MOBILE VIRTUAL NETWORK OPERATORS: CASE FINLAND

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Abstract

This paper studies the strategic position of mobile virtual network operators, MVNO, a new type of mobile communication service providers. MVNOs buy network capacity from a mobile network operator (MNO) to be able to provide a full portfolio of mobile services for their own subscribers. The recent changes in regulation have enabled the entrance of MVNOs to increase competition.

This paper provides insight into different types of MVNOs and their alternative business strategies. Strategic decisions of an MVNO have to be made based on existing market situation, own competitive advantages and the needs of the selected customer segment. Also the external environment, internal resources and strategic position of the company need to be researched. A model that guides through this decision process is presented and applied to mobile communications business.

As a case study, the Finnish MVNO business environment is analyzed. In Finland, almost all the MVNOs have adopted the strategy of competing with price rather than services. The success of this choice is still to be seen as the market matures: can the new MVNOs operate more effectively than the incumbent operators and sustain the lower prices. In addition to that, Finnish MVNOs who chose other strategies than price competition are introduced and their strategy choices compared to the general strategies evaluated.

Key Words

MVNO, MNO, regulation, business strategy, services, Finland, competition

1 Introduction

In Western European countries the mobile communication market has reached its saturation point (approximately 90% penetration of population). As the market has matured, the basic subscription has become a commodity product and the competition at the market is based mainly on price.

Until recently, the business has involved only few actors in the mobile operator market. The two main types of operators are

- *mobile network operators* (MNOs) providing a mobile network for the purposes of transmitting, distributing or providing messages and
- *mobile service operators* (MSOs) transmitting messages over a mobile network obtained for use from a mobile network operator.

European Union, however, continues its efforts to increase competition in the market. Communication directives issued by EU have changed the telecommunications regulatory framework so that basically every interested party could start offering SIM-based mobile services without the network or rights to the required radio spectrum. Also the launch of mobile number portability has decreased customer loyalty and increased churn. All these changes have opened up the mobile communications market to new service providers.

The purpose of this paper is to introduce the business concept of the mobile virtual network operator (MVNO), a new type of communication service provider. This is done by researching the basic concept, defining the alternative business models and by introducing the MVNO situation in the Finnish mobile operator market as a case study.

2 What is a MVNO

Mobile virtual network operators (MVNOs) provide mobile voice and data services without owning the access rights to the spectrum they use [21]. Consequently, MVNOs can be described as a subgroup of MSOs. The radio capacity used to provide these services is gained through commercial agreements with licensed mobile network operators (MNOs).

MVNOs are a new, mostly a European GSM phenomenon. The versatile backgrounds of MVNOs can be divided into three groups [8] 1) fixed network operators, 2) mobile network operators in another geographic market and 3) companies with non-telecom business at the geographical market. For an MVNO having no background in telecommunications it is typical to have a strong brand known from its other operations (e.g. Virgin Mobile [20]).

There is no commonly accepted classification for MVNOs. MVNOs can be divided into subcategories based on the network components owned by the MVNO [7][2]. All the MVNOs deliver their own SIM cards and take care of the branding, marketing, billing and customer care. The difference arises in whether a MVNO has its own

- MSC Mobile Switching Center
- HLR Home Location Register
- IN Platform.

Some authors [1][8] see that the technology-based definition mentioned above is ultimately flawed and thus not valid. They suggest rather an approach based on services according to whether a MVNO provides itself

- only pre-packaged services
- tariff and service design control or
- service implementation and differentiation.

It is, however, true, that the level of technical independence defines the services and the level of differentiation the MVNO is able to offer. Common in both approaches is that the more network or service creation elements a MVNO has, the more ‘pure’ or ‘true’ MVNO it is. MVNOs providing only pre-packaged services are often called ‘service re-sellers’ or ‘brand operators’. It is also possible for an MVNO to offer its services for another MVNO – this is typical in such case, where a more ‘true’ MVNO with some technical resources provides services for a brand operator.

