



Mobile operators' business models in the mobile data service market

by

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Preface

In this thesis, the results and comparisons of different mobile operators' business models towards aggregators and sub-contractors are presented and discussed. It is a thesis written by Roy Helge Hammer, a Master student at Agder College in Grimstad, during 2003.

Almost every mobile operator has a different business models to share the revenue with the content providers or other participants of the model. These models have been collected and sorted. Then the hardcore content of the most interesting models have been reviewed and compared to each other and are presented in this thesis.

The task, solved in this thesis, was given by my supervisor, Per Egil Pedersen. No comprehensive reports in this area exist, and there was a certain interest to collect the necessary information from different places in the world to gather it into this thesis.

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Summary

In the mobile data service market there are several different actors. The main actors are the operator, the content provider, the aggregator and the sub-contractor. The operator is often in control of the market and has the content providers and aggregators connected to them. The sub-contractors are connected to the operator via the aggregators.

All operators have a business model towards their content providers, and are in this area often referred to as content provider access (CPA). The model is the connection between the operator and a content provider or aggregator. The CPA agreement contains a lot of information concerning the revenue model, the collaboration model, the adoption facilitation. To find this information can be very hard, and to figure out how to get it is more demanding than analyzing it.

The existing models are mainly open or closed. The differences between them are the operators' relation to their content providers and aggregators, and the adoption facilitations. The closed model uses a high degree of quality control on the services, as well.

The revenue models to the operators are mostly based on a percentage that the content providers and the aggregators receive of the traffic generated by the services provided. The revenue share is very different from operator to operator but it seems like most of the content providers and aggregators are pleased with the share they receive. But the revenue model is not just about what that content provider and the aggregator receives. They often have to pay a startup fee and monthly fees to be a part of the partnership provided by the operators' business model.

Few operators with an open business model have made any adoption facilitations to their content providers and aggregators. They consider service providers as been a company working on their own with no responsibilities for the operator. The closed model has a

much more close relationship with their service suppliers due to a larger degree of adoption facilitation and quality control of the services.

The content providers and aggregators consider their respective operators business model as very successful both when it comes to the amount of services offered and number of users to the services.

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Acronyms

API	Application Programming Interface
BREW	Qualcomm's mobile data service
CDMA	Code Division Multiple Access
cHTML	compact Hyper Text Markup Language
CP	Content Provider
CPA	Content Provider Access
EzWeb	Originally KDDI's model for mobile data services
GPRS	General Packet Radio Service
GSM	Global System for Mobile Communication
I-mode	Originally DoCoMos model for mobile data services
MAPIT	Market Actors Product Influence Transactions
MMS	Multimedia Message Service
Monternet	China Mobiles model for mobile data services
NOK	Norwegian Kroner
SMS	Short Messages Service
UMTS	Universal Mobile Telecommunications Service
VAT	Value Added Tax
WAP	Wireless Application Protocol

1 Introduction

1.1 Background

My Master of Science education in information and communication technology goes into several areas, but the last two years I have chosen to learn more about data communication, signaling protocols and mobility including cell phones. This led to a background in how the communication between cellphones does work. The study did not give equivalent information about business models in the mobile data service market. The lack of such information available is also an aspect in this matter, but there is probably more documentation in describing the business models than explanations and consequences of the differences of the model. Having little knowledge about models in mobile communication, reading of essential and new material had to be done.

1.2 Thesis subject definition

Almost every mobile operator in the world has different business models in the mobile data service market. The models specify how the operators gain profit out of SMS, Premium SMS and other services. A lot of these models are well known, but some are rather hard to find. A set of representative models are to be collected and compared to each other. To compare the models, different variables are to be used. Those variables must be specified in a framework to get a good comparison.

To solve this master thesis it is important to read and get to know the mobile business model terms and to specify the variables which will be used in the comparison. The models that is easy to find, must then be sorted and placed into the variable scheme. There will also be made a draft website for showing how the site could have been. Interviews with employees at interesting operators can be used to collect the models. Finally, all the models will be compared and the results will be presented in the master thesis.

1.3 Demarcation

In the theory part, I will concentrate on a model which describes the present value network for the mobile data service businesses. Four other areas are also important for the thesis: revenue model and sharing, value network in general, collaboration models and stimulation of network effects. Since there are a lot of existing models, I have decided to only concentrate about some important models in Europe. These models will be collected and compared through a framework.

1.4 Goal

One of the goals for this master thesis is to find differences and similarities between operators' business models in several areas. The startup cost, revenue share and other information in the model will be compared together with different evaluations given by each responsible employer about their own model.

There is a fine line between the amount of qualitative and quantitative data that is required for this thesis. From this data we need to describe the models, but will also give both an explanation and consequence analysis, and a comparison of the models. Adequate theory will be a foundation for both the analysis and comparison.

1.5 Thesis overview

The introduction chapter gives brief information of the background for this thesis and the definition. Also the demarcation and goal for the thesis is explained here.

Chapter 2, Mobile data service value network, gives an introduction to five different aspects in the value network. These are the market, actors, the product, influence and transaction.

The theory chapter is the 3 chapter. It contains two parts, business model theory and mobile data services model framework. The first part describes the theories used as a basis for the thesis and the second part explains the framework.

In chapter 4, the method chapter, various procedures to obtain the business models from the operators or the co-operators is discussed. The different aspects are a webpage, interviews, and discussion forums.

All the interviews and the collected data are gathered in chapter 5 The data from the operators is compared to each other and listed in tables for a plain overview.

Some content providers and one aggregator were interviewed concerning their operators business model, and the results are presented in chapter 6.

Finally, chapter 7 gives a conclusion to the thesis and some brief aspects on possible future work.

The sources and references are gathered in chapter 8, and in chapter 9 the appendixes are situated.

2 Mobile data service value network

- MAPIT, with focus on the end-user-service

The Mobile data service value network chapter consists of five different parts and will hopefully give you a brief overview of the current situation. First we look at how the *market* is today, and what the upstream and downstream market is. Then the *actors* part will follow, where we look at the different players/actors in a business model. The *product (service)*, which is the third part, tells why the product part is important. The next part, *influence*, explains to what extent different actors can have influence at each other. The *Transactions* part is the last, and look at i.a. risk and costs. All these sub chapters take into consideration different aspects that have to be considered when companies decide where to position themselves in the existing value chain.

