

Mobile communication services from a user and traffic perspective



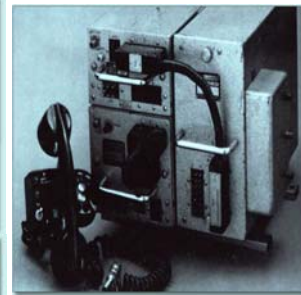
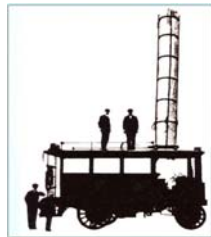
- Mobile services the first 50 years
- Service mix
- Handsets and devices
- Usage and traffic
- Prices and price plans

Jan Markendahl
November 7, 2013

Many thanks to our college Östen Mäkitalo
who prepared the first version of this lecture

1

The first 50 years of mobile telephony.



1956



2

Students now and then

- Mobile telephony when I was a student?
- What to do?



3

Students now and then

- Mobile telephony when I was a student?
- What to do?



4

The mobile dream



- The first automatic systems (1956, 1966) showed the potential of mobile telephony, and gave birth to two dreams (1968)
 - A mobile phone as every persons property
 - With a mobile phone you can reach anybody - anytime and anywhere
- The NMT system launched 1981 was designed to met requirements enabling the dreams
 - Automatic service
 - Wide area coverage, Handover
 - Roaming
 - High capacity
 - Affordable cost
 - Easy to use and handy terminals

5

Important milestones for the development of GSM and its followers



2G /GSM

- The GSM group was established (1982)
- Basic requirements for GSM (1985)
- GSM system trials in Paris (Dec 1986)
- GSM specifications finalized (1987-1988)
- GSM in commercial service (1991 – 1992)

3G/UMTS/WCDMA

- ITU starts the work with UMTS (1987)
- WCDMA chosen as "3G" standard (1998)
- UMTS taken into commercial use (2001)

6

Further development



- GSM originally aimed for speech/low speed data.
- Up to 1990 the users were mainly professional-**Why?**
- UMTS from 1987 was intended to become a global system for telephony.
- GSM however solved this task.
- The development of UMTS was therefore during the 90 ´s refocused to the possibilities to offer **higher speeds and new services**
- UMTS has been further developed to HSPA
- LTE = 3G Long term evolution agreed 2005

7

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8

For how long time have we used different types of services (Sweden) ?

- Fixed telephony: > 100 years
- Mobile telephony: 30 years
- SMS services: ~20 years
- Phones with cameras and MP3 players: ~ 10 years
- SMS payments: ~5 years
- Smartphones and mobile Apps: < 5 years



9

TeliaSonera.s view on the mobile content business – what year is this ??

Step 1- Manage the end-user interface in TeliaSonera's mobile channels

- Take ownership of the mobile interface using customer-friendly Clients and Softkeys to our services



19

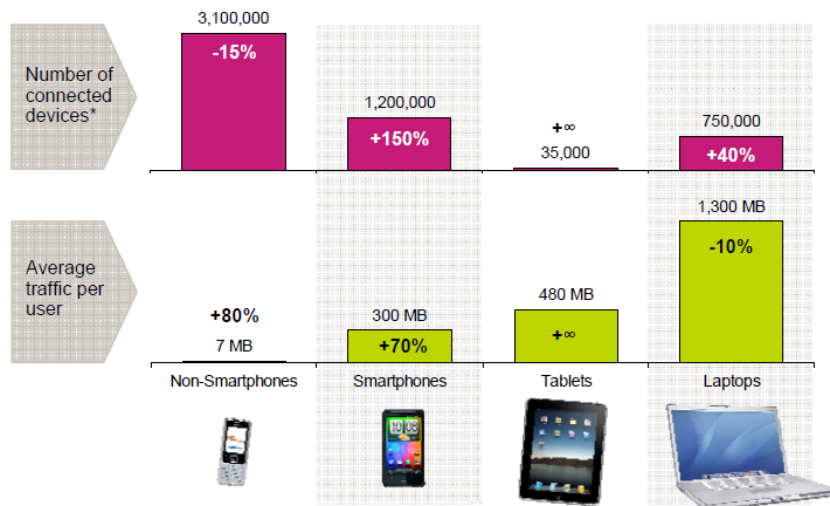
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11