From the MNO's viewpoint, making an agreement with an MVNO is a big strategic issue. Selling network capacity to one or several MVNOs can bring new subscribers and traffic into the network hereby broadening the customer base of incumbent operators at zero cost of acquisition. Selling of the capacity is also an efficient way to share the network costs. On the other hand, the entrance of an MVNO is likely to lower the prices in the market. Therefore it can be said, that the situation is kind of paradoxical: MNOs should not let MVNOs in unless they are certain that the MVNO in question will not enjoy significant success. MNOs should thus find the 'Comfort Zone' [19], the most beneficial and profitable amount of network capacity contracts. This comfort zone should be researched from the viewpoints of pricing, customer structure, services and the business strategy of the MVNO.

3 Regulation

Recent changes in the regulatory environment and especially in the communication directives issued by European Union have enabled the business opportunity for MVNOs. The most significant directives are presented in the following.

The division of telecommunications operators to network operators and service operators is based on the EU legislation. The main focus of telecommunications regulation is to obligate network operators to lease out capacity from their networks to all service providers at a fair price. A fair price consists of appropriate investment, operating costs and modest return on the investment [9][17].

The regulatory term 'significant market power' (SMP) is used to describe an operator having a remarkable market share of a certain type of a service. Network operators having SMP must provide fair access to their networks. Furthermore, they are obliged to provide the financial information of transmission services to the regulator so that the fairness of their network tariffs can be estimated [9].

The purpose of these regulatory actions has been to increase competition in the mobile communications business field and thus accelerate the development of new services and technical innovations. MVNOs are favored by regulators because they promote this goal. To make the mobile communications market easier to access, national regulators can impose incumbent operators to lower the barriers to enter the market. Examples of these acts are mobile number portability (MNP) and price regulation of interconnection and termination fees. Especially for the small MVNOs, the regulation of these fees is essential to enter into mobile communication markets.

Despite of the new directives and rules, not all EU members have incorporated the European Union Directives into national law. Besides that, most regulators have found that their existing regulations cannot be applied to MVNOs without amendment [1]. Especially the amount of regulation needed in the relationships between MVNOs and MNOs is still under consideration in many countries: should regulators e.g. force the MNOs to reserve a certain limit for MVNOs? This decision has already been made e.g. in Hong Kong, where regulator requires 3G networks to reserve 30-50% of their capacity for MVNO use [4].

4 MVNO business strategy guidelines

MVNO business consists of providing services to the customers. The simplified business objective would be to maximize the profit of the total business, i.e. [14],

$$\text{Profit} = \text{ARPU} * \text{Customers} - \text{Cost},$$

ARPU meaning the average revenue per user. After the entrance of MVNOs, the ARPU generated by customers has transferred from MNOs to MVNOs. To be able to offer services to its customers, an MVNO pays to the MNO for the network capacity it uses. These contracts between MNOs and MVNOs are bilateral and usually based on the total traffic (can also include a fixed fee per user).

In mobile communications, two main sources of revenue can be identified: communication services (call/data traffic) and value added services[1]. A new MVNO can base its strategy on providing mainly one or both of these. For a company starting its business as a MVNO, several items need to be considered. How to attract customers to use the services of the MVNO? What kind of services to provide to offer the maximum value to customers and to get high ARPU? How to keep the costs sustainable? Based on this information, the following choices have to be made:

- choice of the source of revenue
- technology choice
- partner choice and
- the choice of the customer segment

Different internal and external factors have impact on the business strategy to be chosen by an MVNO. The most suitable strategy can be found by considering the following four blocks: internal resources, external environment, existing strategic position, goals and objectives [8][21]. The blocks with different parameters are presented in Figure 1.

[1] Also advertising income might be a possible source of revenue in the future.

