Prepared for IK 2514 Wireless Infrastructure Deployment & Economics

Intro to telecom markets
- From monopoly to oligopoly, de-regulation, liberalization

24 October 2012, 13-15

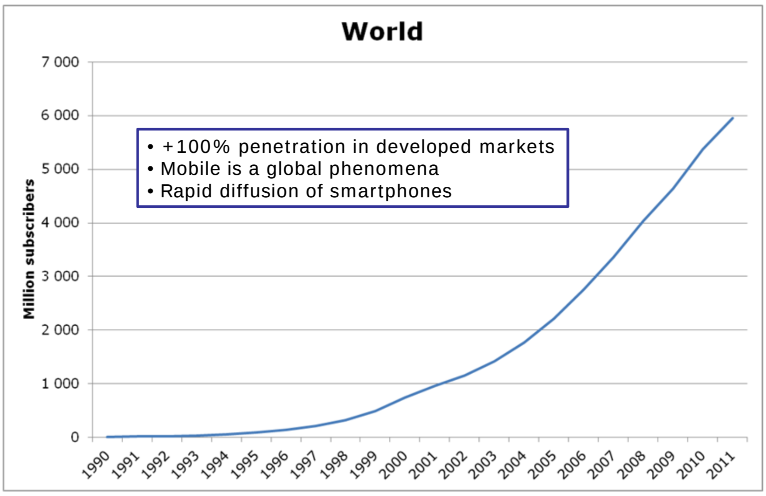
Bengt G Mölleryd, Ph.D.
Swedish Post and Telecom Agency (PTS)
guest researcher at wireless@kth

email: bengt.molleryd@pts.se

Agenda

- Telecom market
- Market structure
- Market development
- Data growth
- Network sharing

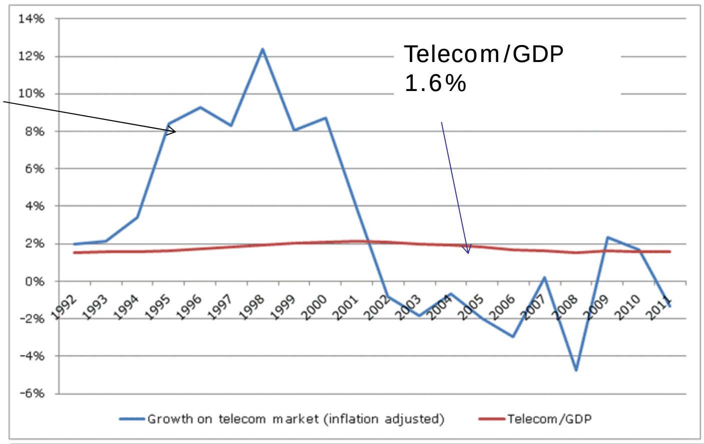
More that 6 bn mobile subscribers



Source: ITU

Sweden: A mature market

Growth of telecom revenues* (inflation adjusted)

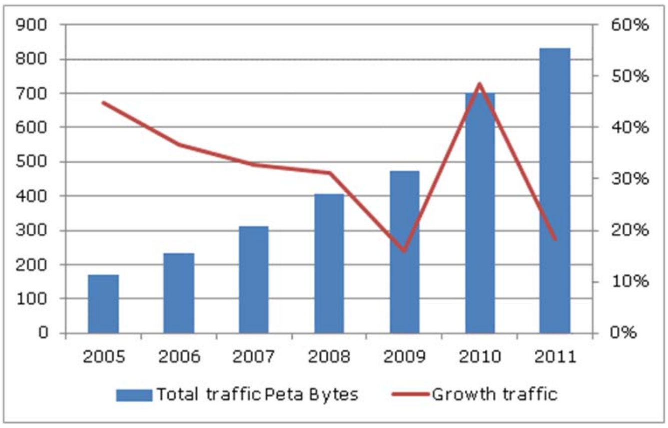


Mobile data is a growth engine but not sufficient to offset decline on fixed

*Total end-customer revenues. Source: PTS

Sweden: total telecom traffic

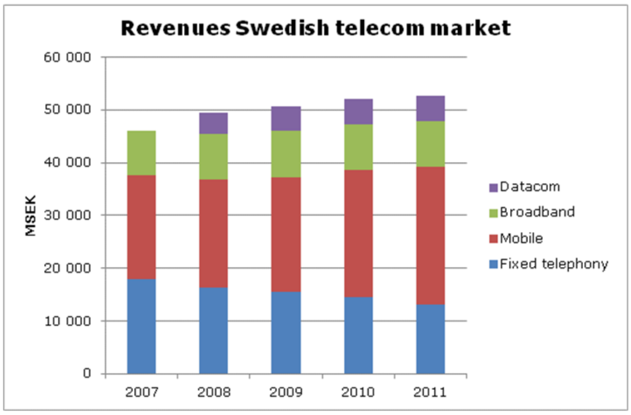
Average traffic growth 30% per annum



Relation between traffic and revenue growth?

