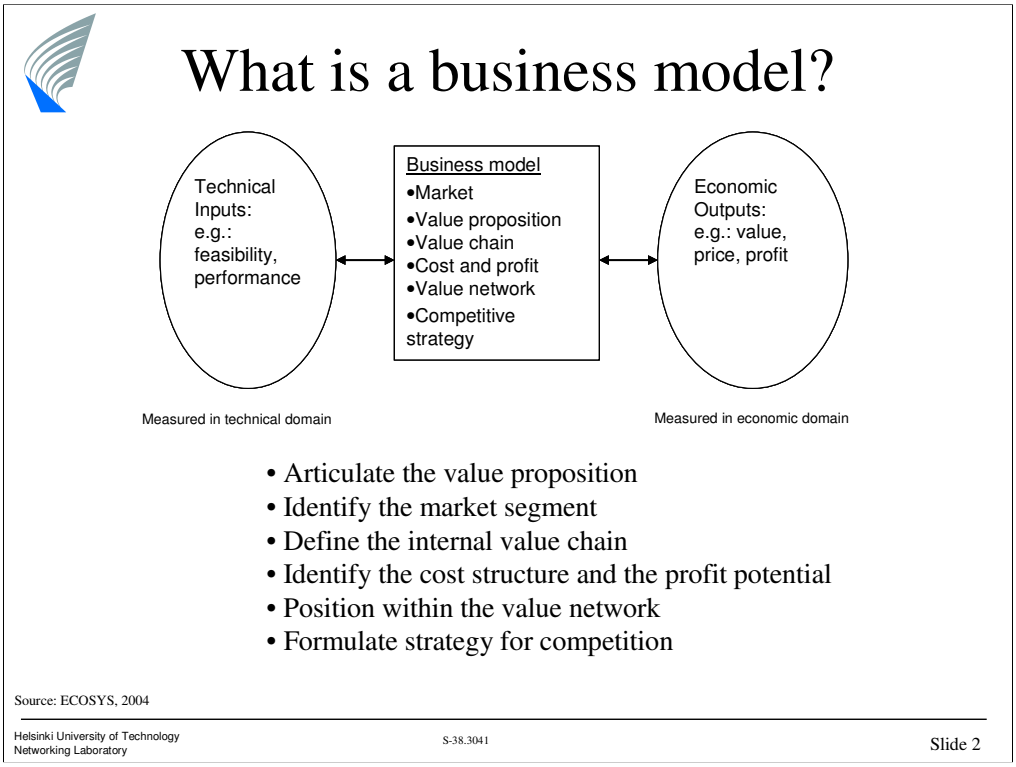
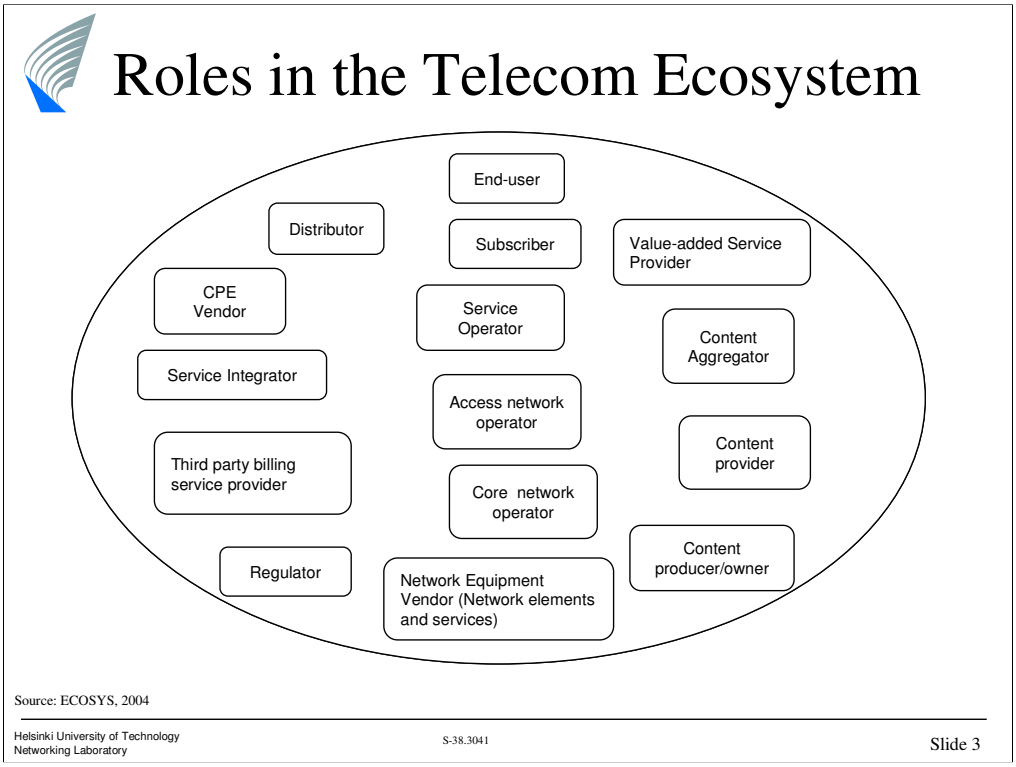
Service and Network Operators