2.1 Market

To start a new business in an existing market is not easy. At first you need to sort out where it is possible for your company to make a profitable enterprise, location-oriented and mainly market-oriented. Your place in the market is influenced by several different elements. It is important to settle which part of the market you want to invest your money in and also to point out your competitors, if any. For some companies, they have found their niche with no competitors, but that is very unusual.

Fragmentation and knowledge requirements are two important parts of the market, where fragmentation is the number of players on the supply and demand sides, and knowledge requirements is the expertise needed to develop, operate and market your service (Methlie (2003)).

2.1.1 The upstream market

The upstream market mainly consists of enterprises and persons that develop e.g. cell phones, software to the phones, network operators, platform deliverers, etc. A large amount of the upstream market wants to make money on rapid development of technology, so the users have to replace e.g. their cell phone, to start using the new services. The competition takes place on all levels in the upstream market, but manifests itself to the end-user e.g. what kind of cell phone he or she chooses.

In the present market, Nokia has managed to gain a substantial share of the market. A few years ago, Ericsson was also a significant actor in this market, but faded slowly away. They have now returned as a strong cell phone producer in a joint partnership with Sony and name their phones, Sony Ericsson.

2.1.2 The downstream market

The downstream market consists mainly of operators (virtual and real), portal supplier, transaction support supplier and service aggregators, etc. The downstream market wants as many customers as possible associated in its network to gain a largest possible profit. It is there for very important with a large service multiplicity to attract new customers and to keep the old ones. The exploitation of existing services or updates can easily be made without too large expenses. In proportion to the upstream market, the downstream market is able to alter or replace existing portals etc, while the upstream market has to e.g. launch brand new cell phones to change technology.

Operators like Telenor, Netcom, Telia, and Comviq are leading companies in Norway and Sweden. They are owners of the network and can rent out capacity to other virtual operators. Lately, virtual operators have had an enormous progression in amount of customers. Especially the virtual operator, Chess, has been successful. People tend to chose virtual operators for private due to the lower prices on both calls and SMS.

Telenor is a former monopolist in Norway in telecommunication. When the monopoly was dissolved, the government was hoping for competition. Then Netcom entered the market as Telenors rival in the mobile communication market. Telenor is still the dominant actor in Norway. In countries with a former monopolist, the dominant actor is often the former monopolist.

Vodafone is the largest mobile operator in the world and have had a tremendous success in a lot of counties where they are situated. To get into the mobile operator market in different countries, they have been buying other operators and then made changes to coordinate the management and business model with their original.

2.1.3 Others, and new actors

Others, and new actors in both the upstream market and in the downstream market will meet difficulties versus existing competitors with strong financial resources. Still a new actor has an opportunity to represent something new and exciting, especially in the downstream market where a lot of new virtual operators has entered the market lately, trying to get market shares. A good example is the mobile operator “Chess”. They have had an extraordinary increase in new customers in 2003. The reason that Chess have had formidable success is mainly the low prices on SMS with the low-price subscription (9 NOK per month) that easily replace the cash card.

Established companies have a great advantage in the upstream market due to a well known trade mark that makes customers that are buying new phones, changing platforms, or making other changes in equipment, to choose brands that they already have tried or perhaps used for several years. It is also possible for well established companies to demand a higher revenue share due to more customers than the competitors.

In the new UMTS network, operators must have a license to build and to put the network into operation. It is very difficult to enter as a new actor since there is only Telenor and Netcom left as actors. There will be given two new licenses in an attempt to get two new

actors to join the UMTS development, but the prize will probably be very high. Because of this high expense, a lot of and newly evolved companies with low budgets will be left out in the start of the process. This shows that you almost need to have an existing company in the back or e.g. run as an operator in another country to have adequate funding to enter the Norwegian UMTS market. The current three operators with a license in Norway are Telenor, Netcom and 3.

2.2 Actors

To analyze the market situation, we need to find who the actors and actor types in every node in the network are. We need to know who the operators are, who the content providers are, who the aggregators are, and who the sub-contractors are. The communication between these different types is very important. The regular chain between them is shown in the figure below.

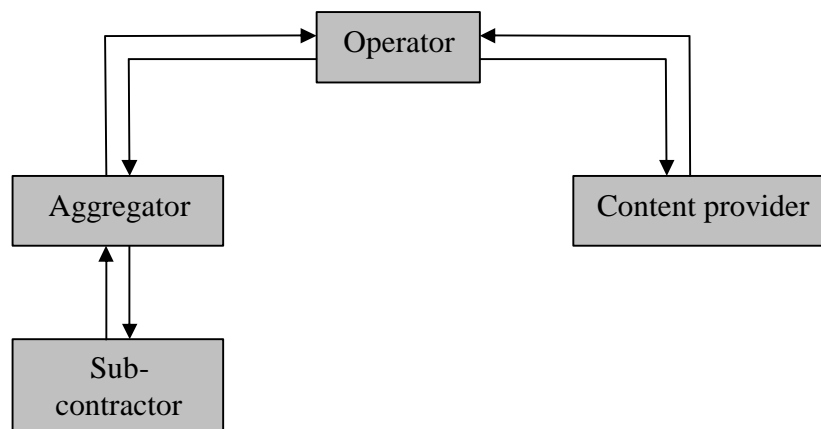


Figure 1, Communication and flow between operator, content provider, aggregator and sub-contractor

Out of figure 1 we see how the structure in the market is. The content providers are connected to the operator and makes services for the operator. Known content providers in Norway are TV2 Interaktiv and Norsk Tipping, but MTV and Namco are examples of European content providers. The aggregator has a different role where they act as a link

between the sub-contractors and the operator. The sub-contractors are often small businesses.

The differences between actors when it comes to economical conditions, it is very important to map whether the actors are successful or not due to their strong/weak economy. How the actors have chosen to invest their money in different areas and how much they have spent in marketing contra building a good company (technology and infrastructure) is also necessary to find out. The actors need to sort out their cost structure to find out their priority area and what they want to spend money on. The different variables they i.a. need to take under considerations are production, distribution, coordinating- and transactions cost, capital demand and income flow. The different actors have to decide where they want to position themselves between a scale economy and a scope economy. Most of the operators and content providers are probably drifting towards a scope economy to provide customers with their exact demands. According to Methlie (2003) the MAPIT framework has three conditions for individual actors in the market. Those are revenue model, cost structure and scale and scope economies. The company also has to look at different entry barriers to the market such as agreements with other actors that are a part of the company's service.

