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Launching 3G Mobile Services in Finland: War or Peace?

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This case was written by Javier Gimeno, Professor of Strategy at INSEAD, and Santeri Kirvelä, Timo Rinne and Torbjørn Blom-Hagen, consultants at Capgemini Telecom Media Entertainment. It is intended to be used as a basis for class discussion rather than to illustrate either effective or ineffective handling of an administrative situation.

Finland, a Scandinavian country by the Baltic Sea with 5.23 million inhabitants and a density of 15 people per square kilometer, holds a remarkable position in the history of mobile telecommunications. In 1991 the first ever GSM call was made in the capital Helsinki. From then on Finland was at the forefront of technological development in mobile communications. The Finnish corporation Nokia emerged as the world's largest mobile handset manufacturer, and Sonera, one of the country's incumbent operators, began expanding beyond its borders.

Yet by 2005 the Finnish mobile market was in dire straits. Finland had become the most competitive mobile market in Europe. Operators offered the lowest prices for a standard basket of mobile services (Exhibit 1), and incumbents were at an all-time low level of profitability (Exhibit 2). The emergence of new challengers and the recent adoption of mobile number portability sparked a price war risking the commoditization of the industry. The challengers initiated this price war and the incumbents followed suit by matching the best offers in the market. Customers responded to these price offers, and the churn rate (the annualized rate of customers changing operators) more than doubled during this period.

The situation was particularly disappointing in the new millennium. Early on, the so-called third generation (3G) mobile phones had been expected to generate phenomenal revenue growth opportunities, both from higher usage and from additional data and content revenues. Yet, the industry soon realized that 3G would take longer to deliver on the early expectations for customer adoption and revenue growth. By September 2005 3G started to break through into the mass markets of the larger European countries (UK, Germany, Italy), bringing innovations into the market space. Clearly, Finland was falling behind the leadership pack in mobile communications.

Finnish regulators felt that part of the problem was the reluctance of Finnish consumers to invest in 3G handsets, which were still significantly more expensive than traditional GSM handsets. In order to boost penetration and use of 3G services, the Finnish government decided to revoke an existing ban on phone tie-in subsidies and subscription bundling for 3G phones, which were common practice in most other markets. With the regulatory change planned to take effect from 1st April 2006, Finnish operators waited on tenterhooks, knowing that it could dramatically affect the rules of the competitive game.

Elisa, the number two mobile network operator in Finland, had not been spared the intense competition of the past few years. In September 2005, Kimmo Laaksonen, its Business Development Manager, was wondering how the company should react to the regulatory change coming in six months. There was a lot at stake, since the majority of its revenues came from mobile services in Finland. Laaksonen wondered how the company should position itself in this new environment. Some thought that 3G bundling would allow operators to move away from direct price comparisons and tie customers for a longer time, reducing price pressures. Others thought that the subsidization of handsets would simply spark additional competitive pressures, inflate subscriber acquisition costs and reduce profits. Clearly the optimal strategy had to consider how other competitors would react to the regulatory change, and to Elisa's actions. Should Elisa exploit the situation to challenge Sonera's dominant position as the largest mobile operator in Finland? Or should it try to use it as an opportunity to stabilize market pricing? Either strategy carried significant complexities and risks.

The Finnish Mobile Industry

The first telephone connection in Finland was established in 1877, and several telephone companies were created soon after. By 1938 there were 851 telecom operators, most of them very small companies. Mergers and acquisitions ultimately reduced the number to below 50 by the 1950s. In most other countries the state was heavily involved in consolidating or nationalizing telecommunications shortly after the industry's birth, resulting in the emergence of one strong incumbent. But Finland was different. Various operators had local monopolies in their respective parts of the country. The consolidation of the past hundred years had culminated in a situation where the operator field was split into three main camps – Sonera, the market leader, Elisa, and the Finnet Group (the latter owned by about 40 small regional incumbents). All three incumbents provided fixed line, mobile, broadband and cable TV services. (Respective market shares for 2004 are presented in Exhibit 3).

Sonera and Elisa (then called Radiolinja) had enjoyed a duopoly over mobile telephony until the Finnet Group launched a third mobile network in Finland in February 2001, with DNA Finland as the service operator, in a move which significantly intensified competition.

The migration of voice from fixed line to mobile had been rapid in Finland, and only 57% of households still had a fixed line connection, whereas mobile phone penetration was reaching 100% (see Exhibit 4). Mobile voice usage had increased constantly over the past ten years, while prices had fallen by about 48% over that period (see Exhibit 5).

In early 2003 the competition stiffened with the emergence of mobile virtual network operators (MVNOs) and independent service providers (SPs). MVNO operators provided mobile voice and data network services without owning access rights to the spectrum. These companies obtained network access through bilateral commercial agreements with incumbent network operators. They typically used their own Subscriber Identification Module (SIM) cards, operated sufficient equipment to route their own calls, and could switch their host network. MVNOs typically sold these mobile services under their own service provider brand names, or sometimes sold them to other independent mobile service providers. Independent mobile service providers (SPs) typically focused on customer branding, customer acquisition and customer relationship management but used the SIM cards and network services of existing network operators or MVNOs. Customers had subscription contracts with service operators and charges were based on type of contract and consumption. In contrast to other European countries, penetration of prepaid mobile services was very low (only about 6% of customers).

MVNOs and SPs had become popular in Europe some years earlier. In the UK, companies like VirginMobile and Tesco used their brand recognition and/or distribution access to resell mobile telephony services, gaining significant share. In Finland, the most successful was Saunalahti, an entrepreneurial Internet service provider and tele-operator, which launched an independent mobile service provider in January 2003, and converted it to MVNO in 2004. Saunalahti had initially been hosted by Sonera's network but later moved to Elisa's network. Saunalahti used a low price, differentiated content services strategy that attracted young, technology-savvy customers, and also bundled services with its Internet business. By the end of 2004 Saunalahti was clearly the most successful MVNO in the market with a market share of 8.5%. In addition there were more than ten other MVNOs and SPs (MTV3, Fujitsu Services, Song Networks, etc). Most of these were targeting some niche markets but had not

been able to reap significant market share, except ACN which had 3% of the market with its referral-based marketing model. However, ACN subsequently ran into problems and its customer base was taken over by Sonera in 2005.

The entry of MVNOs coincided with the introduction of mobile number portability in July 2003, which allowed users to switch to other operators without changing their phone numbers. This change tipped the market towards direct price competition between the incumbent network operators and the MVNO challengers. The outcome was heated competition which led to massive price cuts, making Finland the cheapest mobile market in Europe, a remarkable phenomenon given the relatively higher operating costs due to Finland's sparse population. Price levels were getting very close to the production costs of a call.

The incumbents responded by launching their own low-cost service provider brands in 2004. These acted as service providers with their own brands and channels, hosted by the incumbent's networks. TeliaSonera launched 'Tele Finland' while Elisa launched 'Kolumbus'. The result was further competition in the low-cost segment. By July 2005 TeliaSonera had won around 350,000 customers for its low-cost brand, and Kolumbus' figures were estimated at about the same level following a rapid migration from the premium brands in the previous months. (Exhibit 6 presents the main mobile network operators, MVNOs and SPs in Fall 2004).

Pre-existing regulations in Finland did not allow bundling of mobile phones with long-term subscription contracts or the locking of handsets so that they could only work with operator-supplied SIM cards. When combined with effective number portability this led to a massive increase in customer defection: within one year over 1 million customers moved their number to another operator. Unable to bind customers contractually, operators began luring new customers with up to €500 worth of free airtime or unrelated giveaways such as winter coats, MP3 players and DVD players, leading to higher subscriber acquisition costs (SACs). The result of this rivalry was a sharp increase in churn and a sharp drop in the profitability of the operators. (See Exhibit 7 for a historical evolution of key performance indicators in Finland).