More devices get connected



Active devices measured, Sweden April 2011 compared to last year
 * M2M not included

45

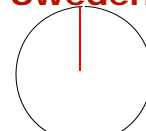
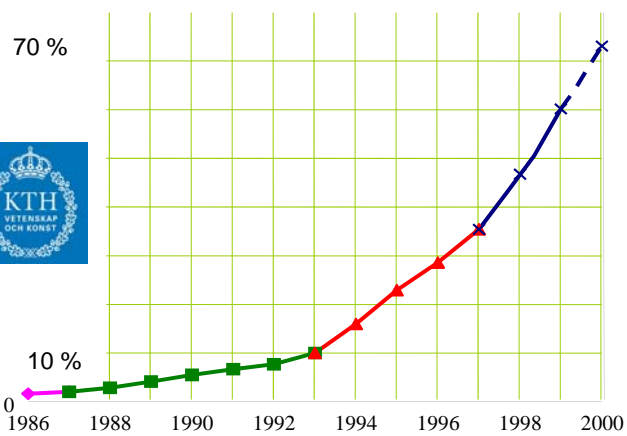
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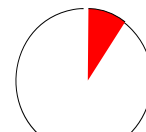
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13

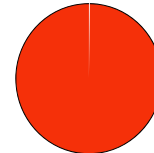
Mobile telephony penetration in Sweden



1981



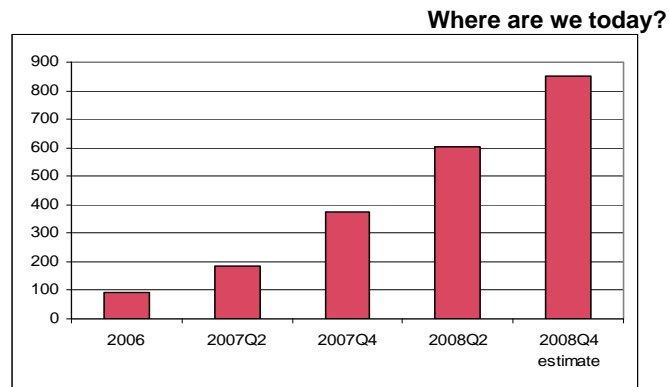
1991



2004

14

Mobile broadband subscriptions in Sweden (thousands)



Will Mobile broadband penetration graphs make sense in the future?

15

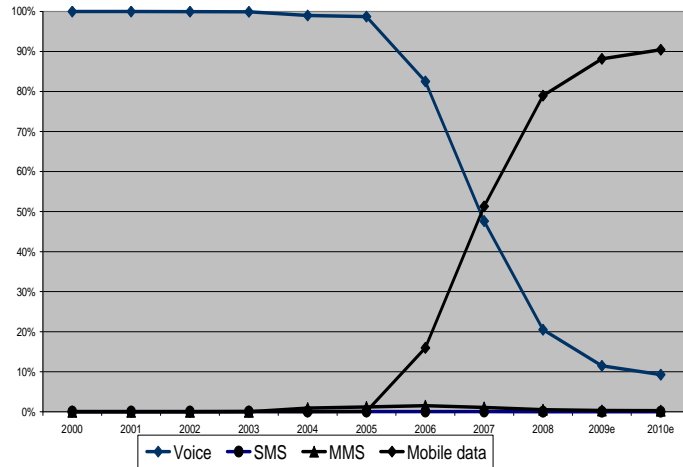
Amount of data – orders of magnitude (GB per month and person)