2.3 Product (service)

First it is important to do a service classification. The classification should contain the content of the service, what the service can perform and through this show the purpose of the service. The service properties and the service classification are not very far away from each other, but the properties focus more on personal information, protection of privacy, security, service complexity and payment foundation. Without a well formulated policy when it comes to the service property, you can easily do mistakes and risk both the service and your customers. Fortunately, most companies have a good policy in this area.

It is also important to reevaluate if the service offered is suitable for the medium. The cell phone can be used for many purposes, but not all of them benefits of being accessible

from the phone due to small screen, hard to write long documents etc. But on the other hand, it is very useful for services with limited information to display and few buttons to push.

A possibility to pay your parking with your mobile phone is being tested to see if the benefits is good enough to launch a full scale service in Norway. Both Telenor and the bank, DNB, are cooperating in this mobile commerce area. The parking service is called Easypark. The benefits of using a pay by phone model are several, spare change is unnecessary, it is easy to use, the parking time is easy to extend etc. If the service will be launched in full scale is yet to see.

2.4 Influence

The influence between actors in the network can be all from an ownership with total control to nothing. In most cases the grade of influence is pointed out in the CPA agreement but it is the influence outside the agreement that is important. By trying to get greater influence in another company, it is possible to gain great economical and administrative benefits. It is also possible for both parts to have influence on each other, and they often have, and it is very important to build this relationship between the companies on trust. The history of the companies is also important to have a trusted connection. A company with an unfavorable past is not likely to get as good agreements as a company with a good past can. Good personal relations by e.g. the companies' managers can lead to agreements in the business world and the contact between the companies' leaders are therefore often being arranged to provide goodwill from the other part.

2.5 Transactions

The transactions in a company have a certain risk. Several different efforts can be done to lower the risk. Standardizing of the transactions when it comes to the service platform can be one of the efforts made. When everyone performing the transactions is using the

same equipment or software, the amount of transaction errors will probably drop. The frequency of doing the transactions can also be lowered. With few transactions there will be few mistakes and the risk is automatically lowered.

The risk for all actors involved in the business, is probably the main consideration for determining whether to go on with e.g. a new service. If the existence of other possible alternatives to the service is present, the service adoption level will probably not be too high. Methlie (2003) says in a study of Easypark that the one of the transaction conditions related to risk is primarily determined by the relation specific investments needed by the trading parties.

According to F. Li and J. Whalley (2002) the cost of transactions, both within and between organizations, is declining dramatically. This is something companies should exploit, and some are already, too. But the risk is still the same. The companies can also choose to lower their cost if they are using Internet for cost comparison and chooses to move their business to the cheapest contractor. F. Li and J. Whalley (2002) also concludes that the rapid reduction of transaction costs means that transformation costs will play a much more significant role in determining the boundary between the firm and the market.

3 Theory

3.1 Adoption

To understand different parts of the theory in detail, we need to look at different factors. First we take a look at the adoption aspect of the mobile business models. According to Pedersen et al the adoption is the success factor of a model and can be shared into three new factors: the technological factor, the businesslike factor and the behavioral factor. They also say that a large adoption is the key to success. This is one approach trying to understand business models. Henten et al (2003) has a more complex description of the problem. They say that there exist six different factors. These are the technological factor, the economical factor, the factor of marketing, the market analysis factor, the socio cultural factor and the regulation factor. These six factors is simply just another way of talking about adoption. Several of the factors are exogenous, i.e. factors that are out of hand to the different parts in the value chain, e.g. the operator. The governmental regulation and the socio cultural factors are probably the most exogenous factors, and the business model to each of the companies affected has to accommodate to establish a profitable business. All in all, in the big picture, there are just minimal changes that e.g. the operator can do to control the market in a way that no outsiders can affect their decisions.

3.2 Comparing business models

Most of the previously work done in this area has been describing the current market at the moment and some even tries to go a bit further by predicting the future of mobile service business models. The two main models that have been compared are the i-mode model, which is a closed model, and the traditional European model, which is an open model. These models can obviously be compared, but there are differences like history and governmental decisions that certainly has great impact on the success of a model. *“Traditional business models, such as value chains, networks, and stars, are based on the*

assumption that business can be planned and built based on rational choices guided for instance by transaction cost economics or resource-based view of the firm” (J. Vesa, 2003: p.9). Vesa then claims that new kinds of frameworks are needed to understand the business models nowadays. I will not look further into his frameworks, but only point out that there exists other ways of interpret the business models.

3.3 Business model theory

In the business model theory, different theory parts of the model are described.

3.3.1 Business models and strategy

The business model is a concept that “explains how the companies work” according to Magretta (2002), and it should be contain answers about who the customers is, the customer value and how the company can deliver customer value at an acceptable cost? Many business models have become too wide and have not focused well enough on the important issues. Prahalad & Ramaswamy (2000) mean that strategy and strategic purposes have been widened to include suppliers, manufacturers, partners, investors and customers. They also say that the perspective used to understand a company’s business model is the enhanced network.

Paul Timmers (Timmers 1998 in Henten et al, 2003: p.6) has defined the term business model to encompass:

- ? An architecture for the product/service and information flows, including a description of the various business actors and their roles.
- ? A description of the potential benefits for the various business actors.
- ? A description of the sources of revenues.

The most important purpose with strategy is the development of competitive advantages which will help the firm to gain a sustainable edge over its competitors (Ohome 1983 in Andersson et al, 2002: p.30).

Pedersen (2001) has pointed out six central dimensions for business models in mobile businesses:

Decision	Basis
Integration direction	Scale benefit basis, cost effects, market fragmentation
Integration strategy	Scale benefits basis, product properties
Integration model	Transactions control, transaction risk
Integration form	Scale benefits basis, product properties in the mobile market room, transaction control
Collaboration model	Transaction control, resource sharing, networks effects
Revenue model	Network effects, need for revenue sharing

Figure 2, Central dimensions for business models in mobile businesses (Pedersen 2001)

E. Faber et al (2003) has also made some points out of comparing different business models in the mobile data service market and distinguished some common elements that are network oriented or can easily be extended to be so:

- ? *Service design*: a description of the value that the value network offers to a specific target group of users, in particular in terms of a service offering.
- ? *Organisation design*: a description of the configuration of actors that is needed to deliver a particular service, the roles that each plays, making clear how the network creates value for end-users.
- ? *Technology design*: a description of the fundamental organization of a technical system, the technical architecture, which is needed by the firms in the value network to deliver the service offering exhibited in the service design.
- ? *Finance design*: a description of how a value network intends to capture monetary value from a particular service offering and how risks, investments and revenues are divided over the different actors of a value network.