Introducing 3G

The first generation of wireless communication consisted of analogue technology; the second generation involved the change towards digital voice, with GSM becoming the key enabler. Both were developed essentially for voice communications. GSM was enhanced with GPRS technology to achieve data transmission speeds up to 40 kbit/s, and with EDGE technology to achieve 80 kbit/s. Third generation wireless enabled increased bandwidth up to 384 kbit/s, and therefore allowed the provisioning of mobile multimedia data services such as music, TV and video, rich entertainment content and mobile Internet access. Moreover, because of the higher bandwidth, 3G networks had greater voice capacity than previous networks.

Initial projections about the increase in Average Revenue Per User (ARPU) were overly bold, with incremental data-based ARPU expected to exceed voice ARPU. Actual 3G service uptake was more modest, with incremental ARPU at best in the range of several euros on average. Part of the problem of early 3G adoption was due to initial 3G handsets having a short battery life and being larger than 2G handsets. However, these technical gaps were closing and penetration grew consistently from early 2004, eventually exceeding 50 million customers worldwide.

With 3G telephony requiring a new frequency allocation from the spectrum, Finland became the first country in the world to grant 3G operating licenses in March 1999. Four licenses were awarded to Sonera, Elisa, Finnet, and Swedish entrant Tele2. Unlike many other European markets, licenses were awarded via an administrative allocation process based on a business case (or "beauty contest"), rather than auctions. They were much cheaper than in other countries - €125 million per license in Finland, compared to €8,500 million per license in Germany. TeliaSonera, Elisa and Finnet had begun the development of their respective 3G networks in 2004. (Tele2 did not meet the construction obligations included in the license agreement, and its 3G license was revoked in June 2005). With construction under way, the estimated population coverage of these networks by September 2005 was between 15% and 35%. Additional network construction would be required for the country-wide deployment of 3G services.

The Cost Structure of Mobile Telephony

There were two main dimensions to the cost structure of mobile telephony: the cost of producing minutes of mobile services, and the cost of acquiring and serving customers.

On the production side, mobile telephony was a capital-intensive business particularly due to the cost involved in building a network. Capital expenses ranged from about 8% to 19% of sales, depending on the level of technological investment, size of the network, etc. In addition, there were labour costs associated with the management and maintenance of the network, the cost of leasing fixed lines to link the different mobile stations, and the interconnection fees with other mobile and fixed networks. In Finland, TeliaSonera charged 6.8 cents/minute for interconnection fees, Elisa charged 8.4 cents/minute, Finnet 10 cents/minute, and Saunalahti 11 cents/minute. These interconnection fees were agreed with the regulator and were typically higher for smaller operators in recognition of their high average costs. Interconnection fees with the fixed networks averaged 2.3 cents/minute.

The cost associated with acquiring and serving customers included advertising costs, costs of distribution and retail channels, and subscriber acquisition and retention costs (SAC/SRC). In Finland, TeliaSonera and Elisa used multiple distribution channels in about equal proportions, including independent dealers and retailers, their own retail shops, and direct (call center and Internet) channels. DNA Finland, in contrast, did not own its own retail channel but could use those of the local incumbents. Subscriber acquisition and retention costs typically involved subsidies provided to acquire or retail customers. In most countries in Europe this involved subsidizing mobile handsets. In 2004 European carriers spent on average about €120 per new 2G customer, and about €275 per new 3G customer (due to the higher handset costs). In Finland the bundling of subsidized handsets to attract customers was banned. This had not stopped rivals from offering substantial gifts, such as MP3 players and DVD players, to attract customers. (Exhibit 8 provides a typical cost structure for a European mobile network operator).

Mobile Network Operators in Finland

Elisa

The history of Elisa Corporation, which originally operated as Helsinki Telephone Association in the Helsinki metropolitan area, dates back to 1882. The mobile business began in 1988, when Radiolinja (the forerunner to Elisa) was founded as a GSM operator in Finland. The first GSM call in the world was made in 1991 via the Radiolinja network. Radiolinja operated as a challenger to the incumbent TeliaSonera.

Elisa had minor operations in Estonia and had developed some operations in Germany, but its main operations were on the national scale in Finland. In 2002 the company entered into a cooperation agreement with Vodafone involving technology sharing (e.g., the opportunity to provide Vodafone services to business segments, such as Push Email). Like the other two main groups, Elisa offered fixed telephony and broadband on a national basis, and cable-TV on a regional basis.

The Radiolinja brand was changed to Elisa in 2000. By 2004 the intensifying competition with MVNOs led Elisa to establish its own service provider, Kolumbus, to compete in the low-cost segment. The rationale was to avoid giving the brand a low-cost flavour, allowing Kolumbus to target customers switching to low cost, both from competitors and from Elisa.

Elisa made a loss from 2001 to 2003, but heavy rationalization brought the figures back into the black for 2004, with revenues totalling €1,383 million, while net income was €152 million. (Exhibit 9 presents financial data for Elisa and its competitors).

In July 2005 Elisa made a public offer to acquire Saunalahti, the most successful MVNO in the Finnish markets. Saunalahti had managed to acquire nearly 500,000 customers with its offer of low prices and innovative services for tech-savvy young customers. Elisa initial offer was approximately €320 million. Two months later the deal was still under the scrutiny of the Finnish Competition Authority.

Elisa's new strategy was focused on three priorities. Under the banner of the 'One Elisa Strategy' the company sought to integrate its different businesses and operations into a well-functioning group. Second it sought to strengthen its position in core markets, as represented by the Saunalahti acquisition offer. Third, the company targeted new markets and customer-oriented services. These would be facilitated by more integrated services, with handset menus with functions such as Internet, email and calendar services, news, weather, TV, radio, camera and pictures, messages, and ring tones.

TeliaSonera

TeliaSonera was created in 2003 from the merger of Sweden's Telia and Finland's Sonera. Both companies had a history as national phone companies before the liberalization of the telecom industry. The merger created a Pan-Nordic and Baltic telecommunications company, with fixed, mobile and broadband business segments, and 27,000 employees.

TeliaSonera's group revenues totaled €9.1 billion in 2004, of which about €2.6 billion were generated in Finland. The mobile business in Finland generated about €1.3 billion in 2004.

EBITDA margin in 2004 was 42% but this had been steadily dropping as a result of the heavy price war in Finland (it was 47% in 2002). Mobile ARPU had fallen from €40 in 2002 to €37.4 in 2004. Because TeliaSonera required massive long-term investments to maintain and upgrade its mobile infrastructure, these low profit margins reduced its ability to fund those investments internally.

TeliaSonera had about 2.5 million mobile customers in Finland, representing 46% market share. Like other operators, it had suffered from high churn in Finland, which together with steadily falling prices had reduced the profitability of its mobile business. To fight the price war more efficiently TeliaSonera launched a low-cost brand, Tele Finland, in mid-2004, with the aim of focusing on the low-cost segment while avoiding any price dilution of the Sonera brand. After running several nationwide TV and print media campaigns, its aggressive, low-cost brand strategy won many new customers, both new users and those migrating from Sonera. As an illustration, in July 2005 the Sonera brand lost about 29,500 users, while Tele Finland gained 29,950 users.

But the strategy was less than a complete success. Prices under different brands were currently quite close to each other (see Exhibit 7). Price premiums on the main brand compared to the low-cost brand had become very small, and many customers had migrated from the main brand to the low-cost brand, thereby accelerating churn still further.

Perhaps due to the heavy pressure on profitability in Finland, the TeliaSonera CEO, Anni Vepsäläinen, resigned in 2005. The first task of the new CEO, Juho Lipsanen, was to implement a turnaround programme in Finland to seriously reduce the cost base. In 2005 TeliaSonera announced that it would make major cuts in personnel and other costs in Finland over the year. It was evident that given existing developments in prices and competition, TeliaSonera would be in serious trouble in the near future without heavy reductions on the cost side. At the same time the company insisted that its near-term objective was to redirect the competitive focus away from price and toward services.

