders gain better markets for their goods and services when they can keep in touch with the market thanks to the mobile phone.

The mobile phone is used in Uganda and Tanzania for fighting poverty, in Bangladesh to get access to education, and in Rwanda to develop social life and business opportunities. In the past 50 years since the first mobile telephone appeared, the mobile phone has gone through an evolution from something very exclusive to only a few in society, to being an economic and social booster creating hope for the future.

Important events and years in the development of mobile telephony

1956

- The world's first fully automated system for mobile telephony is launched in Stockholm on 25th April. MTA starts with eight subscribers.

1965

- The Swedish state-owned Televerket launches a new automatic mobile system, MTB, developed by Ragnar Berglund, in Stockholm and Gothenburg. It is much more advanced technically than MTA, using transistors which are more reliable and more compact.

1969

- After 13 years and at most 150 subscribers the MTA is discontinued.
- On 24-27 June the Nordic telecom administrators meet for a conference in the little fishing village Kabelvåg in the Norwegian Lofoten Islands. On the agenda, under the heading Any Other Business Carl-Gösta Åsdal from Televerket suggests, on the last day, into looking at the possibilities of a common Nordic standard for Mobile Telephony. The conference accepts the proposal and appoints a working group called NTR 69-5, the Nordic Mobile Telephone Group. The chairperson is Håkan Bokstam and the secretary Thomas Haug from Swedish Televerket.

1971

- The NMT group presents its plans for 40 or so suppliers, including several Japanese and American companies. In the same year Televerket removes its monopoly on mobile terminals. This opens the way for competition between the different suppliers.
- MTD, a manually operated mobile telephone system is introduced on December 1st as a transitional solution awaiting NMT. MTD becomes a great success with a peak of 19,700 subscribers in 1980, its best year, employing 700 operators. Corresponding systems are in Denmark and Norway, while Finland chooses its own solution, ARP.

1974

- SRA releases a mobile telephone weighing only three kilos.

1975

- At a Nordic telecom conference, NMT is approved as a technical standard.

1977

- A research group with representatives from Televerket, Ericsson and the four institutes of technology is appointed to look into the requirements for a digital mobile telephone system to succeed NMT.

1979

- In March, Jan Stenbeck starts the mobile operator Millicom Inc. in the USA together with Shelby Bryan.

1980

- Kinnevik buys the Swedish Företagstelefon AB in September which changes its name to Comviq.

1981

- In August Comviq launches its new analogue system, based on switchboards/exchanges and base stations from the USA. It is a manual system, which initially lacks a roaming function.
- On 1st September Saudi Arabia becomes the first in the world to launch a commercial NMT system. Ericsson and SPA are the suppliers.

- NMT 450 is inaugurated in Sweden on 1st October. Televerket estimates 45,000 subscribers in Sweden up to 1990 and this target is met after only three years. The price of a telephone is 17-18,000 kronor.
- On 1st November Norway introduces NMT 450.

1982

- Denmark brings in NMT 450 in January.
- Finland launches NMT in March.
- Groupe Spéciale Mobile, GSM, is set up on the initiative of CEPT (Conference Européenne des Post et Telecommunication) in June to produce proposals for a public European mobile telephone system. The chairperson is Thomas Haug from the Swedish Televerket. Groupe Spéciale Mobile later becomes known as Global System for Mobile Communication in English.
- The first GSM meeting is held in Stockholm in December with 31 people from eleven countries participating.
- Roaming is launched in the NMT 450 network in September between Sweden, Denmark and Norway.

1983

- On January 1st Ericsson buys Marconi's share of SRA. The now fully owned company is renamed ERA.
- American Motorola releases the first hand-held cellular mobile telephone, Dyna TAC.
- Televerket raises its forecast for the number of mobile telephone contracts in Sweden to 100,000 by 1990.
- USA opens its first cellular mobile system based on the US-developed AMPS technology.
- In May Ericsson signs a contract with American Buffalo Company for the delivery of a mobile network using the AMPS technology. This is Ericsson's first order in the USA and the network starts up in April the following year.
- The McKinsey consulting firm forecasts the world market for mobile telephony will amount to around one million subscribers by the year 2000. The actual figure becomes 740 million subscribers.
- After 18 years of service the MTB system is closed down. The system had a maximum 660 subscribers in its peak year of 1978.