Faber et al also adds that a business model for a cross-company enterprise can be regarded as a set of design proposals or blueprints for each of these domains (Faber et al (2003)).

3.3.2 Revenue model

R. Amit and C. Zott have made a definition of the revenue model: “*A revenue model refers to the specific modes in which a business enables revenue generation.*” (Amit & Zott, 2001: p.515). The definition says that there exist different modes as part of the revenue model that enables revenue generation. There are mainly three different modes. First, you need to measure your considerations to sort out where to set the prizes. This is the valuation part. Second, we have the appropriation part where you take a closer look at the willingness for customers to buy your product, and how to capture the value. The third, and last part, is the allocation mode where the agreements between operators, content providers and sub-contractors are made. The allocation part is mainly how the company creates solid foundations for value creation.

As a part of the revenue model, the pricing is an important issue and there exist a lot of different opinions on how you should price a product or a service. Some set their prices in relation to time, some on the amount of data transferred, and some on subscription, meaning that the user pays a fixed sum each month to use the service, and some uses download based pricing (A. Henten et al (2003)).

3.3.2.1 Valuation

In the valuation setting, determining the basic price is very important. Lynn says that basic prizes refer to the starting point price, from which prices are adjusted in order to match the competitive environment and demand shifts (Lynn, 1967, in Andersson et al, 2002: p.35). In competitive environments the cost is often the main variable for determine the prize. If the competition is not too domination for price setting, the volume based price strategy can be used. The main object in volume based price setting is to reach a certain market share and the price will be based on demand estimations. The

initial price setting should be set from desired market share and the expected responsiveness from competitors (Lynn, 1967, in Andersson et al (2002)).

3.3.2.2 Appropriation

The appropriation is mainly determining the willingness for customers to buy your product and how to capture the value. How customers are price-sensitive will vary, and is dependant on e.g. the importance of the product and the quality. The pricing can be performed with price discrimination or dynamic pricing. The price discrimination can go as far as setting an individual price for each person. Also bundling is often used. This means that you put complementary goods together with the original product.

3.3.2.3 Allocation

In the allocation part, the agreements between players in a model are being made. The oligopoly pricing is the dominating condition for the telecom industry. Dean concludes that competition on oligopoly markets is characterized by, in addition to similar offerings, similar cost behavior (Dean, 1961, in Andersson et al (2002)). The numbers of competitors can be from a few players to a large number of companies. With a market leader, a price leadership can occur. The price leadership means that when one player changes the prices, the other companies adjust their prices to ones set by the price leader.

Alliances between companies can be made for exchanging information and strategies. All sides in an alliance must be aware of the importance of trust. According to G. Hamel et al. (1989) the partners have to share strategic intent, get the opportunity to capture and incorporate relevant skills from each others and identifying what they want to gain from the alliance.

3.3.3 Open vs. closed business model

As previously said, there is a discussion ongoing whether an open or a closed business model is the best. Traditionally, the Japanese market has been characterized as having a

closed business model and the European having an open model. The open model has been defended by researchers since it is built upon the open model of the internet, which has been a successful one. To compare the internet market and the mobile service market is very difficult due to all their disparities. The markets may at the first glance look very similar, but they are in fact very different. The most important difference is probably that in the internet model everyone gets their transaction and administrative costs reduced. The need for vertical transactions is not present either, due to the low transactions costs. Neither of these arguments works for the mobile service industry. In a later chapter where I have interviewed several content providers and a aggregator, I compare the open models with the closed one.

? *Revenue model:* The revenue models are not so different between the open and the closed model. But the operators using an open model has no problems with giving out the numbers of their revenue share in contradiction to the closed model where they want to keep everything confidential. Some operators with a closed model, even uses special agreements about the revenue to each and single one of the content providers or aggregators. This means that one content provider does not know the revenue share to another content provider connected to the same operator.

? *Collaboration model:* In the collaboration model, there exist some differences that are important. It seems like operators with a closed model try to facilitate collaboration among value network partners. This leads to a closer relationship between the operator and each of the content providers.

? *Adoption facilitation:* The adoption facilitation is mainly different for all operators regardless of an open or closed model.

The Collaboration model is mainly the difference between the two models, but the revenue model is a factor to take into consideration, too.

3.4 Description of the operators, content providers and application providers business models

Giovanni Camponovo has written an analysis of the business models applied to mobile business where he, i.a. has a description of the present market for the operators, the content providers and the application providers. I will give a short overview on these businesses based on Camponovos analysis.

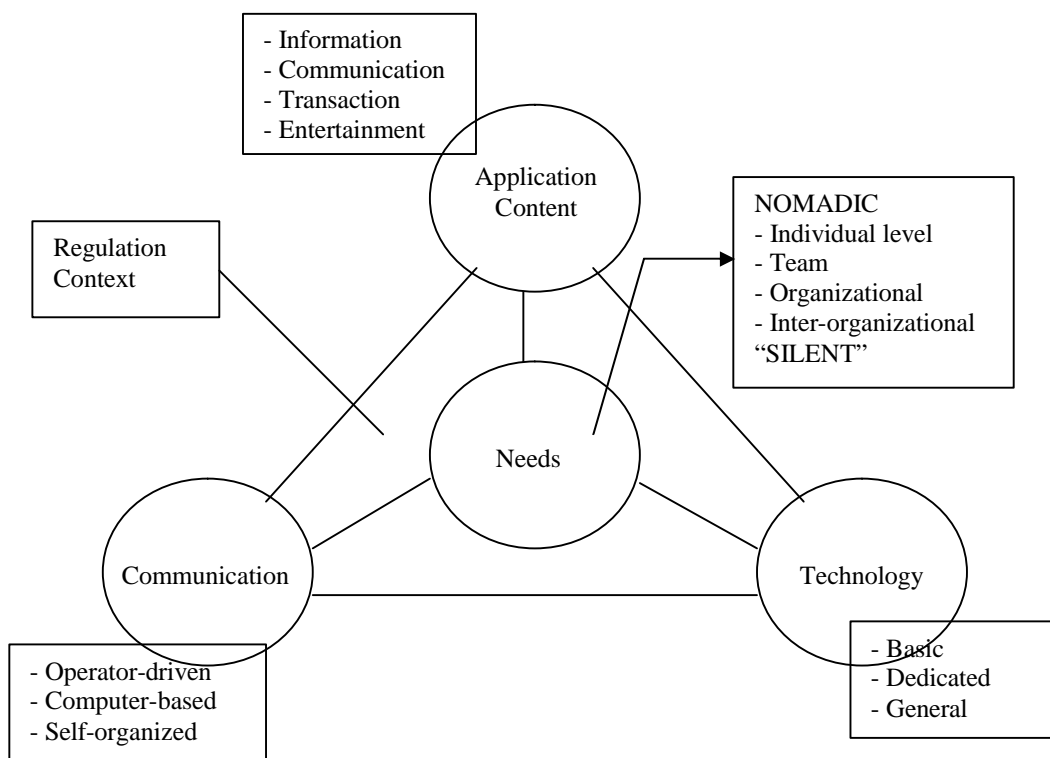


Figure 3, Camponovos model of his mobile business framework (Camponovo et al (2003))