- Voice traffic 0,01-0,02 GB
- Smartphones now 0,10-1,00 GB
- Smartphones later on ??
- Laptop MBB as complement 1 – 5 GB
- Laptop MBB as substitute 2 – 20GB

16

Mobile broadband share of total traffic (Sweden)



17

Broadband subscriptions (globally)



- 2007 - 2014 the number is expected to grow from 400 to ~3400 millions.
- The share of mobile broadband grows from ~ 100 millions to ~2800 millions
- This implies that "broadband" will mean "mobile broadband" for most people

The mobile phone becomes a persons 24 hour a day servant

18

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19

Demand & price - Observations

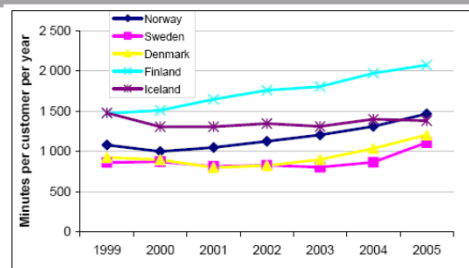


Figure 3 Number of traffic minutes per customer per year.

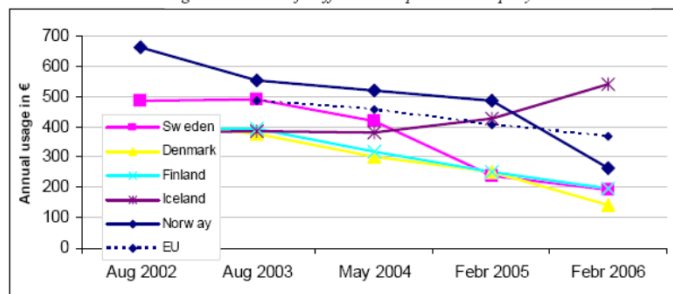
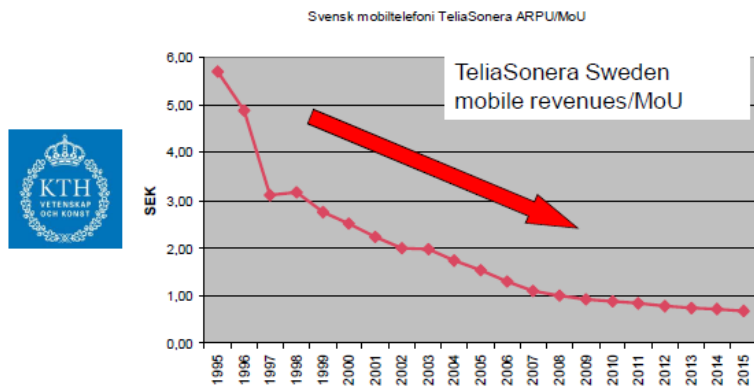


Figure 5 Changes in the price of typical normal usage.

20

Competition pushing down prices



Revenues per minute has declined ~12% per year since 1995

31

Development of prices Wireless Internet and mobile broad band access



- Telia Homerun -2006
 - Hot spot WLAN service
 - 150 € per month
- 3 Mobile broad band 2006
 - UMTS 3G card for laptop
 - 40 € per month
- Telia ConnectPro 2007
 - WLAN, GPRS, UMTS
 - 30 – 55 € per month
- Mobile Broad band 2011
 - Super 3G, Turbo 3G, 4G,
 - 5 – 50 € per month