Source: PTS

Sweden: telecom services revenue

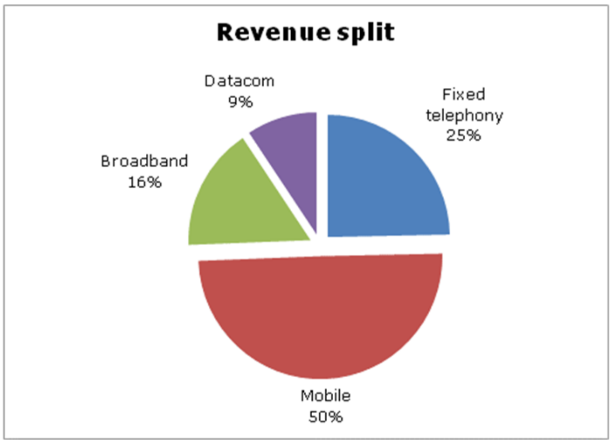


What factors influence the market share development?

Revenues = total end customer revenues

Source: PTS

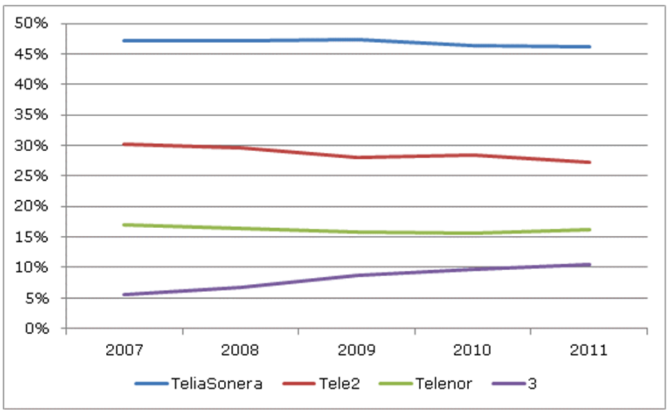
Sweden: Revenue split telecom services



PTS

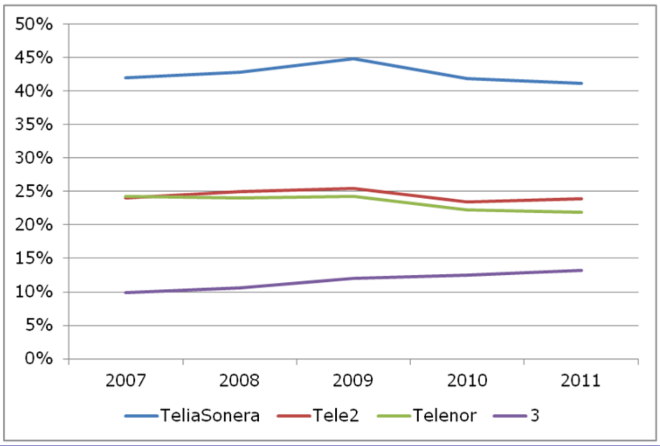
Opportunities for 4G? Does 4G need fiber in backhaul to be a substitute with fixed broadband?

Market shares (subs) Swedish mobile



3 is gaining shares, minor changes for the other operators

Market shares (revenues) Swedish mobile



What conclusions could be drawn from the deviation: market shares on subscribers vs revenues?

Actors – different roles and functions

- Network Operators
- Mobile Virtual Network Operators (MVNO)
- Tower companies
- Distributors
- Equipment manufactures
- Handset suppliers
- Application providers
- Online companies
- Other…

Core competence

- Distributors
- Equipment suppliers
- Handset suppliers
- Network operators
- MVNOs
- Applications
- Payments

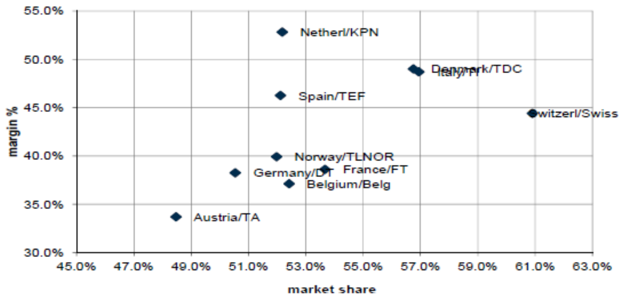
→

- Financial
- Innovation
- Management
- Operational
- Sales and marketing
- Services
- Software
- Technical
- Other

What competences are critical?