The model above consists of four main elements, the application content, the communication, the technology and the needs. In this thesis I have chosen not to concentrate on the technology part in this model, but rather on the content, the communication and the needs. The communication is operator-drive, which means that

the operator has the network where the end-users communicated and where they can use services made by content providers. The content providers are situated in the application content circle. The connection between the application content circle and the technology circle is that the technology providers and manufacturers control what is possible for the content providers to produce. But in the end, everything is controlled by the needs in the market.

3.4.1 Operator

The main task for the operator is to provide end-users and businesses with network coverage so that the communication works properly. In consequence, the main customers for the operators are the end-users and businesses. A network without services would not be a success, so when the operators do not create services themselves, the content providers and the application providers becomes valuable partners. The handset providers are also valuable partners due to the handset subventions that most of the operators do.

The usual revenue flow for the operators is to earn revenues from their subscribers on subscription fees, air-time and volume-based fees, like GPRS. The second revenue flow for the operators is to earn revenues from network services provided to other parties, transaction fees and may also earn revenues from portal activities.

3.4.2 Content provider

The content providers provide relevant data and information products and distribute them using the mobile channel. To publish their products, the content providers are either connected directly to the operator or via an aggregator. The services are made out of content collection, content processing and formatting and finally the service is distributed and published.

The content providers revenues comes mainly from the revenue share they get from the operators. Other incomes are subscription fees, usage fees etc.

3.4.3 Application provider

The application providers provide mobile applications and platforms. They may also produce some services such as remote access to a variety of applications that are managed in a central location. The core activities are application development, integration, application management, infrastructure operation, support and consulting services. Because of the application providers wide working area, they have a large amount of potential customers. Some of them are network operators, portals, businesses, device manufacturers and consumers. To ensure quality of services, gain access to essential network services and have a privileged contact with customers, application providers are often partners with the network operators.

Their revenue is earned on sale of license fees, installation fees, rental agreements for hosting, operation and maintenance services and consulting services. All these areas give a large group of potential customers to gain more income.

3.5 Extending the business theory

Regarding the business models and the revenue models, a lot of interesting aspects are developing in Asia, and especially in Japan. DoCoMo has evolved out of regulatory elements by the government, and along with KDDI and J-Phone, DoCoMo is leading the way in the Japanese market. Coordinated strategy of technology and service elements has been crucial for this market to keep up the high development pace. According to Bohlin (2003), choosing a packet switched system, a service gateway, standardized terminals, content development tools, micro payment system and a portal has had great benefits for making a reliable business which attracts customers. Also control of the value chain has its benefits. DoCoMo has an official portal to their i-mode users where they have a strict control of the pages. To be allowed to publish your site at DoCoMo's official portal, there are severe rules that need to be followed, so there are a lot more unofficial sites. The unofficial sites also have the majority of the i-mode traffic, even though it is more inconvenient to navigate through them. Each operator in Japan also controls the terminal market. When choosing a terminal, you also have to choose the operator. Due to this, the

operators possess a great amount power within the market. The terminal producers are also put under pressure to make the terminals backward compatibility, so old technology works with the new.

Henten et al agrees with Bohlin that the technology should be backwards compatible so that i.e. a user of a 3G terminal also can communicate through a 2G network. Getting a 3G network to work on a stand alone basis, without backwards compatibility, is self-explanatory that would be a failure.

When comparing the operators' business models in Japan and in Europe, a lot of differences exist. One important issue is that the consumer segment does not difference if a business model is successful or not, but the segmentation is still important. In all businesses the markup is important, but to make money you have to be able to offer a great amount of services Bohlin (2003). Also the choice of network infrastructure is important to succeed.

3.6 MAPIT

The MAPIT model is split into five different parts where the name comes from, market (M), actors (A), product/service (P), influence (I), and transactions (T). The model can give a description of parts of the value network. Through the MAPIT model we can also discover where the company has chosen to position themselves in the market. If we compare their market situation with the model, we can analyze different aspects of i.a. the company's business model. It is also important to take into consideration whether the MAPIT model is complete or if it lacks different variables.

3.6.1 Market

We got three different main areas in the market part of MAPIT, upstream market, downstream market and how easy it is for new actors to join in the value network. The two first areas have mainly similar variables for comparison which is

fragmentation/competition, information complexity, exchange costs and substitution possibilities. The analysis in the last part is mainly based on entry barriers with focus on economy, trademarks, and licensed resources. For all businesses, it is important to know where to position yourself, and why you choose that exact location in the market. It is also important to know the most important competitors in the market. The market strategy of a company can either be based on adjusting the strategy to the competitors or your ideals can be the basis. If a company has its own niche, they will make their own strategy. When a new company in the same area emerges, the existing company would have to take into consideration whether they should choose either their own strategy or adjust to the competitor.

According to one of the creators of MAPIT, Leif B. Methlie (2003), the market conditions impacting on the integration aspects of the business model are related to fragmentation and knowledge requirements. Fragmentation is the number of players on the supply and demand side of the current service and the knowledge requirements is the expertise needed to develop, operate, and market the service

According to MAPIT, the market conditions impacting on the aspects of the business model are related to fragmentation and knowledge requirements. Fragmentation refers to the number of players on the supply and demand side of a service, while knowledge requirements refer to the skills or knowledge needed to develop, operate, and market the service as well as to create business values.

3.6.2 Actors

In every business there are different actors as a part of the value chain. The MAPIT framework looks at three conditions to the individual actors in the market: cost structure, revenue model, and scale and scope economies. Also entry barriers to the actors should be taken into consideration. The volume of the product/service should also be used to gain possible advantages to other actors.

3.6.3 Product (service)

The product, or the service, that a company produces, is extremely important. A company can not make money without a product or a service. When analyzing a product from the outside, a description of how the product or service works has to be made. The suitability to the customer and other environmental factors also has to be sorted out.