S-38.3041 Networking Business



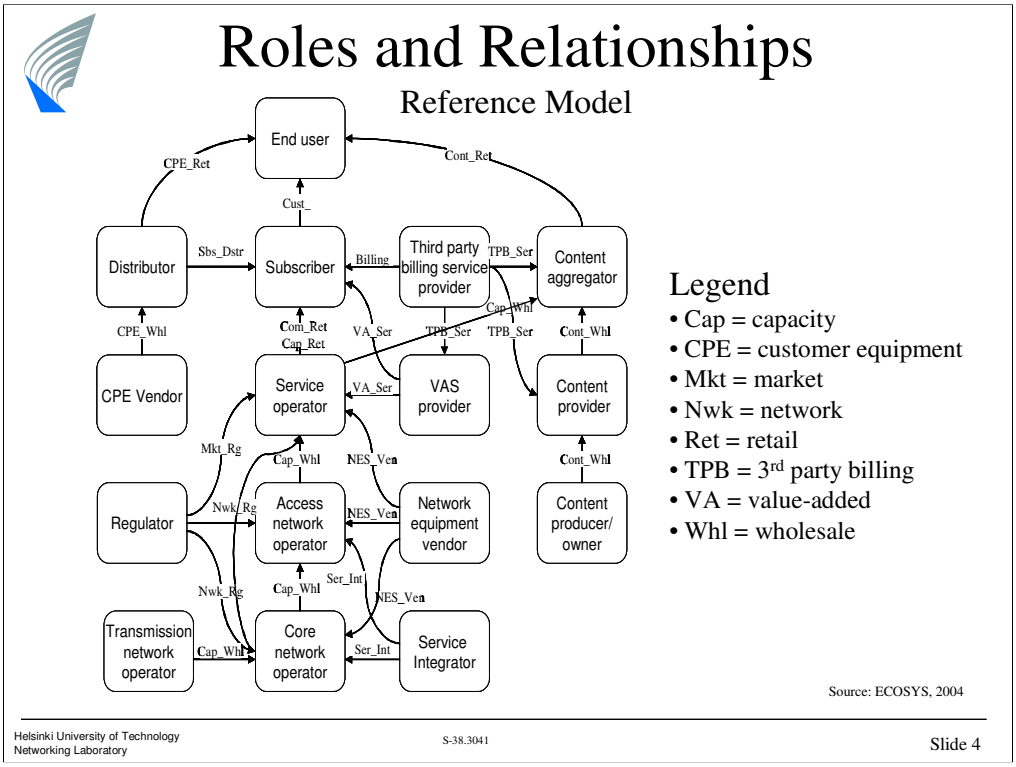
A business model (cmp. earning logic) describes the key choices that a firm makes to achieve sustainable operation. The business models of existing firms in existing markets often seem trivial, while those of new firms in new markets appear challenging.