22

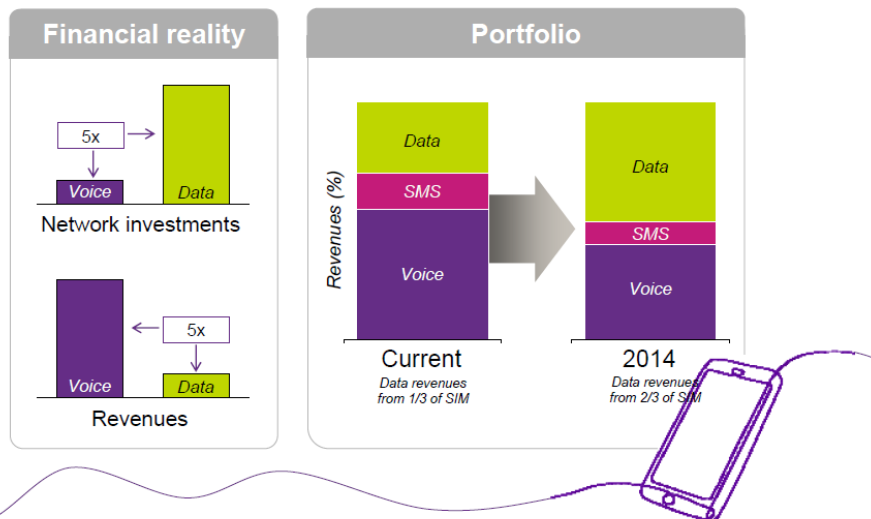
Revenues (2008)

- Voice 60 % (declining)
- SMS 12 % (increasing)
- Mobile broadband 3 % (rapidly increasing)
- Other 25 %



23

Rebalancing of pricing model needed (2011)



48

Components in Mobile broad band offers

For the "dongle" business

- Length of contract
- Price
- Data rate
- Amount of data
- Fee for dongle or not
- Conditions when data limit is exceeded



Smartphones?

What is paid by the consumer and the operator?

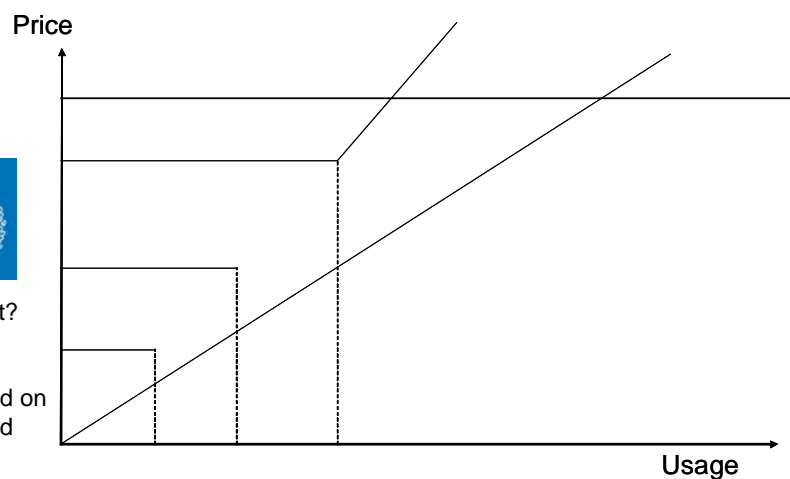
25

Different pricing strategies



What is what?

- Flat rate
- Box pricing
- Box with add on
- usage based



26

Subsidies and "lock in" periods



- Handset subsidies is a very large part of the operator costs for customer acquisition
- There are differences between countries
 - In Finland it has not been used (until recently)
 - In Denmark the lock in period is max 6 month
 - In Sweden the lock in period is max 24 month
- A two minute question (discuss 2 and 2)
 - Estimate the handset subsidies payed one year in Sweden by the operator Telia?
 -

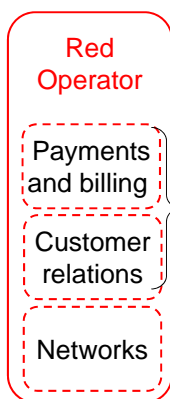
27

Investments

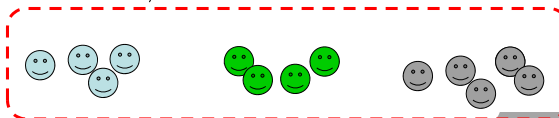
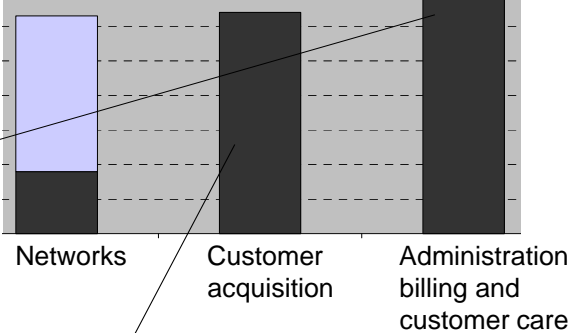
Running costs