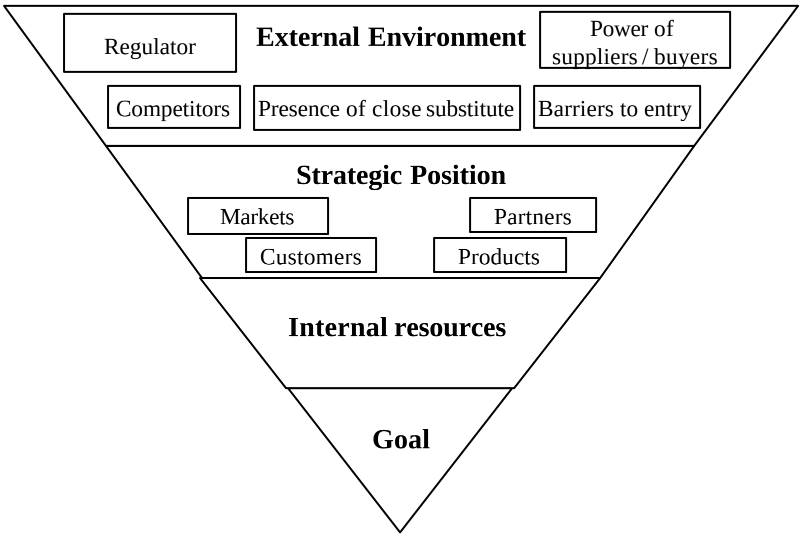

Figure 1 Strategy decision model (modified from [8])

The effect caused by the *external environment* is remarkable, including the five forces defined by Porter [15]. Most communication markets have more than one MNO, which diminishes the *power of suppliers*. Also national regulation authorities can reduce the MNO power by restricting the charges to be paid for the MNOs.

The *barriers to entry* to the MVNO market are rather low because of the regulation decisions. The biggest entry barrier is the switching cost of mobile subscribers. Regulators can significantly reduce this cost by enforcing obligatory number portability. One important factor having an impact on the willingness to switch the operator is the group effect: because of the cheap intra-operator calls, subscribers are not eager to switch the operator 'alone' but instead together with a certain group whose members make a lot of calls to each other (e.g. a family, a group of friends).

Low barriers to entry increase the amount of *competitors* in the field, giving the *buyers* power. The 'buyer's market' type of a situation results in lowered prices and smaller profits. As long as MVNOs compete with price instead of service differentiation, the *presence of close substitute* remains high and competition of the same customer group continues. On the other hand, fixed internet and content printed on paper can be seen as substitutes that don't encourage the usage of mobile communication services (e.g. bus time tables freely available on the Internet or as printed books).

Existing strategic position defines the position among customers and partners. It gives visibility to the MVNO and diminishes the need for marketing and other promotion costs. Many MVNOs have already a well-known brand which to exploit in the business. MVNOs can utilize their position to create business synergies with their mobile communications operations. The existing position can, however, also decrease the reliability in case the existing position differs from the desired one.

Existing *internal resources* have a significant effect on the initial costs of MVNO business and on the service composition to be offered to the customers. Also a certain set of internal resources can form a good basis for synergies in MVNO business operations. These resources also decrease the risks during the ramp-up of business.

The *goal* for an MVNO is to make profit through fulfilling the expectations of the chosen customer segment so that the customers experience the level of service that satisfies their needs.

Through a careful research on external and internal factors as well as target customers, it is possible to determine the profit potential and the correlating business strategy.

5 Business strategy scenarios

MVNO business strategies can be divided into five main groups:

- low <u>price</u>
- narrow <u>focus</u>
- service <u>differentiation</u>
- service <u>reselling</u>
- international <u>clustering</u>

In case the MVNO business strategy is based on *offering services with low price*, the main competitive advantage must be the ability to keep costs low. All the operations of the company must be aligned to meet this target. The service portfolio is narrow including only the basic services for selected, rather large customer groups. Low organizational structure, large customer potential, and short reaction time to changes in the market are benefits for the MVNOs following the 'price leader' strategy. However, in order to survive with this strategy choice, a large customer base is required because of the small profit margins. Also the amount of resources for new service development is minimal and trade-offs are needed to be able to provide the most cost-effective services. Service platforms and roaming contracts are usually not handled by the price leader itself but by the MNO. One major challenge for a low price MVNO is the cost level of its MNO contract. A market, where each MNO controls its own family of MVNOs may not create enough competitive incentive to MNOs unless the number of clearly competing MNOs is large enough, at least three.

MVNOs that select to *focus on one customer segment* typically cannot achieve business volumes big enough to justify investments on own service platforms. Tailored marketing and customer care for the chosen segment allows setting the expected average revenue per user (ARPU) high. Strategic alignment between the partnering MNO and MVNO is typically good since a large MNO cannot easily focus on small niche segments. This MVNO strategy is suggested by many authors [7][19].