Economy of scale
- Larger market share - higher margin

Figure 1: Margins and market share



Source: Handelsbanken Capital Markets

Source: Handelsbanken Capital Markets

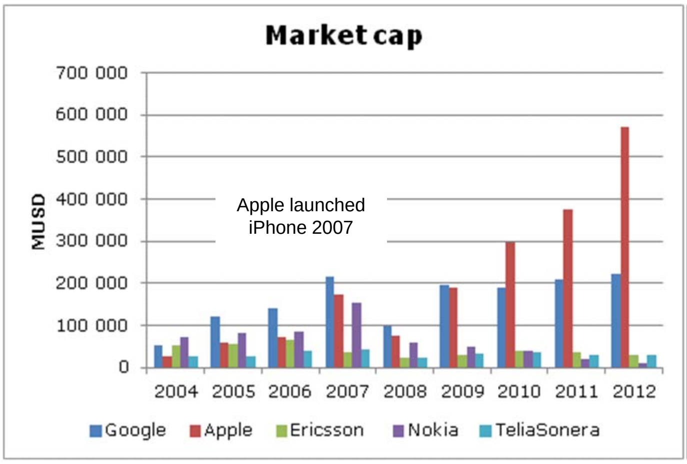
What factors explain the relation between size and profitability?

Competition from on-line companies

Connectivity → Enabling technology/ services → User interface → Online Services

What impact have Apple's, Google's and Facebook's expansion on operators?

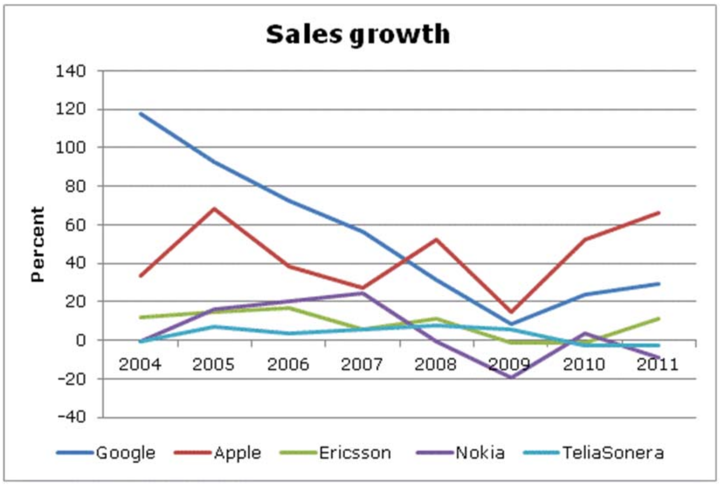
Growing or dropping in value



Source: Bloomberg

Nokia's market cap has dropped with 92% since 2007.
What conclusions could be drawn of this development?

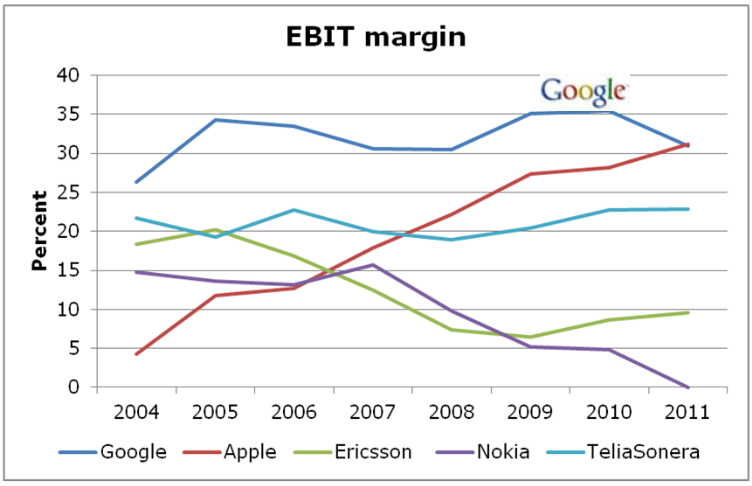
Apple outperform



Source: Bloomberg

What can explain the differences between the companies?

...and high margin



Source: Bloomberg

What explains TeliaSonera's high margin?