Internet enables new business models for new digital products and services (e.g. Sonera/ringing tones). In addition, Internet enables new business models that change the traditional markets of physical products for instance by shortening the logistics chains (e.g. Amazon/books).



Telecom business used to be a simple national government telephony monopoly in most countries. Its liberalization and privatization in the 1990s opened brought competition. At the same time the new developments in technology (Internet and mobile) caused a fast increase in volume and variety of the service portfolio. Now the convergence of telephony, computer and TV networks changes the market dynamics. Telecom has become a complex business.

One indicator of complexity is the growing number of different roles of firms interacting in the telecom market (i.e. firms living in the same ecosystem, firms participating to the same value network).

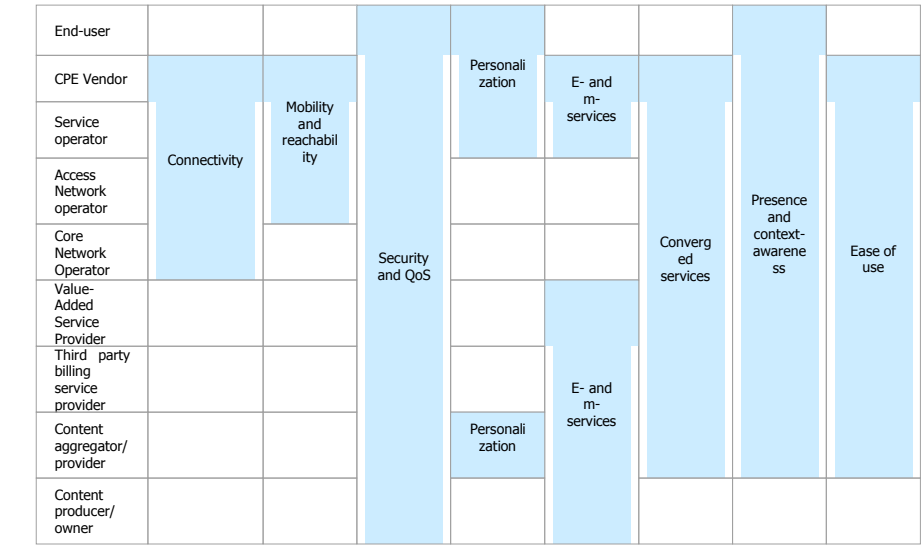


A simplified reference model can be used to describe the possible roles and the possible relationships between the roles.

A real firm in a real market may choose to play multiple roles, which turns the firm more complex but may simplify the market.Thus, although the telecom reference model is globally relevant, it has local instances with local national peculiarities. This variation is one obstacle for copying a successfull business model from one country to another.

For instance, a mobile operator may play several roles: service operator, access network operator, core network operator, handset distributor, content aggregator (e.g. NTT DoCoMo in Japan). However, in some countries the number of roles can be limited by law (e.g. prohibition of bundling GSM handsets and subscriptions in Finland).