A MVNO can also select to *offer differentiated, value added services* for demanding customers. Here the service mix should be rather large to attract (especially business) customers. One possibility is to offer bundled services based on the company's earlier core competence (e.g. fixed and mobile subscriptions, office solutions). These 'service leaders' might also have multiple target segments that use the same services with different, customized content. While competing with differentiated services, a MVNO has the potential to gain a rather high average revenue per user (ARPU). Also the ability to develop new services independently (or in co-operation with partners) for the dynamic needs of the customers is an advantage. A major problem with this strategy has been the absence of profitable business models: users are not ready to pay for the services (only some service concepts, like voice mail and ring tones, have been successful).

A MVNO with strong technology competences but low brand value can select to become a *reseller* and enabler for other MVNOs already having a strong brand. This strategy requires large customer volumes due to the low expected ARPU, which is likely to create conflicts of interest with the supplying MNO. Consequently, the regulator's support appears particularly crucial for this strategy.

Global and regional MNOs can select to enter a new country as a MVNO instead of investing in or acquiring a local MNO. This *clustering* approach enables a fast initial service roll-out if the foreign MNO can use their existing service machinery located outside of the target market, as well as their existing service portfolios. As a drawback the foreign MNO entering as a MVNO have to start from a zero market share.

The features of different strategies are summarized in table 1.

Table 1. MVNO strategies and their features

	Price	**Focus**	**Differentiation**	**Reselling**	**Clustering**
Source of roaming contacts	Local MNO	Local MNO	Local MNO	Self	Foreign MNO
Source of service platforms	Local MNO	Local MNO	Self	Self	Foreign MNO
Importance of content partners	Low	Low	High	Low	High
Importance of new services	Low	Medium	High	Medium	High
Importance of own brand	Medium	High	High	Low	High
Feasible number of subscribers	High	Low	Low/medium	High	Medium
Feasible ARPU	Low	High	High	Low	Medium
Typical initial target segment	Students	Minorities	Early adopters	Other MVNO	Business users

6 Case study: Finnish market

Finland has already a history in GSM business: the first GSM call was made in Finland and until the year 2000, Finland had the highest mobile subscription penetration in the world (over 90% today). In addition to that, also the competition has long roots in the Finnish telecommunications market because of the numerous local telephone operators and the competition between public and private telephone operator families. Besides the historical facts, the Finnish MVNO market is interesting due to the presence of a large number of diverse MVNOs.

However, despite the Finnish success in the market, the country has fallen behind in international rankings and mobile data usage during the last two years. Finland has also been late compared to the leading European markets enabling MVNOs.

Finland has three GSM licenses (Sonera Mobile Networks, Elisa Mobile and Finnet Verkot) and four UMTS licenses[2] (the incumbent GSM license holders and Swedish Tele2). The market share situation of incumbent operators is TeliaSonera 49%, Elisa Mobile 28% and dna (Finnet Group) 15% (as of March 2004) [13].

[2] awarded 1999 based on beauty contest

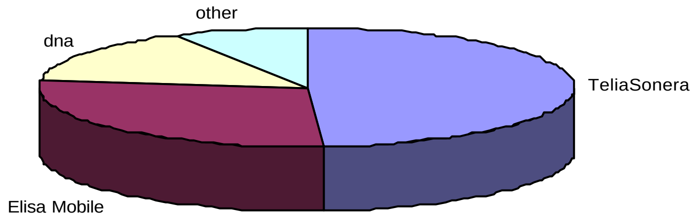

Figure 2 Market shares in the Finnish GSM market

Recent changes in regulation have made the market easily accessible for MVNOs. The three incumbent operators are referred to as significant market powers in the call termination (downlink) traffic market by the Finnish Communications Regulatory Authority [5]. EU legislation imposes that uplink wholesale traffic in mobile networks is coming under SMP legislation in EU markets and incumbent operators are required to publish the terms and prices of interconnection [9]. The most effective trigger for MVNOs to start their operations, however, was the requirement to enable mobile number portability (MNP) between mobile network operators in July 2003 [5][7].

6.1 MVNO market structure

There are already more than fifteen MVNOs in Finland (Table 2), and the amount is increasing [16]. New MVNOs together with new content providers bring a large number of new players in the market. As a consequence, the value chain becomes a more fragmented value net.