Cost structure for a MNO



US operators 2003-2005, by Werding 2005



28

Pay monthly plan	Mobile Broadband Pay Monthly plans	Laptop Packages	Mobile Broadband Pay As You Go plans	Wireless Router	Your total monthly cost
Broadband Lite 1GB <small>Plan detail</small>	1 GB of data allowance every month <small>24 month contract</small>		Free modem on this plan		£10 a month Pick
Broadband Lite 1GB <small>Plan detail</small>	1 GB of data allowance every month <small>18 month contract</small>		Free modem on this plan		£10 a month Pick
Broadband Lite 1GB <small>Plan detail</small>	1 GB of data allowance every month Modem costs from £48.53 <small>12 month contract</small>				£10 a month Pick
Broadband 5GB <small>Plan detail</small>	5 GB of data allowance every month <small>24 month contract</small>		Online exclusive Free iPod shuffle		£15 a month Pick
Broadband 5GB <small>Plan detail</small>	5 GB of data allowance every month <small>18 month contract</small>		Online exclusive Free iPod shuffle		£15 a month Pick
Broadband Plus 3GB <small>Plan detail</small>	3 GB of data allowance every month <small>12 month contract</small>		Free modem on this plan		£15 a month Pick
Broadband Max 7GB <small>Plan detail</small>	7 GB of data allowance every month <small>12 month contract</small>		Free modem on this plan		£25 a month Pick
Broadband 15GB <small>Plan detail</small>	15 GB of data allowance every month <small>24 month contract</small>		Online exclusive Free iPod shuffle		£30 a month Pick
Broadband 15GB <small>Plan detail</small>	15 GB of data allowance every month <small>18 month contract</small>		Online exclusive Free iPod shuffle		£30 a month Pick

Mobile Broadband on Pay As You Go

Share your Broadband

Just plug your USB Modem into our shiny Wireless Router and anyone in your house can get instant internet access. No handsets and no more fighting to get online.

It's easy (and we thought we'd mention) cheap web access for up to four people. And if you want to be on the move, just pull out your USB Modem and get your broadband to go.