Telecom Value Providers

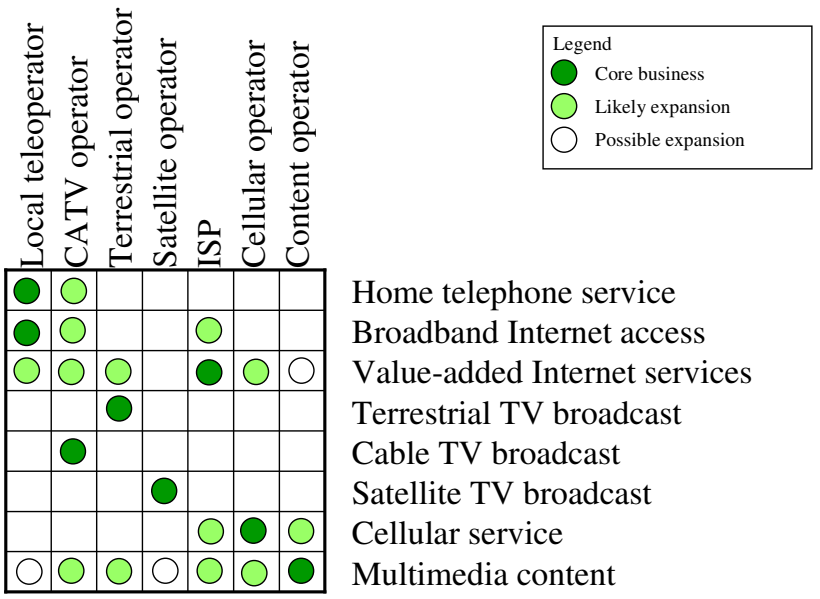


Source: ECOSYS, 2004

Each role in the reference model is relevant because it creates unique value to end-users. This unique added value justifies the corresponding role within the value system.

A simplified set of the most important end-user values in telecom can be used to characterize the mapping between roles and values.

Service Provider Portfolio



Operator Business Changing (1/2)

Driven by Government Intentions

PAST →	FUTURE
Government ownership	Private ownership
Monopolies	Competing oligopolies
Local operators	Global operators
Real operators	Virtual operators
Value chains	Value nets
Long-term focus	Quarterly focus
Static budgets	Rolling budgets

Operator Business Changing (2/2)

Driven by Technology Evolution

PAST →	FUTURE
Dedicated networks	All IP
Dedicated operators	Full-service operators
High margins	Low margins
Wireline	Wireless
Incremental investments	Large investments
Subscriptions	Subscribers
Interconnect agreements	+ Roaming agreements

Market Consolidation

- Number of network operators likely to reduce globally from thousands to hundreds. Oligopoly likely within each segment: global, regional, national

- Number of telecom system vendors likely to reduce globally from 40 to 10 creating another oligopoly

- Number of consumer terminal platform providers (desktop and mobile) reducing from tens to less than ten

Market Value per Service

Case: US service providers' annual revenues, 2003

Total telecom	$300B
Cellular	80
Internet	35
dedicated access	15
residential dial	10
residential broadband	10

Value is still in voice!

Service Value per Sub & Megabyte

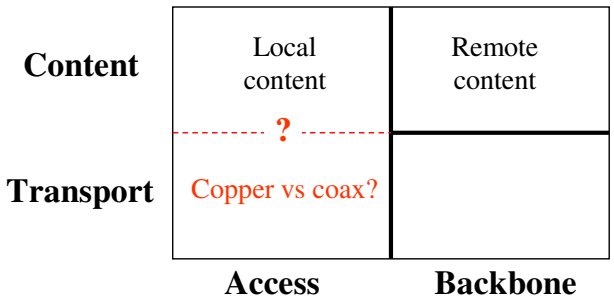
Case: US in 2003

Service	Typical monthly bill	Revenue per MB
Cable	$40	$0.00012
Broadband Internet	50	0.025
Phone	70	0.08
Dial Internet	20	0.33
Cell phone	50	3.50
SMS		3000.00

Volume and value only weakly related !

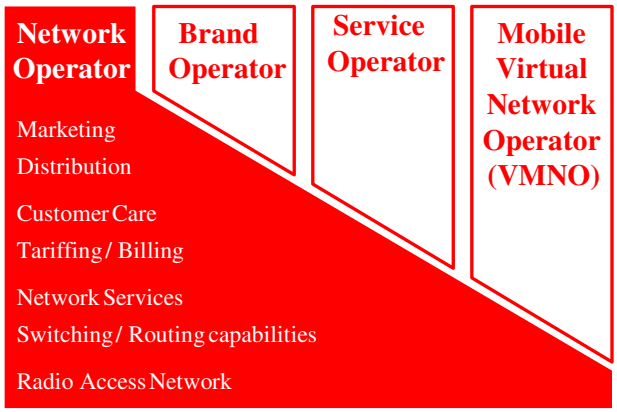
There are still unexploited opportunities in voice, especially in 3G (with differentiated voice quality levels, etc.). The success of Nextel's push-to-talk should not have been a surprise (nor SMS).