Table 2 MNOs, MSOs, MVNOs and brand operators in Finland (as of March 2004)

MNO	Incumbent MSO 'True' MVNO	'Weak' MVNO	Brand operator
		Globetel	
Sonera Mobile Networks	TeliaSonera	Saunalahti ACN Finland Finnetcom NetFonet Tele Finland CDF Mobile	SK Ravintolat Hesburger Passeli
Elisa Mobile	Elisa Mobile Tele2	Cubio MTV3 Song Networks Kolumbus	
Finnet Verkot	dna Finland	Fujitsu Services PGOne Spinbox Wireless Maingate	

The main business strategy of the MVNOs in Finland is to compete with price. Thus far, only few MVNOs have chosen clearly another than the low price strategy.

6.2 Strategy examples

Tele2 Finland [18] has a unique position in the Finnish MVNO market: it was the first MVNO in Finland using its own MSC. An own MSC enables the production of own services and independent interconnection roaming agreements. Tele2 has also a remarkable position in other parts of the Europe: it has operations (fixed and mobile) in 23 countries and 6 million mobile subscribers [7]. The background of Tele2 Finland is a mixture of the groups mentioned in chapter 2: it provides fixed Internet services in Finland (among many other countries), MNO services in many countries (e.g. Sweden) and MVNO services in some European markets. Thus, Tele2 is an example of the international clustering strategy in our conceptual model (see Table 1).

The main business strategy of Tele2 Finland is to offer 'aggressively' priced basic services through their modular network structure: they offer pre-paid subscriptions without monthly charge. Despite of choosing the price leader strategy, Tele2 negotiates its interconnection contracts itself and uses its own platforms and existing resources for service development. The costs are kept in minimum with economies of scale: by using existing service creation resources, concepts and personnel. In addition, exploiting the Internet as the main distribution channel allows minimization of distribution costs.

Tele2 Finland was the first operator providing low-priced pre-paid subscriptions in the Finnish market. Because of their existing network resources and mechanisms, another possible source of revenue for Tele2 could be to offer their pre-paid service concept for other MVNOs (brand operators), thus being a service reseller. This way Tele2 could make larger profit of their assets and knowledge and establish partnerships that could increase the usage of their own services, too. This must, however, be agreed with the MNO concerned.

MTV3 [12], the leading commercial television channel in Finland has an entirely different business strategy in the mobile market. Because of their existing content provision capability and customer base, they compete and differentiate with content services. As a MVNO they provide a mobile subscription with complementary service packages including different types of content. MTV3 buys the all-inclusive network service from Elisa Mobile.

Fujitsu Services, a large IT service company, use the MVNO strategy of service differentiation: they integrate GSM subscriptions to a complete, customized IT offering targeted mostly at large enterprises [6]. Note that combining GSM with voice-over-IP office telephony Fujitsu Services is able to challenge the traditional operators on their hometurf with a full voice telephony offering to enterprises. Thus in addition to the differentiation strategy, they apply the focus strategy.

Saunalahti has combined three strategies of our model: they offer the low price services directly to their customers, provide differentiation with content services, and resell their network capacity to focused brand operators. They have won over 300 000 subscribers from the incumbent operators within two years, resulting over 6% market share. Saunalahti also bundles their mobile subscriptions with their fixed broadband Internet subscriptions. As an MVNO enabler they provide services (SIM cards) for two brand operators.

Hesburger and *Passeli* subscriptions are so called brand operators, applying truly the focus strategy. They offer mobile communications services fully provided by Saunalahti to the existing customers of Hesburer (a hamburger restaurant chain) and Passeli (an accounting management software).

There are no truly global MVNOs in the Finnish market. The only global player in the market is Vodafone, but instead of offering its own MVNO services, it has chosen a partnership with Elisa Mobile. This co-operation allows Radiolinja's customers to use their home services in Vodafone's network globally.

Also incumbent operators have launched MVNO-type service operators and brand subscriptions to be able to compete in the focused market segments. TeliaSonera Finland has set up a 'Zeroforty'-subscription and a service operator called 'Tele Finland' to reach the young people attracted by low-priced services of MVNOs. This strategy allows incumbent operators to try out new marketing concepts and low prices without losing their credibility in other user segments.