Finnet

Finnet was an incumbent operator offering fixed, mobile and broadband services to its customers across Finland. Its shareholders were 37 independent local phone companies that in 2000 decided to launch a joint mobile operator called DNA Finland in order to compete against Elisa and TeliaSonera in the mobile business.

DNA Finland owned the third mobile network in Finland. Since its launch it had suffered from low market share (currently 16%), which had made it hard to recover its infrastructure investments. DNA had officially announced that it needed about one million subscribers to break even but by July 2005 it had about 760,000 users, well below the target.

In 2004 DNA's mobile revenues totalled €271 million but with an EBITDA margin of only 7% this produced a negative overall result. In addition to low market share, DNA had also lower ARPU than TeliaSonera and Elisa, partly because it targeted a different customer base – the youth segment. The brand had a low cost image, largely due to a nationwide, well-orchestrated marketing campaign with the core proposition "Life expensive - DNA cheap".

In 2003 DNA had been the subject of several acquisition rumours. It was known that some of the local phone companies who were shareholders in the Finnet group had been dissatisfied with DNA's performance and dismayed by the increasing investment it had required. Their investments in DNA had lowered their own performance, while the outlook for DNA continued to look bleak: heavy price wars for existing and new customers and high churn made its objective of 1 million subscribers seem unreachable, while falling prices had reduced ARPU, pushing the break-even point even further away. In the near term DNA's management clearly needed to make some tough decisions to safeguard the company's future.

Regulatory Changes

At the end of the 1990s Finland had been at the forefront of mobile communications and Internet development. Helsinki was referred to as the "Silicon Valley of Scandinavia". The country's advance, however, was short lived. After the IT-bubble burst in early 2000, many small and innovative companies went bankrupt and larger companies focused again on business areas with substantial revenues. Finnish consumers also became less interested in new technology. The fact that Finland had lost its edge in mobile communications became obvious with the launch of 3G networks. Whereas 3G penetration in large European countries such as the UK or Germany continued to increase, Finnish customers stayed faithful to their GMS handsets and showed little interest in the new services. For the National Information Society to achieve its objective of putting Finland once again at the leading edge of mobile communications, it was clear that government action would be required.

Finnish regulators had historically prohibited the bundling of mobile phones and subscriptions, thereby seeking to retain transparency in the market: customers should always know what they were paying for, and how much. They believed that transparency would be lost if operators were allowed to start bundling handsets and subscriptions together. Moreover product bundling was prohibited in other Finnish industries as well. (Exhibits 10, 11 and 12 describe the subscription contracts and associated prices for Finnish mobile operators in September 2005. Exhibits 13, 14 and 15 provide information for subscription bundles and handset subsidies available in Germany, Sweden and the UK).

When the regulators analyzed the reasons for the weak uptake of 3G handsets and services, this unique regulatory environment was seen as a major culprit. To migrate to 3G consumers were obliged to make relatively high upfront investments (for example, cheap 3G handsets would range from about €250 to €300, although prices of low-end handsets were expected to come down to €200 within a year) Finnish consumers were apparently reluctant to invest. In contrast, other European operators had been more successful in migrating consumers from 2G to 3G by subsidizing the cost of the handset close to zero, even for 3G handsets.

Armed with these observations, the Finnish authorities decided to revoke the ban on handset and subscription bundling, effective 1st April 2006. Interestingly, the ban was only removed for 3G handsets, whereas the 2G handsets were still governed by it. The objective was to accelerate the uptake of 3G. In addition to driving the renewal of the installed handset base, regulators also wanted to boost the uptake of advanced mobile services. For years, the competitive landscape in Finland had been focused purely on price. Operators had concentrated on cost-cutting for years and little innovation had been successfully introduced. By allowing operators to bundle handset and subscription together, the regulators sought to

encourage a change in focus from cost cutting to innovation. The logic was simple: the more 3G handsets on the market, the more people would use the new services and this in turn would allow operators to invest more in future development.

The new legislation had a number of other features. First, it was set for a three year trial period, at the end of this which the regulators would decide whether to continue or not. They also reserved the right to make further changes to the legislation at the end of the trial period. The maximum length of any contract was set at two years, at the end of which customers could change operator without continuing to pay the fixed monthly contract fee. In contrast to other European countries, operators in Finland must clearly show the price of the handset to the customer – to provide transparency about the total value provided by a bundle – and they must offer exactly the same services independently of handset and subscription bundles.

The Context of the Decision

After carefully reviewing all the different aspects of the new legislation and its possible impacts on the industry, Kimmo Laaksonen concluded that a new competitive landscape in the Finnish mobile markets was about to be created. The mobile pricing models in Europe were much more complex and less transparent than those currently used in Finland (see Appendix A for information on revenue models in other countries). It was clear that the focus in the market would shift from pure voice prices to other elements of the value proposition. Those who succeeded from the start would likely lock in a substantial customer base with fixed minimum profitability. Also, operational challenges seemed important. Hitherto, operators did not own their own handsets and did not have the logistics in place to support handset distribution. The new legislation would bring handsets closer to the brand of the operators and make them part of the operator customer experience.

Laaksonen believed that the initial decisions made by operators would shape the future evolution of the Finnish mobile industry. Would other operators just copy the models used in Europe? How price aggressive would they be, in a situation where profitability was a concern for everyone? Would some competitors use this as an opportunity to acquire new customers with high acquisition costs by substituting handset prices close to zero? What deals would operators make in the distribution chain to ensure the visibility and availability of their offerings? What handsets would operators choose for their portfolio?

The upcoming competitive moves were hard to anticipate. On the one hand, operators might move away from the price war and differentiate their value propositions. On the other, a rush to "lock" customers into long-term contracts could further intensify competition and escalate subscriber acquisition costs. It was essential for Elisa to select its initial launch carefully given this competitive situation. The situation was made more complicated by the existing multi-brand structure of the industry, which created possible cannibalization concerns. In addition to its main differentiated brand, Elisa, the company had to consider its low-cost brand, Kolumbus. And if the ongoing acquisition of Saunalahti was successful, one more brand would be added to the portfolio. What to do with these low-cost brands was another concern.

Bearing all this in mind, Laaksonen had to draw up a set of recommendations for Elisa's new market offering and to sell them to the board of directors.

Exhibit 1

Mobile Price Baskets in Europe 2004-2005

Country	2005, €/month	2004, €/month	Change (%)
Netherlands	34.5	42.4	-18.6%
Belgium	42.1	43.1	-2.3%
Great Britain	44.1	51.3	-14.0%
Spain	33.8	38.6	-12.4%
Ireland	46.9	51.9	-9.6%
Iceland	32.9	33.9	-2.9%
Italy	36.8	48	-23.3%
Austria	32.7	36.6	-10.7%
Greece	23.6	31.6	-25.3%
Luxembourg	21.2	27.1	-21.8%
Norway	38.3	41	-6.6%
Portugal	33.3	46.4	-28.2%
France	39.7	40.7	-2.5%
Sweden	30.5	42.4	-28.1%
Germany	48.3	56.5	-14.5%
Finland	**19.9**	**30.6**	**-35.0%**
Switzerland	56.5	56.2	0.5%
Denmark	22.5	27.1	-17.0%
Weighted mean	39.5	46.5	-15.1%

Definition of Price Basket

The cheapest subscription connection for households.
Total amount of calls 150 minutes, including 50 calls, 3 minutes per call.
SMS, 25 messages per month.
Monthly subscription fee.
All prices with taxes.
Direction of Calls:

To mobile networks:	75% of minutes
Within mobile operators internal networks	15% plus operator's own market share
To other operators	rest of mobile-mobile calls
To fixed networks	25% of minutes

Time of Calls:

Daytime, weekdays	35% of calls
Other times	65% of calls

Source: MINTC, Prices of mobile calls in 2005.