3.6.4 Influence

The power of a new intermediary depends entirely on the values it can add to the players: the suppliers, partners and customers. All parts in the value chain have influence on each other, and often it is all about what you make out of it yourself.

3.6.5 Transactions

The transactions between companies are often related to risk. This makes risk one of the conditions the companies take into consideration when making a new investment. Thus companies often make a relation specific investment.

3.7 MAPIT extensions

The MAPIT model is not a complete framework to compare different business models in the mobile data service market. Different extensions and variables could be added into the framework to make it better. A project by Methlie, Stensaker and Gressgård, claims that there are several different aspects of the MAPIT framework that needs to be revised. As a part of their project, they carried out several interviews, but discovered that there were questions that did not interested the other part. In e.g. complementary products and services and complementary assets were perhaps not that important to the framework. Also when it comes to positioning in the value network, the framework should perhaps consider if there exists any values that are created through the network of actors offering the mobile services. In creating value, it is the *perceived value by the customer* that is important (Methlie, Stensaker and Gressgård, 2003).

Another weakness of the MAPIT framework is that it does not go very deeply into the services offered and the management of the services. The framework could perhaps have had more variables concerning this matter to provide a broader view of the whole specter in the mobile business area.

When adding different variables to the MAPIT framework, you also have to have certain demarcations to prevent the frame work to grow too large. You have to decide in which direction you want the framework to be expanded.

3.8 Mobile data services model framework

3.8.1 Explanation of the framework

-The actual framework is mainly build on MAPIT.

The original framework is described below, but the actual framework and questions is described under *Measures* i the *Method* chapter 4.7.

3.8.1.1 Model descriptive

The framework starts with a description of the model, mainly to get to know what kind of model this is, the network platform and what country it belongs to and of course who the operator is. This part is mostly just information that is more or less constant.

3.8.1.2 Revenue model and sharing

In the revenue model the startup cost and revenue sharing between operator, content provider and sub-contractor is essential, but also if the model requires any kind of monthly fee or fixed costs. Some operators have set a requirement to join in the partnership. This can e.g. be minimum subscribers, minimum traffic and minimum number of services offered. The revenue model is probably the main part of the whole

model. It is where the financial questions is decided and established. Both parts in the model, operator and content provider, naturally want a large share as they can get. Challenging operators often have to use this opportunity and give the content providers better conditions.

Characteristics

A part of the revenue model is the sharing. It is manly made to define how the income from e.g. Premium SMS is shared between operator and content supplier. Often the models consist of different classes where the classes are set by e.g. how many messages that are processed by the operators' gateway. A high amount of messages leads to better terms for the content provider and will then gain more profit for each message. The revenue sharing can be as low as 0 % and reach as high as almost 90 %, but are mainly between 40% and 80%.

Start-up costs and operating costs are also a part of the revenue model. Both of them represent incomes for the operator. Many operators has start-up cost as a part of their revenue model, but some, like Vodafone in UK, has chosen not to. When it comes to operating costs, no operators have chosen to conduct a model without a monthly fee and/or a class specific fee, dependent on e.g. the number of SMS' sent per month.

The models for SMS, MMS and WAP are in most cases not the same. SMS and MMS usually look like the same except from the numbers. But the WAP models can not charge per message, so in most cases there is just a monthly fee.

The use of revenue models and sharing

Revenue models and sharing is mainly used define how to share income and profit between operator and content supplier, to set a start-up fee and to define the operating costs. Both the operator and content supplier has agreed on a revenue share before the content supplier can launch any products or even join the model. The operator sets the revenue share to what they think is a fair amount, and then the content suppliers has to

agree on the terms to enter the market through the current operator. Like in most markets, free competition also exists among operators, so they need to adjust their models to attract customers. The dominant actor in the subscriber-marked has a great advantage due to a potential high amount of customers to the content suppliers' products. The dominant actors' revenue models are therefore often not as good as challenging operators' revenue models to the content suppliers.

The operators do not always set their model to be equal for every content provider. Many operators give better contracts to companies that e.g. create large revenue. Comviq in Sweden is an operator who favors top 5 content providers. This means that the top 5 content providers gain more profit per message compared to the other providers.

Case - Telenor, Premium SMS

Start-up costs: Content supplier must pay a start-up fee of 12,500 €

Operating costs: Telenor charges the content supplier 315 € per month.

Class	Price excluding VAT	-to the operator	-to the contents supplier	Revenue share
1	0,102	0,056	0,046	45%
2	0,152	0,070	0,082	54%
3	0,304	0,115	0,189	62%
4	0,506	0,172	0,334	66%
5	0,657	0,215	0,442	67%
6	0,809	0,261	0,548	68%
7	1,011	0,318	0,693	69%

Figure 4, Example of a revenue split offered by Telenor to its contents suppliers

The higher the traffic class gets, the higher the revenue split to the content supplier gets. This means that a content supplier in traffic class 1 receives 45% of the income from e.g. a premium SMS message, and Telenor receives 55%. As the traffic class increases, the revenue share for the content supplier increases.

3.8.1.3 Model openness and interconnect

This sub chapter consists of two parts, openness and interconnect. The openness part tries to get information about whether the model is available in public (most are not), whether it is equal to all participants, does it have an open or public API (application programming interface), an open portal and last but not least is the model based upon open standards.

The model is often not equal to all participants because the operator has a revenue share that favors large content providers with e.g. a high amount of sold messages. Some operators gives perhaps the top 5 content providers better agreements, and some operators has a certain amount of e.g. messages that the content provider has to reach to get a larger and larger share of the income.

Interconnect can exist in two ways, national interconnect and international interconnect. Of course there are operators with no interconnect too. In Norway we are used to national interconnect between operators and we use the same short 4 digit number independent of our operator. In UK, they have different number dependent on which operator you are connected to.

These variables under the third point are mostly how the operator has chosen the marketing of their model to be. Most of the operators have chosen not to have their model available in public. Some have even decided to keep their model confidential. Norway is a pioneer in this area where the operators have made CPA pages for their models. Sweden will soon follow. The interconnect part can also be important to increase the revenue. If it is easy for the end-users in one country to get e.g. logos from every operator, then the revenue will probably be greater compared to another country with no interconnect.

3.8.1.4 Value network

The value network indicates an enterprise that uses an imparting technology to connect customers and service deliverers that want to be a part in trading with each other (Kjæreng and Mathieu (1998).) It is not the current enterprise that constitute the network, but the producer of a network service that makes it possible to communicate. The network may be direct, like in telephony, or indirect, like in banking and insurance.