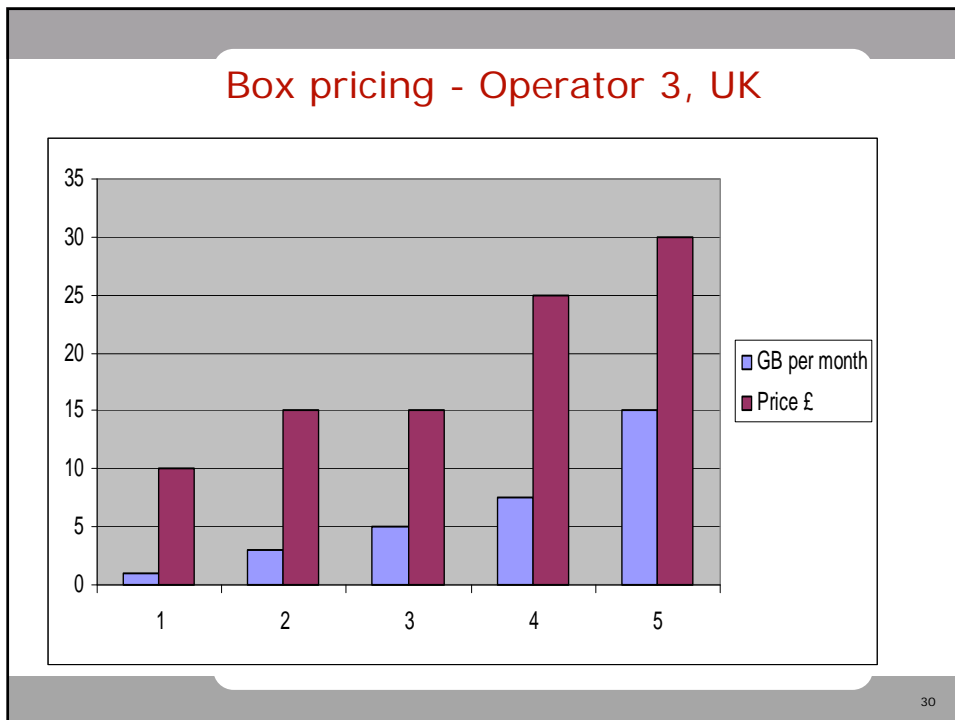
Wireless Router

Get 25% off.

Already a 3 contract customer? Let us know when you Checkout (in Your Basket - see below) and we'll make sure you get 25% off Mobile Broadband each month. Lucky you.

Already a 3 customer?
Take the most of these offers...

Just have your 3 mobile number and account number handy and you'll get the discount. Easy.
Terms & Conditions apply



Prices Internet access



- Fixed broadband to homes
Flat rate 10 – 30 € per month; up to 100 Mbps
- Wireless broad band – business hot spots
10 € per hour or 30 € per 24 hours
- Wireless broad band – “consumer” hot spots
For free or included in other service
- Wireless broad band – cellular
Flat rate/Box pricing 10 – 30€ per month;
[0,5 – 16 Mbps] [1 – 20GB per month]
Flat rate 50€ (30€); up to 80 Mbps

31

Example - International roaming User costs, price per minute (2006)

Outgoing calls

lowest price of visited network highest price of visited network

Grekland				Cypern			
Telia	9,69	12,19	5,50	Telia	12,19	12,19	5,50
Tele2/Comviq	5,61	12,18	4,50	Tele2/Comviq	3,79	4,29	4,50
Telenor	8,95	10,29	5,25	Telenor	8,95	8,95	5,25
Tre	9,50	9,50	5,00	Tre	9,50	9,50	5,00

Källa: Operatörernas nätverk, 2006-01

Home operator

Incoming calls

32

International roaming



- One "regulated market"
 - Origination and termination of international calls
- Status
 - All operators have roaming agreements, globally more than 25 000 bi-lateral agreements
 - International calls have been very expensive,
 - 0,3€ - 2€ per minute for international calls
 - compare 0,05 – 0,2 € for national calls
 - EU have stated maximum prices for mobile calls
 - 0,5€ outgoing calls and 0,2€ for incoming calls
- It is still VERY expensive for mobile data!!

33

Costs for mobile data abroad

Sms:a, mms:a och surfa

För muspekaren över roamingzonen för att se vilka länder och operatörer som ingår i zonen eller se [version för utskrift](#). Priserna gäller från 1 apr 2008 och anges i SEK/meddelande för sms och mms samt SEK/MB för surfa. Priserna är inklusive moms.

SEK/MB

Zoner	Skicka sms	Ta emot sms	Skicka mms	Ta emot mms	Surfa**
Zon 1	2,50	0	5	3,50	25
Zon 2a - UOp	3	0	8	6,50	40
Zon 2a	3	0	8	6,50	85
Zon 2b	3	0	9	7,50	120
Zon 3	4	0	10,50	9	145
Zon 4	4	0	9	7,50	120
Zon 5	4	0	10,50	9	145
Övriga länder	*	0	10,50	9,50	145

34

1 minute question

- How many MB can you use in each country before the cost for the data usage exceeds the average price for an airline ticket?
 - Germany 4€ per MB
 - Japan 14€ per MB



35

Operator marketing

- Looking into ads in daily papers;
 - What different types of messages can we see ?
 - What different customer segments are addressed?



36