Focus on access and/or services

- Should operators focus on services or only access?
- How to capitalize on the social network trend?
- A myriad of services: each being small versus operators' revenues
- Different business models
- Many new competitors with established brands: operators market share will be small
- Enabler, 3rd party service

Operators loosing ground on services and apps

- Operators loosing ground in the Apps battle
- Handset and Apps developers gaining ground
- Access to one Internet in focus, giving US firm an advantage
- But it is also a question of innovation…

Smartphones and apps are driving substitution of SMS.
Source Bloomberg

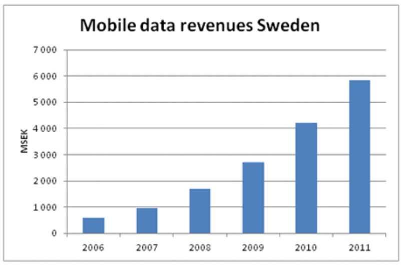
Elisa: Smartphone users spend 10-15% more than other mobile users.
Source Bloomberg

Revenues from applications

	Previous	Now
Developer	20%	70%
Publisher	20%	0%
Aggregator	20%	0%
Operator	40%	0%
Handset supplier	0%	30%

Support from mobile internet

- Non-SMS data drives growth
- The share of smartphones are increasing rapidly.
- Growing share of customers pay for data bundles with smartphones
- Rapid growth of mobile data => smartphones + dongles (3G + 4G)



Source: PTS

International comparison on prices

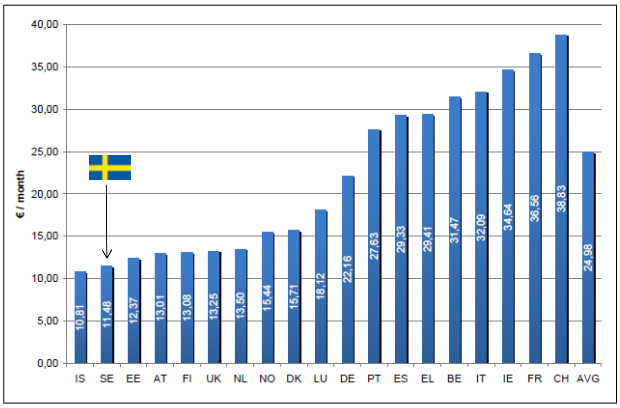


Figure 2: Price basket values for User Profile I in April 2009.

Identify loopholes in comparison of prices

Source: Ficora

Comparison on prices for MBB

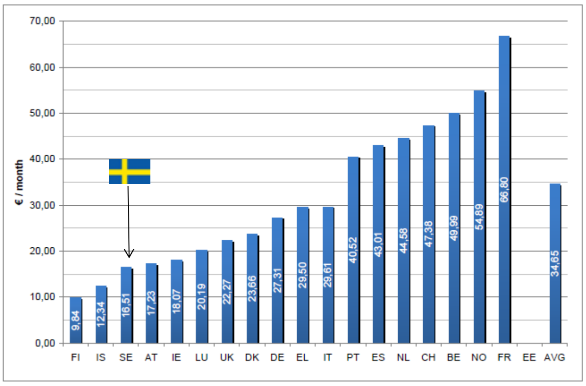


Figure 7. Price basket values of mobile broadband subscriptions in April 2009.

Source: Ficora

What explains the price difference between Sweden and France?

Concluding

- The operator landscape is changing
- Increased competition from online services
- Although mobile is maturing with lower influx of new subscribers, the diffusion of smartphones is having a fundamental impact on the industry

From monopoly to oligopoly, de-regulation, liberalizing

From monopoly to liberalization

Monopoly
- Why monopoly
- Monopoly on telecom services and the relevant competence
- Micro electronics
- Undeveloped market

Liberalization
- BT paved the way (network vs finanical position)
- New operators, competition, mobile expansion
- EU framework
- Internationalization
- Capital market

Value chain – mobile operators

	Network equipment and spectrum	Infrastructure and operations	Billing	Retail distribution	Portals and resellers/ MVNOs
Vodafone	•99% population coverage •1,800hMz	•In-house	•Own billing system	•Own branded and other retail chains •Distribution	•Own portal •Centrica
Orange	•99% population coverage •1,800hMz	•In-house	•Own billing system	•Own branded retail chains •Other retailers •Distributors	•Own portal

FIGURE 3 The traditional industry value chain view of the mobile network operator: Vodafone and Orange.

Source: Joe Peppard, Anna Rylander, From Value Chain to value Network, European Management Journal, Vol. 24, Issue 2, 2006.

