Mobile Data Service Industry Structure: Walled Garden vs. Horizontal Integration

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Abstract

There are two main industry structures in mobile data service industry: firstly, a horizontally integrated, market-driven structure with modular product architecture and secondly, a vertically integrated, ecosystem-based structure with integrated product architecture. An example of the former is the Finnish mobile service market and of the latter the Japanese mobile market.

The mobile data services are much more successful in Japan than in European countries. One major reason for that could be the differences in the industry structures on different markets. These structural differences are caused by the dissimilarities in the national regulations (among other, less significant factors). Because of the complexity of the mobile data service products, the vertically integrated structure has proven to be more successful. This market structure is not, however, applicable in the Finnish market under the prevailing legislation. This can cause remarkable losses in the industry because of a) delayed and minor data service usage and b) investors unwillingness to invest in the stagnated market.

Key words: regulation, industry structure, vertical integration, mobile data services

1 Introduction

The usage of mobile data services in different market varies a lot. In Japan, 86% of mobile phone users subscribe also to the mobile Internet services, whereas only 5% of the Finnish mobile handset users subscribe to the data services [2].

Also the industry structures of the different markets are different. Could the mobile service industry structure have an impact on service usage? In this paper, the correlation between these two factors is researched. This is done by studying the three different markets, Japan, Finland and UK. These markets are chosen to the comparison because of their different success and industry structures of mobile data services.

In this paper, the term *mobile data services* refers to the content and data access services excluding SMS-based mobile data services.

In the chapter 2, some theoretical models applied to the mobile data service industry are presented. Chapter 3 presents the most important regulation aspects having an effect on the mobile service industry structure. Chapter 4 describes the industry structures in the chosen markets and presents a comparison of the markets. Conclusions and discussion can be found in Chapter 5.

2 Industry structure models

Mobile data service industry is a complex, adaptive system linking together several different industries: music, games, publishing etc [1, 9]. The approaches to model these complex, dynamic industry structures and the forces affecting them are rare. However, Vesa [1,2,3] has applied some industry structure evolution models to this field of business.

In [1] it is claimed that the business ecosystem thinking by Moore [4], which emphasizes the evolutionary development of the industry and a company's dependence of its environment instead of its individual actions, would provide useful framework to meet the requirements set by the complex business environment.

In [1] and [2] is also presented the Double Helix model by Fine [5]: it states that a given industry oscillates between vertical/integral and horizontal/modular structure as a result of various forces. There are two primary drivers for the shift in industry structure: technological innovation and competitive intensity. Neither of these industry designs is very stable by nature.

Based on these two models, a new conceptual framework, the Dynamic Ecosystem Model [1] for mobile data service industries is formed (Figure 1). Its basic assumptions are the following:

1. Industries oscillate between ecosystem-based / integrated and market-driven/modular industry structure and product architecture

2. There are three forces driving from one to other industry structure: competitive intensity, technological and service innovation, and organizational structure
3. In the ecosystem-based industry structure a company will live through different stages: birth, expansion, leadership and self-renewal/death).

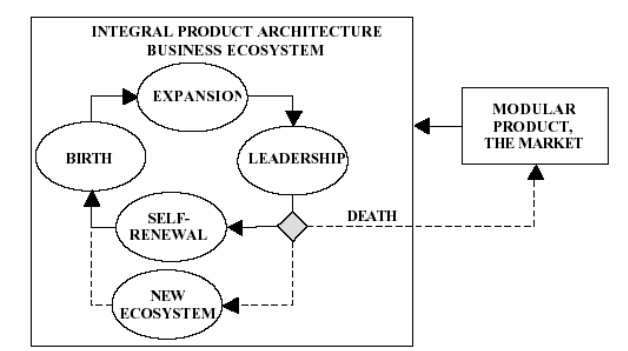

Figure 1 Dynamic Ecosystem Model [1]

3 Regulation

Regulation is a powerful force affecting in the mobile data service business. However, the regulation frameworks are dissimilar in different countries thus having dissimilar effect on the industry structure. Below are presented the main regulation aspects concerning mobile data service industry structure, namely mobile handset subsidies, SIM lock and long (12-24 months) subscription contracts. Also the separation of service and network operation is examined.