6.3 Effect on the market

After the entrance of MVNOs, all the three incumbent operators have had to lower their prices and subsidize their subscriptions with free air time and goods. The decrease in the prices of GSM calls was 6,9% during 2003, which causes a significant gap in price changes compared to the earlier years. This gap is illustrated in Figure 3. New MVNOs have also roughly doubled the churn: during the first eleven months after the MNP and the invasion of MVNOs, 21% of the subscribers have changed their service operator (resulting 23% yearly churn) [7].

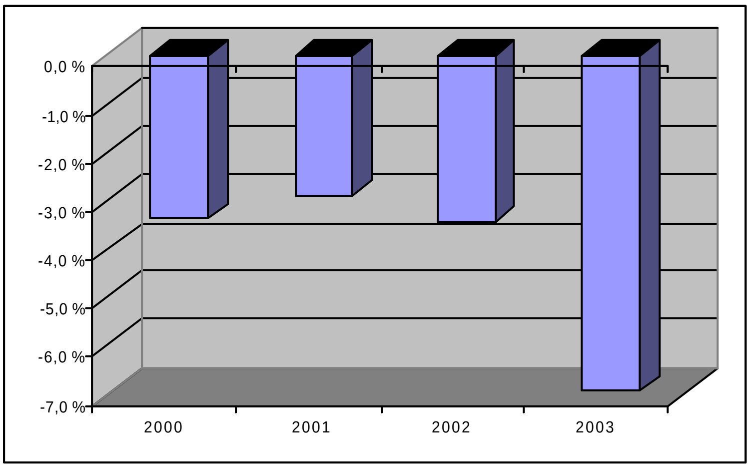

Figure 3 Changes in GSM call prices 2000-2004 [9]

Because most of the new MVNOs in Finland have chosen the low price strategy, the usage of new services hasn't increased as expected. MTV3 is the only MVNO providing new differentiated mobile content services for consumers. Even the MVNOs following the focus strategy compete mainly on price. New 'tariff packages' have been introduced with free text messages (a.k.a. included in the monthly subscription fee). On the other hand, many MVNOs have chosen the 'one rate for all calls', resulting incumbent operators to switch from multi-tariff pricing to a more unified pricing. Also the distribution channel of subscriptions has dispersed: now it is possible to buy a GSM subscription on the Internet, or even at the hamburger counter.

Based on the on-going development of competition in the Finnish GSM market, MVNOs are also likely to exist in 3G networks in Finland to share the costs of the networks and to develop new attractive services (e.g. to create differentiated products to their customers). A good example of this development is Sweden, where even the strong incumbent operators (Tele2 Sweden and Telia) are sharing the third generation network to meet the coverage requirements set by the licensee. This kind of network sharing is possible also in Finland: the current regulation allows Finnish 3G network operators to share up to 65% of their networks [11].

7 Conclusion

Our case study shows that the presented generic classification of MVNO strategies is applicable at least in the Finnish market. Our qualitative conceptual model helps to identify and explain strategic choices of real MVNOs.

Case Finland indicates that the regulatory encouragement for creating a MVNO opportunity is likely to increase competition and thus lower the tariff levels. The usage of existing MNO networks is likely to become more dynamic and effective. MVNOs can concentrate on service provision and innovation instead of basic technology. However, despite the expectations for increased service innovation, the Finnish MVNO market so far has not fulfilled the promise.

The lack of documented experience prevents estimating the sustainability of the low price MVNO strategy dominant in Finland. More data is needed on the dynamics of the MVNO business case, especially regarding the terms of MVNO-MNO contracts.

The key items for MVNO's success are the ability to acquire new customers at a lower cost than the industry average, generate higher ARPU or exhibit lower churn rates. In addition, new MVNOs must make sustainable agreements with MNOs for transmission (and in case of a true MVNO, also interconnection costs). Lower price is only a short-term strategy, because it can be easily responded by competition at least temporarily.

From the viewpoint of MNOs, MVNO is an opportunity in addition to a regulatory imperative. It opens possibilities for new customer segments, new experimentations, and may prevent market share losses (especially for market leaders). It should be noted that the Finnish market is still in the mode of separate, MNO-centric MVNO families, i.e. no MVNO has contracts with multiple MNOs (Saunalahti has made an exception to this: it buys network capacity from Sonera Mobile Networks, but has recently announced a contract with Elisa Mobile concerning international roaming).

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