Exhibit 2

Profitability of Mobile Industry across Europe

	Return on Capital Employed (a)			Average operating Free Cash Flow margin
	03Q2	04Q2	05Q2	05Q2
UK	6.4%	6.4%	5.7%	16.0%
Germany	11.2%	10.1%	9.1%	25.5%
France	10.9%	9.8%	10.1%	34.5%
Spain	11.0%	11.6%	10.3%	27.7%
Italy	12.4%	11.9%	10.6%	36.2%
Netherlands	7.5%	6.5%	6.5%	22.2%
Finland	**6.1%**	**5.7%**	**3.4%**	**8.2%**
Portugal	7.9%	8.2%	7.0%	29.3%
Sweden	9.8%	7.9%	7.4%	25.5%
Greece	10.1%	9.6%	10.0%	34.5%
Switzerland	9.6%	8.6%	7.9%	31.0%
Norway	8.9%	7.5%	7.5%	17.6%
Ireland	13.4%	12.9%	11.6%	20.1%
Belgium	18.4%	17.4%	15.4%	34.5%
Denmark				10.6%
Austria	10.8%	8.0%	8.2%	15.1%

(a) ROCE: aproximated by EBITDA/Gross Property, Plant and Equipment

Source: Credit Suisse First Boston report, European Mobile Q4 2005.

Exhibit 3

Market Shares of Finland Incumbents by Segment, 2004

	Mobile	Fixed Line	Broadband	Cable-TV
TeliaSonera	46%	31%	31%	12%
Elisa	27%	34%	29%	16%
Finnet	14%	32%	22%	36%
Others	13%	3%	11%	34%

Source: Finnet-liitto ry, MINTC

Exhibit 4
Telecommunications Penetration in Finland

	Unit	1980	1990	1998	1999	2000	2001	2002	2003	2004
Fixed telephone connections	1 000	1 740	2 670	2 841	2 850	2 849	2 806	2 726	2 568	2 390
Mobile telephone connections	1 000	23	258	2 846	3 273	3 729	4 176	4 517	4 747	4 999
Broadband subscriptions [1)]	1 000	. .	. .	. .	. .	10	61	237	467	779
Fixed telephone connections	No./1 000 inh.	363	534	551	551	550	540	524	492	456
Mobile telephone connections	No./1 000 inh.	5	52	552	634	720	804	868	909	955
Internet connections	No./1 000 inh.	. .	. .	106	122	149	182	219	235	366

1) DSL subscriptions and cable modems

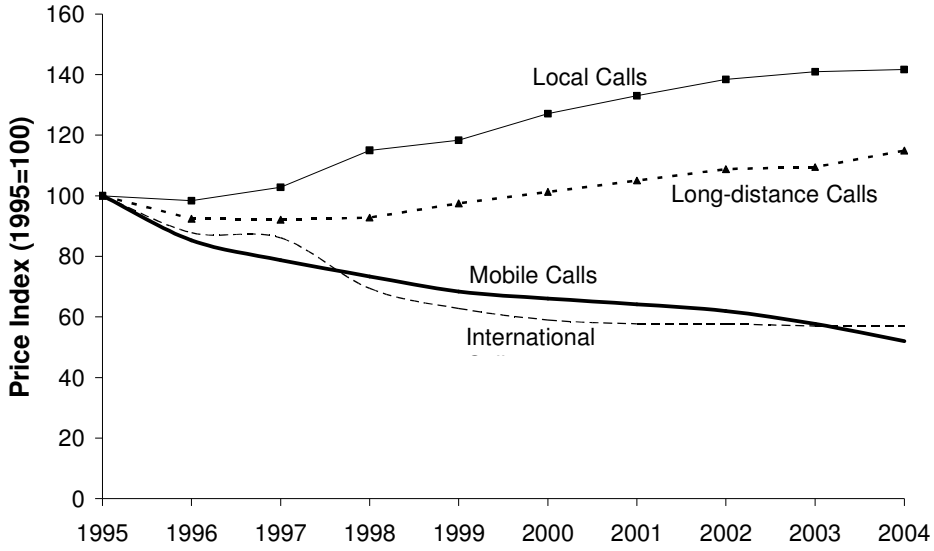
Source: Statistics Finland, 2005

Exhibit 5
Call Statistics, 1995-2004

Year	Number of calls, millions		Length of calls, millions min.	
	Fixed	Mobile	Fixed	Mobile
1995	3 164,0	149,4	11 754,4	316,1
2000	3 515,2	2 444,4	16 373,8	5 293,6
2001	3 365,7	2 921,3	16 781,1	6 519,8
2002	3 147,0	3 171,4	16 791,2	7 276,1
2003	2 455,1	3 403,6	13 831,6	8 160,7
2004	2 121,0	3 810,4	11 442,9	9 643,0

Source: Televiestintä Suomesssa 2004; Statistics Finland, 2005.

Evolution of Telephone Price Index, 1995-2004



Source: Ministry of Transport and Communications Finland.

Exhibit 6

Main Players in Finnish Mobile Industry, Fall 2004.

Source: Capgemini

Exhibit 7

Key Performance Indicators, Finnish Mobile Operators, 1999-Q22005

	1999	2000	2001				2002				2003				2004				2005	
	Q4	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
Return on Capital Invested (ROCE) (1)																				
European Average ROCE	8.1%	7.0%	8.2%	8.8%	9.1%	8.7%	9.2%	9.6%	9.8%	9.3%	9.4%	10.2%	10.4%	9.6%	9.5%	9.9%	10.1%	9.4%	9.0%	9.2%
Finland Average ROCE	7.4%	8.1%	8.5%	8.9%	8.6%	7.7%	7.4%	7.8%	7.5%	6.2%	6.5%	6.1%	7.1%	6.3%	6.2%	5.7%	6.3%	5.1%	3.5%	3.4%
Sonera / TeliaSonera	10.4%	11.1%	10.5%	11.5%	11.1%	9.7%	10.2%	10.8%	10.7%	9.3%	9.7%	8.7%	10.1%	7.8%	8.0%	8.5%	9.0%	6.9%	4..2%	4.3%
Elisa	3.5%	4.2%	5.9%	5.7%	5.5%	5.3%	4.2%	4.4%	3.8%	2.7%	2.8%	3.2%	3.7%	4.5%	4.2%	2.6%	3.3%	3.0%	2.8%	2.5%
Minutes of Use (per User) (MOU)																				
European Average Outgoing MOU																				
Total	96.7	89.4	86.7	89	88.2	87.8	86.2	87.1	89.3	89.0	87.2	91.5	93.2	94.1	92.2	96.7	98.5	99.6	98.0	103.3
prepaid	60.3	52.4	49.6	46.8	44.3	43.6	43.8	42.3	43.5	43.2	43.0	44.7	45.1	44.7	43.7	45.2	45.1	44.5	43.7	44.8
contract	140.7	163.9	168.7	176.1	174.0	174.9	174.1	170.3	170.9	172.1	173.2	177.5	177.9	180.7	178.8	183.0	180.6	184.1	179.7	183.0
Finland Outgoing MOU																				
Sonera / TeliaSonera	130	141	139	150	149	147	143	155	153	153	153	162	164	166	167	172	179	187	188	197
Elisa	125	127	131	135	133	131	129	141	139	136	136	146	151	152	150	157	159	161	158	175
Saunalahti													142	181	193	219	208	201	194	208
Average Revenue per User (ARPU)																				
European Average ARPU	40.6	31.9	29.2	28.8	29.3	28.4	27.9	29.0	30.1	29.2	28.5	29.8	30.8	29.9	29.4	30.4	30.9	29.8	28.9	29.8
Finland Average ARPU	40.0	40.3	40.4	43.1	41.9	40.3	39.6	41.4	40.7	39.5	37.5	38.1	37.4	38.9	37.2	36.8	36.3	34.5	31.2	31.4
Sonera / TeliaSonera	39.4	40.0	39.5	42.0	40.7	39.6	39.3	41.0	40.3	39.3	38.8	38.4	36.9	39.6	38.1	38.3	38.2	35.3	31.9	30.4
Elisa	42.0	43.0	42.0	45.3	44.2	42.7	41.4	43.5	43	41.3	36.4	39.5	40.4	40.6	38.6	38.2	37.5	37	34.6	33.8
DNA/Finnet						35.0	35	37	37	36	35	35	35	34	33	32	32	31	31	30
Saunalahti											25.9	30.9	28.1	35.3	33.8	33.3	30	30.5	30.9	30.8
ACN											25.9	30.9	28.1	35.3	33.8	33	32	30		
Market Penetration	62.6%	72.6%	74.8%	76.9%	78.3%	81.2%	82.2%	83.0%	84.5%	86.9%	88.6%	89.6%	91.4%	94.5%	93.1%	94.1%	95.8%	96.2%	96.7%	99.0%
Market Share																				
Sonera / TeliaSonera	65.9%	62.9%	62.1%	61.8%	61.5%	59.7%	58.5%	58.7%	58.0%	55.3%	53.4%	53.3%	51.6%	49.6%	48.1%	46.5%	45.6%	46.1%	47.8%	47.1%
Elisa	33.0%	33.1%	32.4%	32.2%	31.9%	32.2%	31.7%	30.0%	29.7%	29.8%	29.4%	29.3%	29.0%	28.1%	27.3%	27.3%	27.6%	27.8%	28.7%	28.5%
Telia Finland	1.1%	4.0%	4.0%	4.2%	4.6%	5.7%	5.8%	5.5%	5.6%	6.7%	7.0%	6.3%	6.4%							
DNA			1.5%	1.8%	2.0%	2.4%	4.1%	5.8%	6.6%	8.2%	8.9%	9.0%	9.0%	15.8%	14.7%	13.1%	13.3%	13.7%	14.2%	14.7%
Saunalahti											0.8%	1.0%	1.8%	2.9%	4.4%	6.3%	7.5%	8.4%	9.3%	9.7%
ACN											0.5%	1.1%	2.1%	3.6%	5.4%	6.7%	6.0%	4.0%		
Annualized Churn Rate																				
Sonera / TeliaSonera						11%	12%	11%	11%	16%	16%	10%	22%	20%	37%	31%	22%	26%	34%	22%
Elisa						14%	18%	13%	14%	21%	14%	13%	24%	23%	48%	29%	22%	39%	34%	32%
DNA						n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Saunalahti															47%	31%	28%	45%	50%	42%