3.1 Europe

The European Parliament and Council of Ministers have adopted March 2002 new directives dealing with telecommunications regulation [6]. All the EU members have had to adopt those directives to their national legislation. EU member countries have, however, formed their communication laws slightly differently and have some dissimilar rules on their markets.

Finland

According the Finnish Communications Act [7], handset subsidies are forbidden in Finland; thus decision to subscribe to a specific operator's mobile telephony service must not affect the pricing of the mobile phone he is purchasing at the same time. Also the use of the SIM lock is forbidden: a user has the right to connect terminal equipment to more than one subscriber connection at the same time.

Finnish mobile operators having significant market power (SMP) have to separate their network and service operations' accountings and publish the network access prices. This is to provide access to their networks with fair price.

However, otherwise than generally assumed, the long contracts are not banned in Finland (but the contract term and cancellation conditions must be well defined in the contract).

United Kingdom

In UK, both the handset subsidy and the use of the SIM lock are allowed. Yet the British SMP operators have the same obligations as their Finnish counterparts to separate the network and service operations for accounting purposes (to provide fair pricing for the network resources) [8].

3.2 Japan

It is difficult to find English data on Japanese regulation. However, in Japan the regulator hasn't taken as strict approach towards incumbent operators as its European colleagues: it allows operators to offer bundled services and provide subsidized, SIM-locked handsets.

4 Industry structure and product architecture

Different regulation frameworks (together with cultural differences etc.) create different industry structures and product architectures.

4.1 Japan

The Japanese mobile service industry structure can be described as an ecosystem [2]. The mobile operator controls all levels of the value chain: the network, terminal sales, service provisioning and the content offerings. Industry structure is thus vertically integrated, a "walled garden".

The product architecture of mobile data services is highly integrated. All the three competing operators provide a total service package, and each phone can be used only in certain operator's network. This is done by hard-coding the telephone number into the device, and no detachable SIM cards are used.

Despite the verticality of the market and product structure, Japanese operators don't provide all the necessary elements themselves. The industry consists of coupled business environments, where the control of critical resources is more important than the ownership of service or handset production machinery [1]. The needed operations are then provided by using co-

operative companies. Even though the service production structure is somewhat modular, the operator orchestrates the whole ecosystem and the user experience is seen as extremely critical. As put in [9] "real success stories come first, technology will catch up".

There is, however, a price to be paid by the operator to orchestrate the ecosystem: all the terminals are subsidized, and the subsidy of the sophisticated handsets is often as high as 90%. In addition to that, there is no data service interoperation between vertically integrated competitors.

4.2 Europe

In Europe, the telecommunications privatization and entrance of GSM in 1990s changed the industry structure of many countries. Companies used to be vertically integrated changed their operations to compete now in a horizontally integrated, market driven business environment (Figure 2).

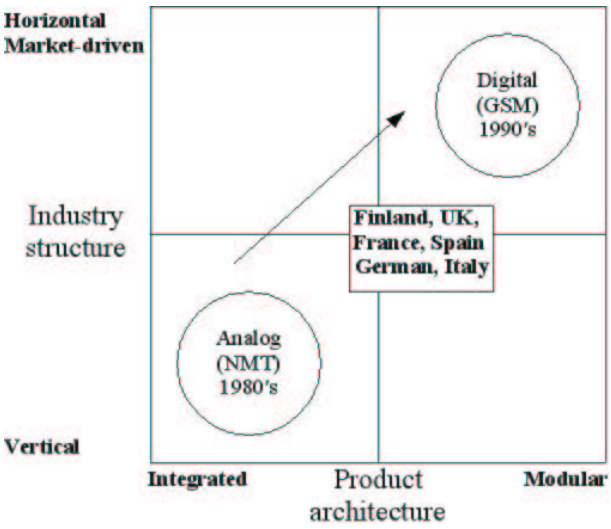

Figure 2 Transformation of the European voice service market [3]

Products became modular and standardized, because the best results were believed to be achieved by defining open standards and letting the markets do the rest [1].