$\boxed{\text{Vertical integration vs disintegration?}}$

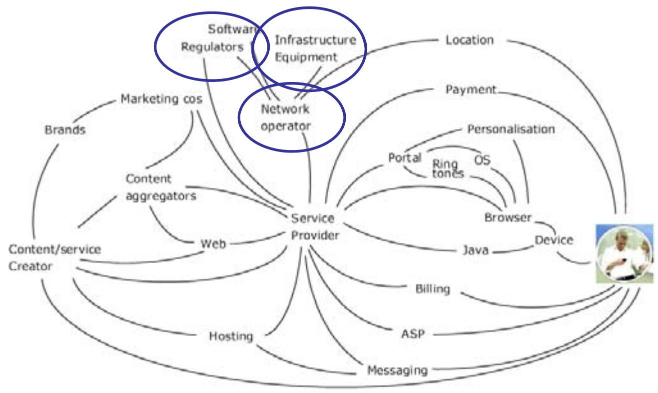


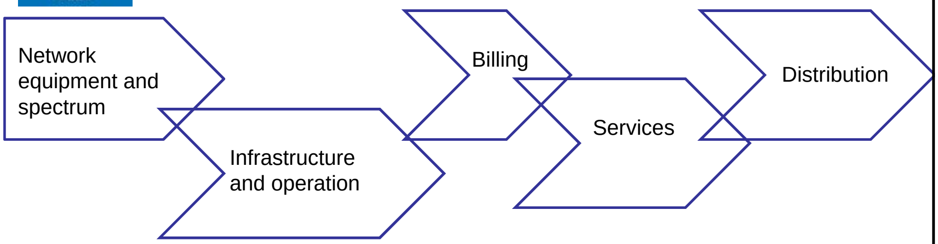
FIGURE 4 Partial network value map for mobile content.

$\boxed{\text{Who are driving the current development? Explore vital links...}}$

Source: Joe Peppard, Anna Rylander, From Value Chain to value Network, European Management Journal, Vol. 24, Issue 2, 2006.

A gradual disintegration

- The majority of network operators are still vertically integrated,
- But lower growth are driving operators to disconnect (phase out, outsource) various parts of their operations to reduce cost
- Larger extent of network sharing drive more specialization



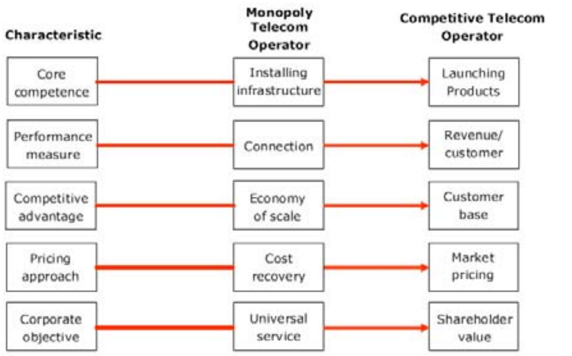
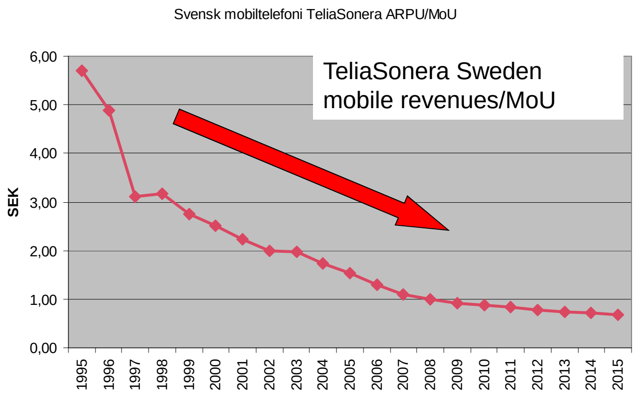


FIGURE 1 From monopoly to competition: challenges facing traditional telecom operators as they enter mobile space.

Source: From Value Chain to Value Network: Insights for Mobile Operators

Compare TeliaSonera and Tele2 in 1993 vs 2012

Competition pushing down prices



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

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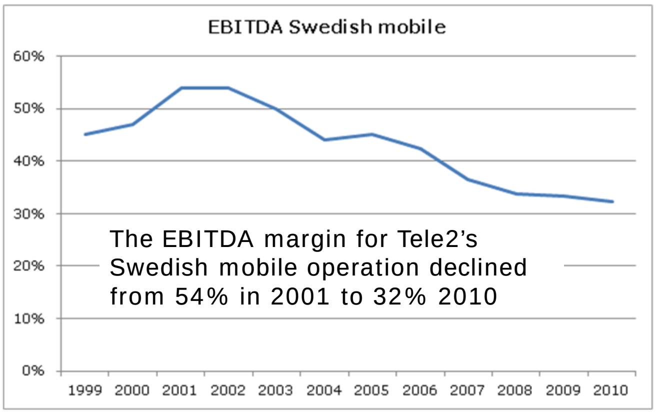
...and pressed down Tele2's profit margin



EBITDA= Earnings before interest, taxes, depreciations and amortizations

What factors explain lower profit margin?