Source: Credit Suisse First Boston, European Mobile Outlook reports, various dates.

Exhibit 8

Typical Cost Model for European #1/#2 Mobile Network Operator

Year ending December	2001	2002	2003	2004E
Total revenues	**4,333**	**4,751**	**5,143**	**5,540**
Cost of goods sold	394	432	469	445
Cost of goods/sales	*9.1%*	*9.1%*	*9.1%*	*8.0%*
% of ARPU from data	*9.1%*	*12.3%*	*14.5%*	*16.6%*
% from own content	*0%*	*0%*	*1%*	*3%*
Content pay-away			*50%*	*50%*
Content costs			1.9	11.5
% of ARPU from data	*9.1%*	*12.3%*	*14.5%*	*16.6%*
interconnect fees on data ARPU	*10%*	*10%*	*10%*	*10%*
% of ARPU from voice	*90.9%*	*87.7%*	*85.5%*	*83.4%*
interconnect fees on data ARPU	*9.6%*	*9.7%*	*9.7%*	*9.7%*
Interconnect fees/revenues	*9.6%*	*9.7%*	*9.8%*	*9.8%*
Interconnect costs	416	462	502	542
Lease line costs	436	459	473	483
Leased line/revenues	*10.1%*	*9.7%*	*9.2%*	*8.7%*
Devices/employees	*1,850*	*1,950*	*2,300*	*2,400*
# of employees	*6,627*	*6,531*	*6,010*	*6,077*
Cost per employee	*47.8*	*47.8*	*47.8*	*50.2*
Employee costs	317	312	287	305
Employee costs/sales	*7.3%*	*6.6%*	*5.6%*	*5.5%*
SG&A/revenues	*11.0%*	*9.9%*	*8.9%*	*8.8%*
SG&A	477	470	459	485
SG&A/device	*39.0*	*36.9*	*33.2*	*33.2*
Customer churn rate (ex upgrades)	25.0%	23.0%	21.5%	24.0%
Gross adds	*4.5*	*3.4*	*3.9*	*4.2*
% 2G gross adds	*100%*	*100%*	*100%*	*100%*
2G SAC/gross add	*111*	*125*	*125*	*130*
% 3G gross adds	*0.0%*	*0.0%*	*0.0%*	*5.0%*
3G SAC/gross add			*425*	*275*
Total SACs	504	419	493	572
Total SACs/sales	*11.6%*	*8.8%*	*9.6%*	*10.3%*
% of handsets upgraded	6.0%	11.0%	11.5%	14.5%
Volume of upgrades	0.69	1.37	1.53	2.06
% 2G upgrade	*100%*	*100%*	*100%*	*100%*
Cost per 2G upgrade	*136*	*150*	*150*	*145*
% 3G upgrade	*0%*	*0%*	*0%*	*5%*
Cost per 3G upgrade			*425*	*275*
Total SRC/sales	2.2%	4.3%	4.5%	5.6%
Handsets	5.22	4.73	5.47	6.23
Total handset churn	*31%*	*34%*	*33%*	*38.5%*
SAC+SRC	597	625	722	845
(SAC+SRC)/sales	*13.8%*	*13.2%*	*14.0%*	*15.3%*
EBITDA	**1,696**	**1,991**	**2,230**	**2,385**
EBITDA margin	*39.1%*	*41.9%*	*43.4%*	*43.1%*

Source: Credit Suisse First Boston, European Mobile Outlook, Q4 2004.

Exhibit 9

Financial Statistics of Mobile Operators in Finland

TELIASONERA FINLAND

Consolidated data	31/12/2004 12 months thEUR	31/12/2003 12 months thEUR	31/12/2002 12 months thEUR	31/12/2001 12 months thEUR	31/12/2000 12 months thEUR	31/12/1999 12 months thEUR
Operating revenue / turnover	2,607,519	2,584,538	2,664,116	3,103,000	3,646,000	1,894,000
Profit (loss) before tax	659,311	378,075	-3,828,170	445,000	1,860,000	497,000
P/L for Period [= Net Income]	375,359	40,893	-2,497,291	409,000	1,506,000	370,000
Cash flow	n.a.	n.a.	-2,158,091	741,000	1,805,000	651,000
Total assets	4,499,329	5,018,597	5,178,891	8,794,000	9,774,000	3,609,000
Shareholders funds	2,604,318	2,221,737	2,118,561	4,588,000	3,249,000	1,815,000
Current ratio (x)	0.48	2.1	1.96	0.66	0.8	1
Profit margin (%)	25.28	14.63	n.s.	14.34	51.01	26.24
Return on shareholders funds (%)	25.32	17.02	-180.7	9.7	57.25	27.38
Return on capital employed (%)	24.28	12.79	-91.6	10.14	38.01	17.62
Solvency ratio (%)	57.88	44.27	40.91	52.17	33.24	50.29
Employees	7,833	n.a.	7,656	10,482	10,305	9,270

ELISA

Consolidated data	31/12/2004 12 months thEUR	31/12/2003 12 months thEUR	31/12/2002 12 months thEUR	31/12/2001 12 months thEUR	31/12/2000 12 months thEUR	31/12/1999 12 months thEUR
Operating revenue / turnover	1,383,000	1,572,084	1,654,466	1,565,264	1,318,629	1,220,574
Profit (loss) before tax	212,500	-73,581	-103,116	46,249	93,813	210,215
P/L for Period [= Net Income]	151,700	-16,505	-123,044	535	22,284	85,601
Cash flow	364,900	401,802	258,467	317,138	233,508	273,660
Total assets	1,863,700	1,929,704	2,098,246	2,150,895	1,734,185	1,413,069
Shareholders funds	914,500	776,455	799,226	855,213	692,693	736,585
Current ratio (x)	1.96	1.07	0.86	0.67	0.53	1.32
Profit margin (%)	15.37	-4.68	-6.23	2.95	7.11	17.22
Return on shareholders funds (%)	23.24	-9.48	-12.9	5.41	13.54	28.54
Return on capital employed (%)	16.01	-1.93	-2.9	7.06	10.66	21.53
Solvency ratio (%)	49.07	40.24	38.09	39.76	39.94	52.13
Employees	5,590	7,172	8,115	7,783	6,161	5,489

Source: Amadeus database

Exhibit 9 (cont.)