Finland

The Finnish mobile service market has stayed strictly horizontally integrated: network operators compete against each other, likewise service operators and terminal manufacturers. The Finnish regulatory authority and the legislation promote this structure with decisions banning the handset substitution and bundling with services.

Content business in Finland is mainly based on SMS services: only 1% of the total Finnish mobile service revenue comes from the new mobile data services, whereas SMS services bring 10% of the total revenue. Even if the data service products are advanced, the Finnish market is behind many others. There are mobile operator portals in Finland, too, but they haven't become very popular.

The content industry structure in Finland is quite fractured. Together with horizontal industry structure this creates the problems familiar in the market: service discovery is difficult and content providers have to make agreements with all the service operators and over all different technology interfaces [10]. Also the mobile number portability implementation 2003 has caused losses of income for the mobile data content providers: when people switch their operators, many content providers loose their customers [11].

UK

The UK market, unlike the Finnish one, is moving towards a similar business models in data services as Japan. This means integrated product architecture and a more vertical industry structure. The driving force of this development has been Vodafone: it bundles its mobile Internet portal, subscription and handset into a user-friendly entity [3]. The same kind of development is happening in other European countries allowing SIM lock and handset subsidies (Figure 3).

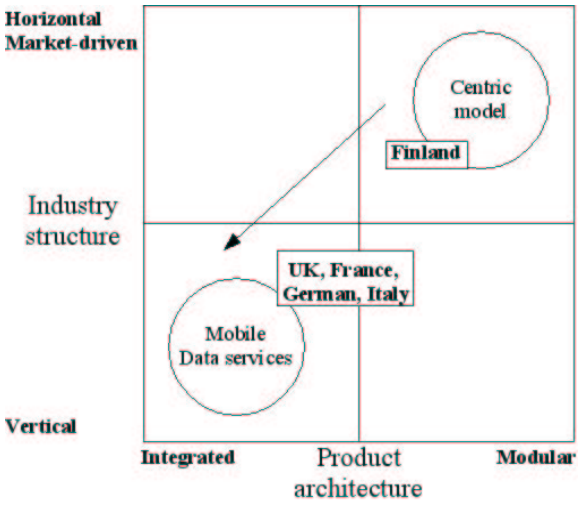

Figure 3 Evolution in the mobile service industry in UK and the Central Europe [3]

4.3 Comparison of the different markets

As can be noticed, neither the industry structures nor the regulatory frameworks are equal in the presented markets. And most importantly, the success of the mobile data services is definitely not the same in the markets. The basic characteristics of all three markets are summarized in Table 1.

Table 1 Comparison of the three markets

	Japan	Finland	UK
Population	128 mill.	5 mill.	60 mill.
Non-SMS data revenue	15 %	1 %	2 %
Product Architecture	Integrated	Modular	Hybrid
Industry structure	Vertically integrated	Horizontally integrated	Hybrid
Handset provider	Network&service operator	Dealers	Service operator
Portal provider	Network&service operator	Independent portal providers	Service operator
Content provider	Independent content providers	Independent content providers	Independent content providers
Handset subsidy	Yes, 90% of the price	No	Yes
SIM-lock	Yes	No	Yes

Apparently there must be something critically better in the Japanese market compared to the European markets. The success of the mobile data services in Japan is said to result from the price structure of the services (low prices, revenue sharing) and Japanese culture (e.g. strong community effect). At present, however, it has been researched that the impact of the industry structure on the success of mobile data services is remarkable [1, 2, 3, 9]: with vertically integrated industry structure and product architecture, truly user-friendly products can be offered.