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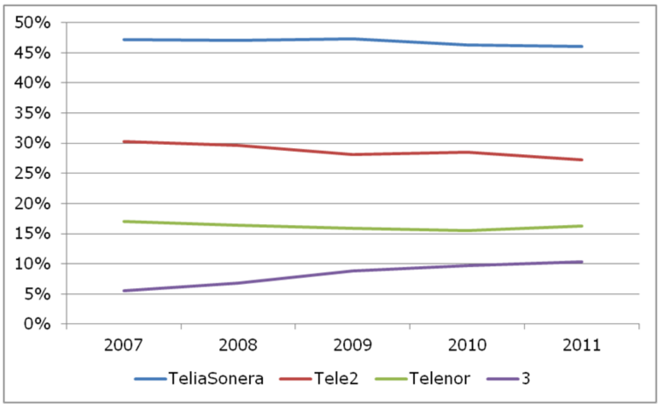
....but still healthy EBITDA margins for mobile

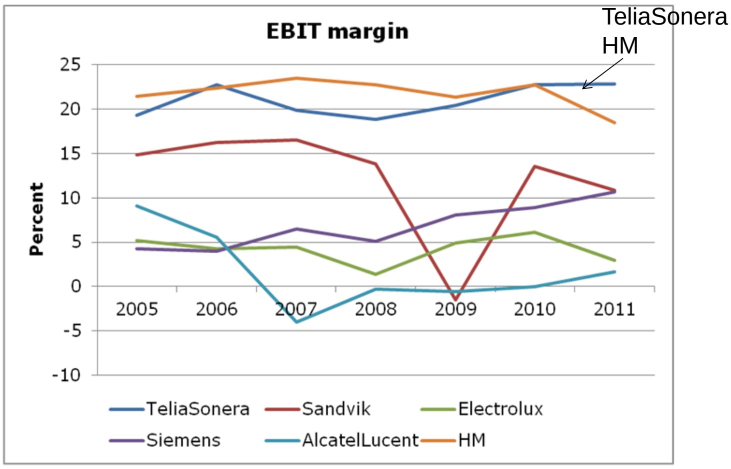
EBITDA (Earnings before interest taxation, depreciation, and amortization)



What should TeliaSonera's challengers to do in order to improve profitability?

Source: Operator reports

...and good profitability compared to other industries



Source: Bloomberg

Becoming a mature industry

- Telecom => ”commodity”
- Mobile broadband is changing traffic mix but not revenues
- Lower growth => Pressure on costs
- Searching for the next cash cow

- Infrastructure based competition demands capital ….”sunk cost”
- Spectrum auctions is favoring large operators
- Driving consolidation

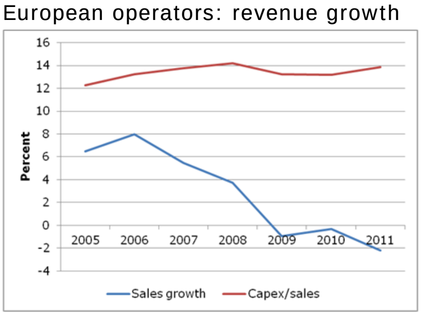
What characterize a mature industry? What measures could be done in order to offset this development?

With lower growth

- Lower revenue growth
- Profitable growth requires lower Opex
- Improved cash flow requires reduction of Capex

Explore the interplay between operational expenditures (Opex) and capital expenditures (Capex)