Financial Statistics of Mobile Operators in Finland

FINNET

Consolidated data	31/12/2004 12 months EUR	31/12/2003 12 months EUR
Operating revenue / turnover	356,947,949	287,872,000
Profit (loss) before tax	-36,205,639	-24,322,000
P/L for Period [= Net Income]	-29,625,729	-24,921,000
Cash flow	9,691,642	10,171,000
Total assets	214,327,183	298,162,000
Shareholders funds	63,225,861	92,852,000
Current ratio (x)	1.14	1.31
Profit margin (%)	-10.14	-8.45
Return on shareholders funds (%)	-57.26	-26.19
Return on capital employed (%)	-28.73	-12.07
Solvency ratio (%)	29.5	31.14
Employees	743	n.a.

DNA (Mobile subsidiary of Finnet)

Unconsolidated data	31/12/2004 12 months EUR	31/12/2003 12 months EUR	31/12/2002 12 months EUR	31/12/2001 12 months EUR	31/12/2000 12 months EUR
Operating revenue / turnover	271,096,003	250,903,447	112,204,913	21,601,957	n.a.
Profit (loss) before tax	-6,444,219	-18,922,787	-36,554,438	-69,903,446	-6,751,736
P/L for Period [= Net Income]	-6,444,219	-18,922,787	-27,426,917	-69,929,683	-6,770,909
Cash flow	5,596,729	-6,313,855	-18,920,189	-65,625,873	-6,756,949
Total assets	96,112,386	120,700,100	65,616,901	46,463,318	16,659,520
Shareholders funds	20,468,563	38,912,782	15,835,569	8,682,079	8,054,519
Current ratio (x)	1.08	1.57	1.44	0.78	0.54
Profit margin (%)	-2.38	-7.54	-32.58	n.s.	n.a.
Return on shareholders funds (%)	-31.48	-48.63	-230.84	-805.15	-83.83
Return on capital employed (%)	-16.44	-27.1	-104.29	-504.95	-83.63
Solvency ratio (%)	21.3	32.24	24.13	18.69	48.35
Employees	337	280	176	170	57

SUANALAHTI

Consolidated data	31/12/2004 12 months EUR	31/12/2003 12 months EUR	31/12/2002 12 months EUR	31/12/2000 12 months EUR	31/12/1999 12 months EUR	31/12/1998 12 months EUR
Operating revenue / turnover	165,233,000	77,671,000	63,018,000	35,428,114	13,376,826	7,434,411
Profit (loss) before tax	9,621,000	5,166,000	-7,335,000	466,553	-2,375,823	-2,748,863
P/L for Period [= Net Income]	19,047,000	5,022,000	-5,119,000	3,531	-790,820	-2,745,163
Cash flow	32,411,000	13,292,000	4,923,000	3,787,759	513,646	-1,904,223
Total assets	78,226,000	41,922,000	33,831,000	68,866,227	17,637,698	5,975,043
Shareholders funds	33,932,000	12,442,000	31,000	30,763,085	4,082,763	99,568
Current ratio (x)	1.09	0.86	0.59	0.85	1.13	0.27
Profit margin (%)	5.82	6.65	-11.64	1.32	-17.76	-36.97
Return on shareholders funds (%)	28.35	41.52	n.s.	1.52	-58.19	n.s.
Return on capital employed (%)	26.92	37.44	-36.33	3.14	-17.39	-487.18
Solvency ratio (%)	43.38	29.68	0.09	44.67	23.15	1.67
Employees	264	197	257	387	154	112

Source: Amadeus database

Exhibit 10

Type of Subscription Plans in Finland

Subscription categories	Pricing Structures	Subscriptions (DNA, Saunalahti, Kolumbus, Elisa, Tele Finland & Sonera)
"Pay-per-use & cheap"	- Cheap monthly subscription (0 € - 3,99 € per month) - Cheap calls at all times, to all networks (0,069 € - 0,089 € per min) - Cheap SMSs to all networks (0,069 € - 0,089 € per SMS)	Saunalahti Ykkönen, Kolumbus K1, Elisa Oiva, Elisa Reilu, Tele Pulina, Sonera Netto, Sonera One, DNA Onni, Kolumbus KK, Saunalahti GSM
Packages	- Higher monthly fee (7,95 € – 35,8 € per month) - Price of included voice minutes is cheaper than in the "pay-per-use & cheap" category (0,0358 € per min) - Fixed amount of voice minutes (60, 500, 1000) - And/or fixed amount of SMSs (100, 900, 1000)	DNA Voitto, DNA Aarre, DNA Ilona, Saunalahti Tuplapaketti, Saunalahti Superpaketti, Saunalahti PakettiPlus, Saunlahti Tekstari, Kolumbus Puhepaketti 1, Kolumbus Puhepaketti 2, Kolumbus T1, Tele Puhepaketti, Tele Puhepaketti MEGA, Tele Teleksi, Sonera Zeroforty, Sonera Max, Elisa Tekstari
"Special prices"	- Higher monthly fee (2,99 € – 3,99 € per month) - Voice cheaper with special conditions than in the "pay-per-use & cheap" category (0,02 € – 0,035 € per minute) - Other voice minutes more expensive (up to 0,18 € per minute)	Sonera Friends, Tele Piipperi, Elisa Aito, Elisa Vapaa-aika, Kolumbus K2, Saunalahti Sopuhinta, Saunalahti Säästäri, Saunalahti Lanka, Saunalahti Saunalahtelainen, DNA Koti, DNA Helmi
Add-ons	**Pricing**	**Subscriptions**
Add on packages	- Including fixed amount of SMSs that can be bought on top of existing subscription (100 SMS 1,99 € and 300 SMS 5,99 €)	Saunalahti SMS 100&300, Kolumbus SMS 100&300, Tele Finland SMS 100&300

Source: Operator websites, Capgemini analysis.

Exhibit 11

Pricing Components in Finland, September 2005

Operators / Pricing components	TeliaSonera	Tele Finland	Elisa	Kolumbus	Saunalahti	DNA
Contract lengths	None	None	None	None	None	None
# price plans for voice	2	2	1	2	2	2
Type of price plans for voice	Bundle + PPU	Bundle + PPU	PPU	Bundle + PPU	Bundle + PPU	Bundle + PPU
Type of price plans for SMS & data	Bundle + PPU	Bundle + PPU	Bundle + PPU	Bundle + PPU	Bundle + PPU	Bundle + PPU
# of subscriptions per price plan	2 bundle + 3 PPU	3 bundle + 2 PPU	1 SMS bundle + 5 PPU	3 bundle + 3 PPU	4 bundle + 7 PPU	3 bundle + 7 PPU
Out-of-bundle pricing	Depending on subscription	Depending on subscription	NA	Depending on subscription	Depending on subscription	Depending on subscription
Period of notice	None	None	None	None	None	None
Add-on packages for voice + SMS	?	2 add-on packages for SMS (100 & 300	None	2 add-on packages for SMS (100 & 300)	2 add-on packages for SMS (100 & 300	None
Type of price plans for content services	-	-	-	-	-	-
Price plans for mobile portal	SurfPort	-	-	-	-	-
Price levels	Bundle prices 6,99 – 9,99, cheapest voice minute 0,079	Bundle prices 8,1 – 35,8, cheapest voice minute 0,069	Cheapest voice minute 0,079	Bundle prices 7,95 – 35,8, cheapest voice minute 0,069	Bundle prices 7,95 – 35,8 kk, cheapest voice minute 0,069	Bundle prices 7,95 – 19,9 kk, cheapest voice minute 0,069

Source: Operator websites, Capgemini analysis.