1984

- The Finnish company Nokia launches its first portable car-telephone, the Nokia Talkman.

1985

- In September, five years after its launch the NMT celebrates its 100,000th subscriber in Sweden.

1986

- NMT 900 is launched in November as a complement to NMT 450 to deal with its capacity problems. NMT 900 makes it possible to manufacture small pocket phones.
- Ericsson launches the first Hotline telephone. Weight 3.5 kilos.
- Ericsson management states that from now on mobile systems will be part of the company's core business.

1987

- The first pocket telephones are introduced. Until now all mobile telephones have been mounted in cars. The new telephones are called "Yuppie toys". Ericsson releases its first hand-held Hotline telephone weighing

around one kilo and costing 30,000 kronor. Previously Nokia had introduced its Nokia Cityman, a portable NMT telephone.

- The manual MTD system is discontinued. The subscribers are offered favourable terms to change over to NMT.
- At a GSM meeting in Copenhagen a decision is taken to introduce the new European mobile system later in January 1991. It is later changed to July 1991.

1989

- American Motorola's new MicroTAC is the world's smallest and lightest mobile telephone so far.

1990

- The GSM group decides on the final specifications for the new mobile system. It results in a document with a total 5,000 pages. It is estimated that ten suppliers have invested 5,000 man-years at a cost of US\$350 million in the project
- The number of mobile subscribers in the world passes the ten million mark

1991

- Officially the GSM starts in July. But most countries delay their start until 1992 due to a shortage of telephones.
- Ericsson delivers the first GSM system to Mannesmann in Germany.

1992

- Comviq and Europolitan launch GSM in Sweden in September. Televerket follows suit in November.
- The working group for the third generation mobile telephony UMTS is set up in September.
- The Briton, Neil Papworth is thought to have sent the first SMS on December 3rd from his PC to Richard Jarvis at the British GSM operator Vodafone. Other sources claim that it was the Finnish engineering student Riku Pihkonen, who sent the first text message in 1993.
- Ericsson introduced the first pocket sized GSM mobile telephone.

1993

- Forecasts talk of 100 million mobile telephone subscribers in the world by the end of the Millennium, but this figure is already reached by 1996.

1997

- Comviq launches the first pre-paid refill cards in Sweden in March. Telia follows suit the following year.

1998

- The analogue mobile network reaches its peak with 91 million subscribers in the world.

1999

- The Japanese NTT Docomo launches its I-mode, i.e. Internet services on the mobile phone. The technology becomes a success thanks to a system where those making the services are well paid by the operator for their use.

2000

- All around the world operators are competing for 3G telephony licences. In Sweden the largest operator, the state-owned Telia, is surprisingly left without a 3G licence when the Post and Telecom Board make their decision regarding the four Swedish 3G licences.

2001

- In April Ericsson and Vodafone make the first 3G call in England. The call is made to a fixed-line telephone in Newbury.
- The analogue NMT 900 network is terminated in Sweden. However the original NMT 450 network continues its operations.
- Japanese Sony and Ericsson decide to form a joint company for developing and manufacturing mobile telephones, Sony Ericsson.

2002

- The billion mobile subscribers mark is reached. By the end of the year there are 1.17 billion mobile subscribers in the world.

2003

- The 3G operator, Three launches its 3G network around the world. In Sweden Three launches its 3G services in May. The availability of 3G phones initially is however rather poor to begin with as there is only one model, the NEC e606. In the autumn Vodafone start its European 3G networks.

2005

- Ericsson delivers the first HSPA system in the world.
- Mobil Wimax challenges 3G as a standard for both telephony and data traffic. In December the standard for mobile Wimax (802.16-2005) is decided.

2006

- In August Samsung shows off a mobile phone connection with 4G technology which will give a data speed of between 10 and 100 Mbps.
- The number of mobile subscribers in the world passes the 2.5 billion mark this year. Altogether up to 950 million phones are sold during this year around the world.

2007

- The forecast predicts three billion mobile users in the world. This corresponds to 45% of the world's inhabitants.