Basic Market Segments



- Access (=retail) and backbone (=wholesale) operators getting separated
- Access operators keep converging, but regulator fights monopolies
- Remote content is a separate market, but needs micropayment mechanisms
- Mobile access operators still bundle and charge for local content

Types of Mobile Operators



- Regulation and competition generate derivatives in the mobile markets
- Virtual market is likely to exceed the fundaments/MNO market !

Source: Smura/Marjalaakso, 2003 (modified)

Mobile Operator Space

Case: Finland

Network Operator	MVNO	Service Operator	Brand Operator
TeliaSonera(1)		Sonera, Saunalahti, Globetel, Terraflex, ACN	Hesburger Passeli
Radiolinja Origo (1)	Tele2 (2)	Radiolinja, Cubio, MTV 3 Oy	Choice Markantalo
Finnet Verkot (1)		Dna Finland, Fujitsu Invia, Finnet Com, PGFree	

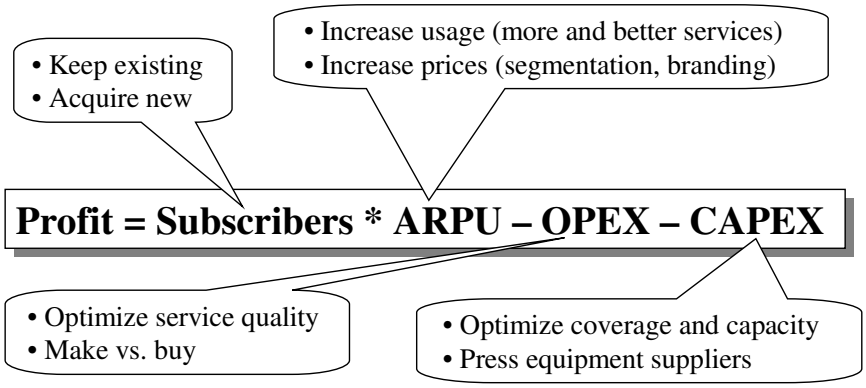
(1) Operators with GSM and WCDMA licence

(2) Operator with WCDMA licence only

In Finland, the derivative market is still less than 20% of MNO market

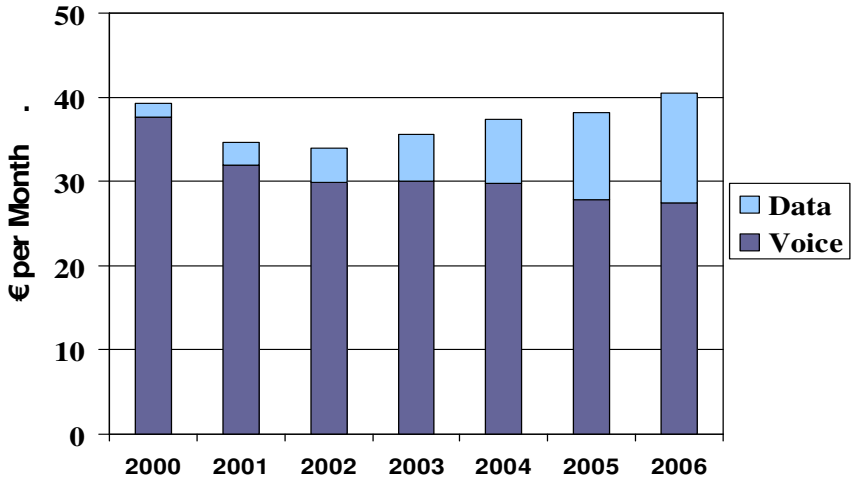
Source: Kiiski, 2004

Operator's Operational Objective



ARPU = average revenue per user
OPEX = operational expenditure (personnel, marketing, etc)
CAPEX = capital expenditure (equipment, licences, etc)