Exhibit 12

Price Levels for Different Subscription Contracts, Finland, September 2005

"Pay-per-use" subscriptions Subscription	Monthly fee	Price per minute	Price per SMS
Sonera and Elisa			
Elisa Oiva	1,99 €	0,079 €	0,079 €
Sonera Netto	1,99 €	0,079 €	0,079 €
Low cost operators			
Kolumbus K1	0,66 €	0,069 €	0,069 €
Tele Pulina	0,66 €	0,069 €	0,069 €
SL Ykkönen	0,66 €	0,069 €	0,069 €
DNA Onni	0,66 €	0,069 €	0,069 €

"Package" sbuscriptions Subscription	Monthly fee	Included minutes	Included SMS
Sonera Max	6,99 €	60	-
SL Tekstari	7,95 €	-	1000
DNA Voitto	7,95 €	-	1000
Elisa Tekstari	9,95 €	-	1000
Sonera Zeroforty	9,99 €	-	1000
Kolumbus Puhepaketti 1	17,9 €	500	-
Tele Puhepaketti	17,9 €	500	-
SL PakettiPlus	17,9 €	500	-
SL Tuplapaketti	19,9 €	500	100
DNA Ilona	19,9 €	500	100
SL Superpaketti	35,8 €	1000	-
Tele Puhepaketti Mega	35,8 €	1000	-
Kolumbus Puhepaketti 2	35,8 €	1000	-

Code: Tele = Tele Finland; SL = Saunalahti.

Source: Operator websites, Capgemini analysis.

Exhibit 13

T-Mobile Subscription Bundles in Germany

Bundles	Relax Start	Relax 50	Relax 100	Relax 200	Relax 500	
Pricing						
Included minutes	20*	50	100	200	500	
Price per month	**7,50 €**	**20 €****	**30 €****	**50 €**	**100 €**	
Price per included min	0,375 €*	0,40 €	0,30 €	0,25 €	0,20 €	
Minimum ARPU over 24 months contract length	150	480	720	1200	2400	
Out of bundle pricing						
Voice price per min to own & fixed networks	0,40 €	0,40 €	0,30 €	0,35 €	0,25 €	
Voice price per min to other mobile networks	0,60 €	0,60 €	0,50 €	0,35 €	0,25 €	
SMS	0,19 €	0,19 €	0,19 €	0,19 €	0,19 €	
MMS	0,39 €	0,39 €	0,39 €	0,39 €	0,39 €	
Video calls per min to own network	0,80 €	0,80 €	0,80 €	0,80 €	0,80 €	
Video calls per min to other mobile networks	1,20 €	1,20 €	1,20 €	1,20 €	1,20 €	
Out of bundle packages						
SMS packages (40/100/200)	5/10/18 €	5/10/18 €	5/10/18 €	5/10/18 €	5/10/18 €	
Free weekend minutes	4,95 €	4,95 €	4,95 €	4,95 €	4,95 €	
Free off-peak calls	7,50 €	7,50 €	7,50 €	7,50 €	7,50 €	
Handset						**(Handset price without bundle)**
Nokia 6680	359	269	249	199	199	469
Samsung SGH-ZM60	219	119	99	59	59	389
Samsung SGH-Z130	219	129	99	39	39	379
LG U8290	199	119	1	1	1	299

Source: Capgemini analysis

Exhibit 14

TeliaSonera Subscription Bundles in Sweden

Subscription Packages	Telia Mobil 30	Telia Mobil 100	Telia Mobil 300
Pricing			
Included minutes	30	100	300
Price per month	€6.33	€15.99	€32.09
Price per included min	€0.21	€0.16	€0.11
Minimum ARPU over 12 month contract length	€75.97	€191.87	€385.02
Minimum ARPU over 24 month contract length	€151.95	€383.73	€770.04
Out of bundle pricing			
Voice/min own/fixed networks (07-19 working days)	€0.31	€0.31	€0.31
Voice/min own/fixed networks (other times)	€0.03	€0.03	€0.03
Voice/min other mobile networks (07-19 working days)	€0.31	€0.31	€0.31
Voice/min other mobile networks (other times)	€0.21	€0.21	€0.21
Video calls (07-19 working days)	€0.54	€0.54	€0.54
Video calls (other times)	€0.27	€0.27	€0.27
SMS	€0.09	€0.09	€0.09
MMS	€0.31	€0.31	€0.31

Handset (1)				**Without bundle**
	€181.9	€181.9	-	€428.7
Nokia 6680	€0.1	€0.1	-	
	€106.8	€106.8	-	€418.0
Samsung SGH-Z300	€0.1	€0.1	-	
	€203.3	€203.3	€203.3	€407.2
SE K600i	€74.6	€74.6	€74.6	
	€160.4	€160.4	-	€364.3
SE Z800i	€31.7	€31.7	-	
	€106.8	€106.8	-	€310.7
Samsung SGH-Z500	€0.1	€0.1	-	

(1) Handset prices on top left are for 12-month contract; bottom right for 24-month contract.
Original data in Swedish krona (=€0.107308)

Source: Capgemini analysis

Exhibit 15

Vodafone Subscription Bundles in UK

Subscription Packages AnyTime (AT)	AT 75	AT 125	AT 200	AT 350	AT 500	AT 700	AT 1000
Pricing							
Included minutes	75	125	200	350	500	700	1000
Included SMS	100	250	250	500	500	500	500
Price (month)	€23.50	€29.37	€36.71	€58.74	€73.43	€88.11	€110.14
Price per included min.	€0.19	€0.12	€0.12	€0.10	€0.10	€0.09	€0.09
Minimum ARPU over 12 month contract length	n.a.	€352.45	€440.57	€704.90	€881.13	€1,057.36	€1,321.70
Minimum ARPU over 18 month contract length	€422.94	€528.68	€660.85	€1,057.36	€1,321.70	€1,586.03	€1,982.54
Handset (1)							
SE V600i	- €14.7	€0.0 €0.0	€0.0 €0.0	€0.0 €0.0	€0.0 €0.0	€0.0 €0.0	€0.0 €0.0
Samsung Z500	- €58.7	€73.4 €0.0	€29.4 €0.0	€0.0 €0.0	€0.0 €0.0	€0.0 €0.0	€0.0 €0.0
SE V800	- €73.4	€44.1 €0.0	€0.0 €0.0	€0.0 €0.0	€0.0 €0.0	€0.0 €0.0	€0.0 €0.0
Nokia 6680	- €205.6	€176.2 €102.8	€88.1 €73.4	€73.4 €0.0	€73.4 €0.0	€73.4 €0.0	€73.4 €0.0
Toshiba TS921	- €249.7	€249.7 €146.9	€176.2 €132.2	€132.2 €58.7	€132.2 €58.7	€132.2 €58.7	€132.2 €58.7
Sharp 902	- €396.5	€381.8 €293.7	€308.4 €249.7	€279.0 €205.6	€279.0 €205.6	€279.0 €205.6	€279.0 €205.6
Sharp 902 Ferrari	- €469.9	€411.2 €323.1	€352.5 €293.7	€337.8 €279.0	€337.8 €279.0	€337.8 €279.0	€337.8 €279.0

(1) Handset prices on top left are for 12-month contract; bottom right for 24-month contract.
Original data in British pounds (=€1.46855)

Source: Capgemini analysis

Appendix A: Mobile Revenue Models in Europe

There are a multitude of features that drive the revenues of most mobile operators in Europe. The way they are used depends largely on the competitive conditions and the laws in force in the specific market.