An important characteristic for services and products of this kind is that the value increases as more users connect to the network. A simple example is SMS: A cell phone can send and receive a SMS. This makes the use considerably better and, last but not least, relevant than if it only could have sent messages.

The value network consists of seven different variables (actors and players) that were to be evaluated on a 5-point scale from weak to strong and then hopefully a successful service for each of the variables was to be collected. Each of the variables represents a factor that has an influence on the operators. The influence from the actors/players are different for each operator, but will probably be reflected in how many points they give each of them. Thus the operators evaluate the variables very differently. What matters to one operator does not necessarily matters to another. This can be the matter of the company's policy, how the whole country has chosen to run its mobile network and in which ways the company is allowed to make agreements to other parts in the mobile network.

Another characteristic for the value network is the great benefit of conducting in large scale. This means that the production costs for a product or service decreases if the production is carried out in fewer businesses. With only one business producing a product, the lowest costs are obtained.

Main activities in a value network:

- ? Marketing of the network: The number of users of the network must reach a certain size until it is attractive for new users to join. To keep existing users, you have to treat them well.
- ? Service production: A company that launches e.g. a new technology would have to make sure that it get sufficient services online fast enough to attract customers. It is not attractive to customers with new technology if there is a lack of services. A good production of services serves both companies and customers. In some cases, the users of the network have become a part of the product that the producer offers.
- ? Operations attached to the network infrastructure: The network infrastructure need to be working properly and must be kept up to date and ready to be used whenever the customers wish to.

The size of the network has a great signification both for the expenses and the added value. With an increasing number of users in the network, the benefit for each user will grow, but probably also lead to larger geographical propagation. Operators will then get higher expenses due to building of base stations etc. Unfortunately, this affects the customers in a negative way, and means that they will get higher prizes on the services. The capacity should also be build to fit the number of users in the current zone or area.

Getting information about successful services is very hard in interviews and by a webpage. Employees trying to answer the questions just often want to get fast through the question form. In cases where they have to consider e.g. which successful services they have launched, they answer that there are several or that they do not remember at the moment.

3.8.1.5 Collaboration models

All operators have a collaboration model where they agree on how to treat customers and how to collaborate in ways that provide growth. For the operator to know how to conduct

towards the content provider and vice versa, the collaboration model can be a good guide. It is mostly the environment around the companies and that way they support each other that are founded in the model.

There are many different values that can be added into a collaboration model. Internet based developer forums can exist for the operator and the content provider to exchange ideas, intentions and opinions for further development. Sometimes the operators contribute with education of application developers, or just courses and seminars to the partnership of the model. To connect the operator and the content provider further, there can be established a traditional development park or technology park by the operator. As we can see, the operator can invest in education and teambuilding between the operator and the content provider, but they can also provide with economical help. Some operators even supplies content providers with computer and software resources and hosting. The last significant value is the risk sharing agreement among network partners. This can be useful to both parts. If a project fails, you will not be alone to lose money, during the economical settlement.

Different operators treasures different variables in the collaboration model. Almost no one uses all variables as a part of their model; usually they have at least one present. The difference from country to country makes the operators choose differently to facilitate the collaboration between them and the content providers and network partners.

Different operators use different means to facilitate collaboration among value network partners, so their collaboration models are naturally different. Some of the means to facilitate collaboration are to create internet based developer forums, education of developers and establishment of development parks/technology parks. In these three variables it is “given” knowledge from the operator to e.g. the content provider. The operator can also give financial support directly or by providing development computer or software resource sharing. Some also have a risk sharing agreement among network partners.

These different efforts that operators can choose to actuate can either attract more content providers to join the model or vice versa. A new content provider in the market would probably feel safer if the operator have had a developer forum or established development parks. Operators should also look to other countries with a similar mobile network as their own to see if there have been any successful services regarding any of these variables.

3.8.1.6 Adoption facilitation

The operators make the business models, so they decide the requirements, if any, for a player to join the partnership offered by the model. Some operators have set a minimum number of services and some has financial requirements. There exists traffic dependant revenue sharing or financial support (e.g. increasing percentage with increasing traffic), as well. The operator can take specific actions to recruit significant application developers or content providers, specific actions to stimulate collaboration among application developers and content providers and specific action to stimulate service adoption among less innovative end-users. Some operators also have an extensive use of terminal subventions and service adoption subventions.

The adoption facilitation part mainly contains different aspects of how operators can set restrictions or facilitations for content providers to join or how operators can facilitate end-user and network partner adoption. Traffic dependent revenue sharing is very common. Many operators use this means to reward the largest contributors when it comes to income. These content providers get a larger part of the income since they are providing a large amount of the revenue.

Stimulation of network effects can be done by the operator to reach several different goals. Dependant of what you want to obtain, you use different means. As an example we can imagine that an operator wants more content providers and are looking at different means to reach their target. The first thing to consider must be the price. Is it too expensive to join the model? Is it economical justifiable for the operator to lower the

startup price? And can the operator increase its revenue by lowering the startup price? Taking into consideration what you have chosen the price to be, you still ask yourself the same questions about the revenue share. It is also possible for the operator to finance some of the equipment for the content provider.

The variables revenue share, financing equipment and pricing has all to do with economical variables, but there are several others that are of non-economical nature that should be taken under consideration. Just by making your model more available to everyone, you can easily get new content providers to start a business and of course already established content providers will perhaps be more interested to join. The operators can also choose whether they want to favor large content providers or small ones. This is done by how the revenue is shared between partners of the business model. Several operators chose to share their revenue by e.g. how many messages that the content provider has made that has been downloaded within a certain period of time. It is also possible to for the operator to set a minimum number of services, registered end-users or even financial requirements for companies to join the model. The interconnect/roaming agreements, if you have any, to other operators (domestic or abroad,) also increases the amount of traffic through your network.

Lobbying among partners like the handset/terminal providers, the aggregators, content providers, application providers and infrastructure providers can be profitable. Some of these elements can be a part of the operator itself and it is not necessary to convince them.

Collaboration among operators and different actors in the model can be increased if the operator provides/establishes e.g. internet developer forums, developer education and development parks. The operator can also provide development computer resource sharing or hosting and/or software resource sharing or hosting.

The last thing that is extremely important is to offer enough services. It is the services that both the operators and content providers earn money on.