The Dynamic Ecosystem Model presented in Chapter 2 claims that both industry structures are moving towards the opposite structure. This oscillation is even faster in such complex industries with lots of technology and service innovation (thus strong forces driving from one to other industry structure). Figures 2 and 3 show the oscillation in the many European countries. This oscillation has also been apparent in Japan: competitors of DoCoMo are gaining both market share and technological success [1].

In the Europe, the industry structure change described in Figure 2 was needed to get the voice services successful and prices at the decent level. During the changes in the industry to from a call-centric world to a data service centric world, other markets have changed (or started to change) their industry and product structures back to the vertical and integrated structure. This has created a better market for data services. In Finland, however, this is impossible because of the prevailing regulation: the regulatory framework prohibits the Finnish operators from following the example of the more successful mobile data services markets in Japan and even in the UK.

This shows, that in regulated industries the operators are not always allowed to implement business models that would make most sense business-wise [2]. There might be operators willing to try a successful-proven, more integrated model on the complex mobile data service market, but the regulation doesn't allow the industry to oscillate into the ecosystem mode. Therefore, the regulatory environment has a direct impact on the business models of the companies in the regulated countries. At the worst, this regulatory framework can stop the industry structure from developing [3].

In the Finnish market this could mean that in addition to the minor usage of provided data service products, the Finnish operators might have to cut down their service offerings or to slow down their investments in the mobile networks. This has already been visible in the market: also incumbent operators compete with low price, and only two of the four UMTS license holders have released their plans to start 3G operations. In addition to the problems of the incumbents, the non-optimal regulatory framework makes the Finnish market uninteresting for the global players in the mobile services industry [3]. This has already happened: the investment bank Credit Suisse – First Boston gave a recommendation in their analyst report "Euro Telcos Regulation" (March 2004) to avoid investments in TeliaSonera due to the over-jealous regulatory authorities in Swedish-Finnish telecom operators' home markets [3, 12].

5 Conclusions and discussion

Thus the Finnish regulatory framework is optimized for traditional mobile voice services. In that area of business it succeeded well: the price of the mobile calls in Finland is the third lowest in Europe (only Luxemburg and Denmark had lower ones) [13]. It doesn't, however, allow the Finnish operators to develop their business models in ways that have turned to be popular in Asia and Central Europe – mobile data services are more successful in markets where mobile operator takes a leading role as the orchestrator in order to offer a true end-to-end data service [3].

The Finnish incumbent operators are not eager to change the market rules: only one operator (Elisa) out of three was willing to accept the handset subsidies [14]. Also the Finnish Consumer Agency states that mobile handset bundling and SIM-lock allowance would have *nothing but* negative consequences from the consumer's point of view: they restrict competition and exceed the

consumption of terminals [15]. The Consumer Agency doesn't, however, see (or mention) any of the possible positive effects of the deregulation: easier and more consumer-friendly service adaptation and probably better quality in the total service offerings.

Ministry of the Transportation and Communication (MINTC) and the Finnish regulatory authority Ficora have lighter reactions towards the changes in regulation. According to Mr Kohtala, the Director in MINTC, the situation can be researched and the law possibly changed if that is wished by the market [16].

Despite of that, the opinions of the incumbent operators should not be the only factor having impact on the decisions about the regulatory changes (because of their possibly protectionistic attitude). If the market needs more investments and innovation, also the foreign players could bring new value to the market. The Finnish framework, however, prevents that. Significant players in the market could succeed in reshaping the entire industry towards a more favorable industry configuration.

Whether the ecosystem-based, vertical industry structure is a good or a bad thing remains to be decided: is it more valuable to have a transparent, market-driven industry structure or a vertically integrated structure enabling provision of easy-to-use services? Would this more integrated structure provide a mobile market with only one, monopoly-type player? And if so, would the industry forces described in Dynamic Ecosystem Model transfer the structure back to the market-driven model when the market situation requires? That will be never found out, if the oscillation is stopped by regulatory means.

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