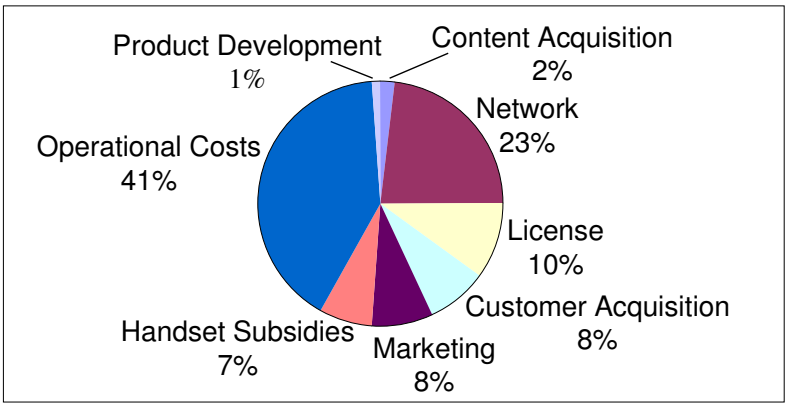
Mobile Services ARPU Forecast



Source: Nokia, June 2002

Mobile Operator Cost Breakdown

Case: 3G in Holland



In Finland, licence and handset subsidies are not relevant

Source: Delft University of Technology, 2001

Financial Figures in Mobile

Case: Elisa Mobile

Elisa Mobile's Key Figures

Elisa Mobile's key figures, EURm	Q3/03	Q3/02	%	2002
Revenue	195	188	3 %	739
Clean EBITDA	58	50	-17 %	194
Clean EBITDA-%	30 %	27 %		26 %
Leasing adj. EBITDA	64	57	12 %	229
Leasing adj. EBITDA-%	33 %	31 %		31 %
CAPEX	22	16	42 %	145
CAPEX excl. network buy-backs	19	10	87 %	96
Oper CAPEX / sales	10 %	6 %		13 %
No. of Subscriptions in Finland *	1 374 847	1 301 621	6 %	1 342 417
ARPU, EUR **	42,5	43,0	-1 %	42,2
Churn **	24,2 %	14,0 %		15,7 %
Minutes of use, million *	598	521	15 %	2 087
Minutes of use / subs / month **	151	139	9 %	136
No. of SMS, million *	111	100	11 %	422
No. of SMS / subs / month **	28	27	5 %	27
Value added services / revenue	12 %	13 %		12 %

* Network operator
** Service operator

Cost Structure for ISP Traffic

Case: European ISP

Traffic Type	Unit cost (c/MB)	Traffic (%)	Cost component
Upstream international ISP	5c	60%	3c
International peers	2c	8%	0.16c
Domestic trunks	0.3c	5%	0.015c
Cached	0.8c	20%	0.16c
Local traffic	0.05c	7%	0.003c

- Assumption of peak load at 90% of capacity implies an average load of 35-55%
- Traffic distribution between traffic types is highly ISP-specific
- Price erosion on unit cost (c/MB) is fast (e.g. ?)

Source: Huston G, 1999 (mod)

General ISP Cost Structure

Examples

	US ISP	Non-US ISP	Non-US Transit ISP
Customer support and marketing	50%	20%	10%
Access infrastructure	20%	10%	5%
Backbone network	30%	10%	23%
Upstream ISP		60%	2%
International circuit leases			60%

- Cost structure depends on the position and strategy of ISP
- Special position of US ISPs is gradually disappearing

Source: Huston G, 1999 (mod)

How do New Service Businesses Evolve?

"Maslow hierarchy" of needs for operator services

1. Coverage
2. Capacity
3. Quality
4. Features

This guideline characterizes the evolution of both Internet and cellular services