European operators: revenue growth



Source: Bloomberg

Outlook 2012

Telefonica: Flat to positive in current euros

European incumbents

Table 2: European incumbent benchmarking

12m Q4/2010	Neth	DK	Italy	Spain	Switz	Port	Nor	Fra	Ger	Belg	Swd	Aus	Fin
Local FX	**KPN**	**TDC***	**TI**	**TEF**	**Swiss**	**PT**	**TNOR**	**FT**	**DT**	**BELG**	**TLSN**	**TA**	**TLSN**
Revenues	7,004	18,068	20,068	18,712	8,566	3,201	26,302	23,308	25,145	4,992	41,846	3,064	1,621
growth %	-3%	-5%	-7%	-5%	1%	-4%	0%	-1%	-1%	-2%	-1%	-4%	1%
EBITDA	3,700	8,855	9,774	8,657	3,804	1,378	10,500	8,999	9,618	1,853	15,798	1,032	492
growth %	3%	0%	-3%	-7%	4%	-6%	0%	-3%	0%	-1%	4%	-12%	-6%
margin %	**52.8%**	**49.0%**	**48.7%**	**46.3%**	**44.4%**	**43.0%**	**39.9%**	**38.6%**	**38.3%**	**37.1%**	**37.8%**	**33.7%**	**30.3%**
Capex	1,034	2,667	3,106	2,020	1,203	681	2,863	2,303	3,465	707	4,413	516	150
growth %	-5%	-12%	-12%	8%	0%	0%	10%	7%	0%	23%	2%	21%	2%
% of sales	14.8%	14.8%	15.5%	10.8%	14.0%	21.3%	10.9%	9.9%	13.8%	14.2%	10.5%	16.8%	9.2%
CFLOW % of sales	38.1%	34.2%	33.2%	35.5%	30.4%	21.8%	29.0%	28.7%	24.5%	23.0%	27.2%	16.9%	21.1%
Revenues split													
... % mobile	45%	40%	38%	46%	44%	43%	52%	46%	33%	40%	33%	43%	62%
... % other	55%	60%	62%	54%	56%	57%	48%	54%	67%	60%	67%	57%	38%
Margins %													
... Mobile	41.0%	32.0%	48.7%	44.3%	47.0%	46.0%	40.8%	36.9%	42.6%	37.1%	39.2%	39.0%	39.0%
... Fixed	62.5%	60.3%	48.7%	54.1%	42.3%	40.8%	38.9%	40.5%	35.4%	37.1%	37.1%	27.5%	29.7%

* excl Cable

Stagnating business, but very profitable
EU telecom carrier revenue declined 2.1% during Q2 2011

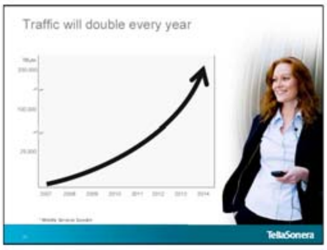
Source: Handelsbanken Capital Markets, Bloomberg

When the market is shrinking

- **Consolidation,** financially strong operators take over when competition become infrastructure based and services are integrated, brand become a differentiator
- **Lower competition** with no growth, declining margins drives cost cutting and efficiency programs
- **Consumer value lower** with fewer choices and higher prices, but offset from cost cutting and competition from new actors such as online companies
- **Operators** have to be enablers and provide a smart pipe in order to create growth

How to cope with the data growth?

- Traffic is growing strongly, but flat revenues
- Increased load on networks
- Production costs has to be trimmed



Source: TeliaSonera, report Q2 2010

Table 20. Mobile Data and Internet Traffic, 2009–2014

Mobile Data and Internet Traffic, 2009–2014	2009	2010	2011	2012	2013	2014	CAGR 2009–2014
By Geography (PB per Month)							
North America	17	47	125	282	504	839	117%
Western Europe	29	69	164	355	683	1,084	106%
Asia Pacific	17	45	100	216	427	814	116%
Japan	18	40	83	158	250	350	80%
Latin America	4	12	29	59	109	182	111%
Central Eastern Europe	3	8	21	44	81	133	114%
Middle East and Africa	2	6	17	44	78	127	133%
Total (PB per Month)							
Mobile Data and Internet	91	228	538	1,158	132	3,528	108%