Subscription type – Indicates a regular fee normally paid monthly to maintain the service with an operator. The price paid will vary depending on the price plan chosen with it, to what extent the contract length is fixed, whether the handset is subsidized or if other services are included.

Price plan – Indicates extra charges for making voice calls, sending text messages and accessing data services. The prices for voice call are normally given at a fee-per-minute of usage (PPU- pay per usage), while access to and usage of data services will vary significantly (see **Exhibit A.1**). PPU prices will decrease with an increase in the monthly subscription fee paid.

Contract length – Indicates the length of time that the subscriber is bound to a specific subscription type with the operator. Normal contract length will vary from 6 months to 3 years and depend upon the extent to which handsets are subsidized, the type of subscription chosen, the price plan etc, in addition to the specific laws in force in each market.

Handset prices – New handsets are the main driver for customers to update or change their mobile subscription. Heavy subsidization is an established practice to attract new or retain existing customers for a mobile operator. Subsidization levels depend on the handsets available, the subscription type and the competitive situation and maturity of a specific market.

Content prices – Content services are additional digital information, either text or media (picture, video) based, that are available to the customers. These include, news, entertainment, music, TV, games etc. downloaded from the operator or other external partners. Pricing schemes are numerous from combination pay per usage schemes to all-inclusive offerings (see **Exhibit A.2**).

Unlock fee – When offering a subsidized terminal to a customer, most operators choose to lock the SIM card to its specific phones during the minimum contract length. This means that the customer cannot use the phone with a SIM card provided by a competitor during this period. When the period has expired some operators charge an "unlock fee" to enable use of other SIM cards with its terminal.

Period of notice – Some operators have a period of notice during which the customer cannot switch to the competitor. Period of notice is calculated from that day when the customer announces that he wants to end the contract. It can vary from a few days to several months.

Bundled price plans – Price plans are often bundled into the subscription type and a monthly subscription fee will thus be marketed as a package inclusive of minutes of voice, bytes of data, # of SMS, and/or other services.

Out of the bundle price plans – When the user exceeds the inclusive usage, the "out of the bundle price plan" will start running, normally at a higher rate than the bundled price plan.

Offer policies – Operators use different policies to prevent unwanted exploitation of their customers and premature churn to competitors. These include:

- Locking of handsets to selected subscriptions
- Unlock-fees
- Subsidized handsets available to new contract customers only
- Upgrade opportunities during the fixed contract time
- Period of notice to terminate subscription.

Exhibit A.1

3G Revenue Models in Europe

	3 (Sweden)	Vodafone (UK)	Orange (UK)	TeliaSonera (Sweden)	KPN (Netherlands)	Deutsche Telecom (Germany)
Offer Concept Elements						
# of 3G handsets in portfolio	11	7	7	5	2	5
# of suppliers	4	4	4	3	2	3
Handset segmentation	4 (Low to High)	2 (Medium & High)	2 (Low & High)	2 (Low & Medium)	2 (Medium & High)	3 (Low to High)
3G content services	Rich	Rich	Rich	Poor	Poor	Medium
Own mobile portal	Yes	Yes	Yes	Yes	Yes	Yes
Sales channels	All except for resellers	All	All	All	All?	All
Online discount	No	Yes	Yes	No	Yes	No
Driver in purchasing process	Handset or Subscription	Handset	Handset	Handset or Subscription	Handset	Handset or Subscription
Handset customization	High	High	High	Low	Low	Low
Handset responsibility	High	High	High	Medium	Medium	High
Insurance offer	Yes	Yes	Yes	Yes	-	Yes
Noticeable Offer policies	Locked handset (unlock fee)	Locked handset (unlock fee)	Locked handset	Locked handset (unlock fee)		Locked handset (unlock fee)
	Subscription upgrade during contract time	Suscription change possible 7-12 month	Possible to upgrade handset within contract time for a fee	Subscription upgrade during contract time		Subscription upgrade during contract time
	Period of notice	Period of notice	Period of notice	Period of notice		Period of notice
		Subsidized handset only for new contract customers				
Pricing and Contract Components						
Contract lengths (months)	18	12 or 18	12	12 or 24	12 or 24	24
# price plans for voice	1	1	2	1	2	1
Type of price plans for voice	Bundled	Bundled	Bundled	Bundled	Bundled	Bundled
Type of price plans for SMS & data	PPU + package	SMS: PPU + package. Data: PPU	SMS: PPU + package. Data: PPU	PPU	Bundled	PPU
# of subscriptions per price plan	4	7	12-Jun	3	08-Mar	5
Out-of-bundle pricing	Same for all subscription types	Same for all subscription types	Same for all subscription types	Same for all subscription types	Same for all subscription types	Depending on subscription type
Un-lock fee	350 Kr	-	-	€32	-	€25
Period of notice	-	-	-	9 days	-	3 months
Add-on packages for voice + SMS	No	No	No	No	No	Yes (Free weekend/off-peak calls, SMS packages)
Drivers for handset subsidization	Subscription type	Subscription type & contract length	Subscription type	Contract length	Subscription type & contract length	Subscription type
Level of handset subsidization	Linear depending on subscription			Low	Medium	Medium
Type of price plans for content services	PPU + package	PPU	PPU	PPU	PPU	PPU
Price plans for mobile portal	No charge	No charge	No charge	Usage based	Usage based	Usage based

Source: Capgemini analysis

Exhibit A.2

Mobile Data Revenue Models

Mobile Data Revenue Model	Description	Examples
Session-based charging	Per-minute charges Per-session charges	Linking to multiplayer games Wi-Fi 802.11b connectivity
Volume-based charging	per-kilobyte charges	Downloading tunes Downloading music Uploading digital photographs
Per-message Short Message Service (SMS) & Multimedia Messaging Service (MMS)	10 cents per minute 2 cents per minutes with certain packaged deals	Carriers make money from selling airtime
Flat rate per content type	Pay-for-what-you-use	No monthly fees. In Singapore, Virgin Mobile, an MVNO that uses SingTel infrastructure, charges a flat rate of 16 cents per minute; MobileOne Asia, charges 20 cents during peak hours, 10 cents during off-peak hours and five cents after 9 p.m. and on weekends.
Flat rate per content type	"All-you-can-eat" models	SMS messaging, corporate and personal email, instant messaging. For instance, BT Genie offer subscribers access to a centralized mailbox where they can pick up their voice, email and fax messages through their microbrowser-enabled phone.
Mobile Internet Access and Basic Content Subscription Services	Portal Service (Limited number of kilobytes allowed)	America Online NTT DoCoMo - successful I-mode service charges users a $2.50 monthly fee, plus 25 cents per data packet (one packet is equivalent to 128 bytes of data). Palm.net basic plan (30 messages; 20 stock quotes; 10 sports scores;10 traffic reports; 10 weather reports)
Mobile Internet Access with Unlimited or Premium Content Subscription Services	Advanced Portal Services (unlimited kilobytes included in monthly fee)	America Online Verizon Express Service Palm.net Unlimited Volume Plan OmniSky - Pricing Plan EarthLink, the buyer of bankrupt OmniSky assets, has begun offering Internet service to wireless handheld computer users for $40 to $60 per month.
Advertising Based Models	Credit for free calls/products in return for watching ads	Vindigo - Text-based Ads on Palm
Revenue Sharing Models	The mobile operator would receive a piece of whatever business was generated from a mobile surfer who clicked through a link to a partner site.	Carriers are increasingly pursuing revenue sharing agreements with content and application providers. For instance, Under NTT Docomo's i-mode model, 91% of revenue from applications goes to developers. In contrast, the best-case revenue sharing scenario in Europe is a 50/50 arrangement between operators and developers.

Source: Capgemini analysis.