Source: Cisco VNI, 2010

Source: Cisco Visual Networking Index, June 2010

The data challenge

5 min clip

YouTube

=

115 000

SMS

1 SEK

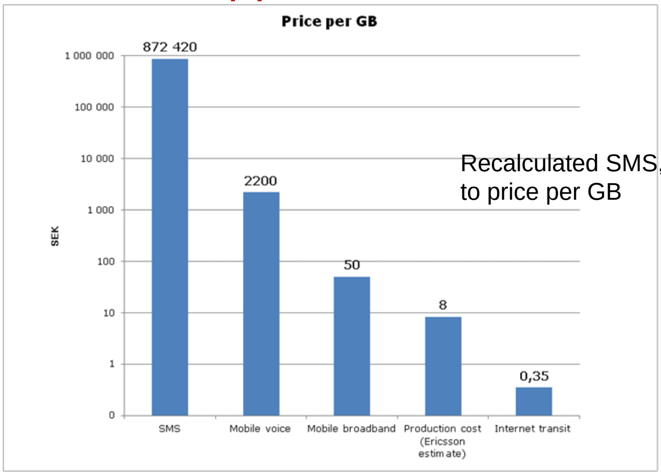
Revenues

23 000 SEK

Similar amount of data

Assumption: YouTube 0.5 Mbit/s and with 5 min clip, 60 * 0.5/8*5 = 19 MB. Price ca 0,05 SEK per MB. SMS 160 bytes = 6250 SMS per MB. Price 0,20 SEK per SMS.
SMS is very profitable with EBITDA margin of 90%. If you assume 15% of revenues is SMS and a group EBITDA marginal of 35% should a drop of SMS lead to a drop of margin to ca 25%

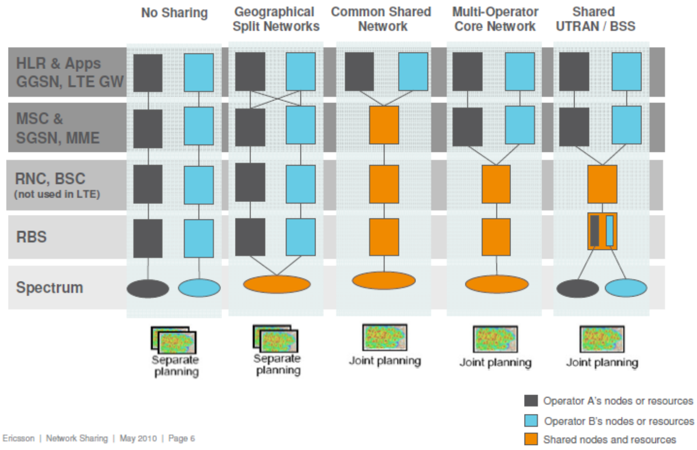
Voice as an application



Recalculated SMS, voice to price per GB

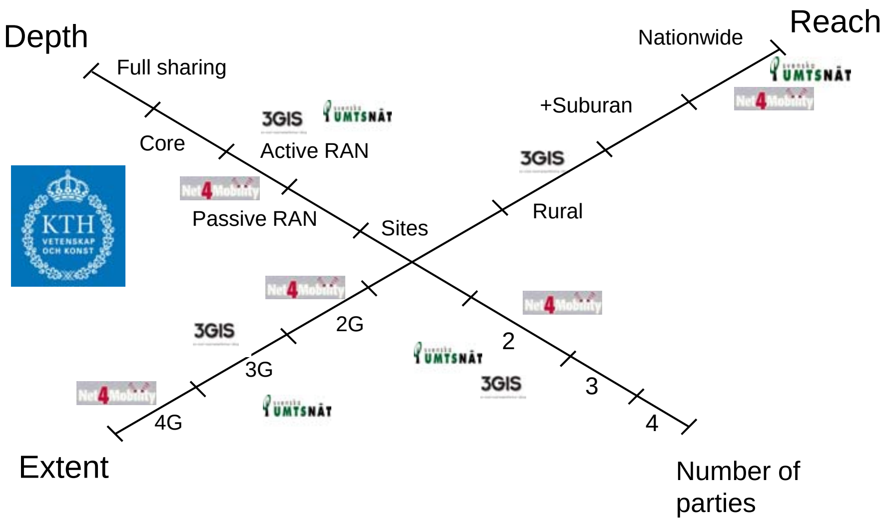
Basis: SMS 160 bytes, 6554 SMS per MB, average price per SMS SEK 0.13
Voice: 99 kbps including overhead
Internet transit, 125 VoIP per MB, price per VoIP SEK 0.0000028,
Source: OECD Internet traffic exchange, Svensk telemarknad

Network sharing on the agenda



Source: Ericsson

Network sharing – 4 dimensions



Source: T. Frisanco et.al , Infrastructure Sharing and Shared Operations for Network Operators, IEEE, ICC 2008

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Pros and cons with mobile network sharing

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- Lower capex
- Lower opex
- Maintained position on the market with its brand
- Support from a better network than what it could afford to build on their own

-

- Cumbersome to reach consensus on all decisions and form a common view
- Lose independence over network strategy
- Hidden cost, impossible to foresee everything that has to be part of a network agreement

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Conclusions

- Telecom is maturing, searching for a new revenue streams
- Strong volume growth with continuously lower prices
- Focus on lower costs, looking for new ways to rationalize