3.8.1.7 Business model success

The business model success is shared into two parts. The first part is an indication of the success of the business model in terms of the number of services offered and the number of end-users using the service. This part and the next are sorted out on a 5-point scale. The second part is an indication of the success of the business model in terms of the revenue generated by seven different players: Infrastructure providers, content provider sub-contractor, application providers, content providers, carriers/operators, portals/aggregators and handset/terminal providers. These variables are the same as under the value network part.

The number of services offered is crucial for success. A technology with no services will have great problems getting new customers to join. With a large amount of services, the next step is to get end-users to really use the services. The success of the model can be measured in terms of the revenue generated different variables. These variables will probably have very different value to the operators since every operator has different models.

4 Method

4.1 Primary data contra secondary data

Primary data is when you collect data yourself, directly from, in this case i.a., the operator, and processes the information. Secondary data is when you collect the data from authors that perhaps has done a previously inquiry in the same area. When making a report in a specific area, you can either choose to use just one of these methods, or both of them. Often a combination can work really well. It is then possible to look at different aspects of the collected data and compare it to the secondary data. Unfortunately, it is not always possible to collect secondary data if the secondary data does not exist. If you are the first one doing the research, you have to collect primary data to complete the task. Primary data has the advantage that the information has not been edited or colored by a previously author.

In proportion to this thesis, there are different possibilities for acquiring data. It is possible to make a webpage for collecting data, do interviews or visit discussion forums. There are not many written articles or books that have collected similar data when it comes to mobile operators business models in the mobile data service market. Getting primary data is then the obvious choice, or at least to try obtaining primary data. If the primary data has missing spots, it is possible to fill out the rest with perhaps secondary data.

4.2 Webpage

A webpage is a good way to get information from around the world, but it is important to have a page that works properly. The idea for the web page is to collect models from operators by exchanging their model with some models already submitted. This means that when a user has registered him/her at the page, the only possibility is to submit a model. When the user has submitted its model, all the other previously submitted models would become available to the user.

In the submitting process the user would have to face a question form built on the framework. The question form should consist of different variables stored in a database through different text fields, dropdown lists, radio buttons and check boxes. When the user wants to look at a previously submitted model, the model would have been fetched from the database.

As an example of the webpage, a draft was made to show how the webpage would be. I simply just put the framework into the page and added different text fields, combo boxes, radio buttons and check boxes. The whole framework was submitted to a database which stored the data. The information could then be fetched sorted by the origin of the models country.

1. Model Descriptives	
Country	[Select your country] <input type="button" value="v"/>
Service category (e.g. sms, mms, wap, java-app, brew-app, i-mode site, etc. or open)	<input type="text"/>
Dominant actor/player offering/providing this particular model	<input type="text"/>
Brand name (e.g. Monternet, I-mode, EzWeb, SMS CPA, etc.)	<input type="text"/>
Network platform (e.g. GSM, GSM/GPPRS, CDMA, CDMA2000 etc.)	<input type="text"/>
Additional standards applied (e.g. wap, brew, MIDP, cHTML etc.)	<input type="text"/>
2. Revenue model	
Startup costs (to enter revenue sharing agreement or use service platform) (approx in US\$)	<input type="text"/>
Other formal requirements to enter sharing agreement (e.g. minimum subscribers, minimum traffic, minimum number of services offered etc.)	<input type="text"/>
Revenue sharing between operator and content provider (in %)	<input type="text"/>
Revenue sharing between content provider and sub-contractor/application provider (in %)	<input type="text"/>
Data traffic revenue sharing (if applicable) (in %)	<input type="text"/>
Main object of revenue sharing (content, packet, time, monthly fee etc.)	<input type="text"/>
Other cost elements (e.g. fixed costs, monthly membership fees etc.)	<input type="text"/>

Figure 5, How a part of the draft of the website look like

4.3 Interviews

Interviewing employees in companies can be a good way to acquire information, but it is hard to find the right people. First you have to find the phone number to the company, and then you have to find out who the right person to speak to is. For some operators, this information is on their website, but for most of them, you need to ask at the customer service.

The interviews can be done in two different ways. The first one is to talk to the right person and ask him/her the questions you have. The second way is to ask if you can send your questions by e-mail and hopefully receive the answers you want.

To learn more about the business models in advance of making a complete framework is also possible. You can then ask the operators directly of which variables they think is important to their model and which variables that should be taken into consideration when building the framework.

Before you start your interviews, it is really important to prepare yourself so you are up to date within the current area. As you start interviewing a person, it is important to remember to take notes which should be containing facts and few interpretations from yourself. It would be wise to start with the facts-questions, move along with follow-up questions and perhaps end the interview with more critical questions. During the interview, the observer/interviewer should continuously confront his/hers theoretical- and approachable assumptions with observations and empirical data, empiricism with theory (H. Østby et al, 1997). This means that it is important to see how the person you are interviewing reacts. It is of course a difference between doing an interview face to face and doing it over a telephone.

4.4 Discussion forums

Keitai-L (<http://www.appelsiini.net/keitai-1/>) is a web forum where telecom and cell phones are discussed. Many users regularly visit the forum. This discussion forum contains posted questions, answers and meanings. Most discussion forums contain the same.

I have not used the discussion forum actively, but once; just read some of the already posted messages. If you actively join the discussions and are very persistent, I believe that it is possible to get more information about relevant questions regarding issues in this thesis. The discussion forum could also have been used for advertising purposes concerning the webpage. It is probably users that possess a lot of information of operators, content providers and models. The Keitai-L forum is mainly for users in Japan and other East Asian countries, so the users will then, of course, have information from that part of the world.

I posted one message trying to get some content providers connected to different operators in UK, Germany and Holland. Unfortunately, I did not get any answers, but it was worth a try.

4.5 Choosing a method

As the description of the thesis say, a webpage has to be made and be published to acquire business models from the operators. As a consequence, I had already chosen to collect primary data. To make the webpage as best as possible, a framework had to be made as a foundation. When the framework was done, I considered doing some interviews for testing the quality of it, even though it is hard to reach the persons within the operator who knows their business model. The framework would then be reevaluated to become better and more sufficient. When the “new” framework was done, it was applied to the webpage and the webpage was published.

Since the goal was to create a webpage and to collect business model from different operators, I hoped that contacting different persons through web forums should be sufficient enough to acquire an adequate amount of people to join the webpage and submit their models. As bait, they would get access to previously submitted models.

The fact that I needed data to the model (startup costs, revenue sharing etc.) I decided to get information about the operators' opinions on different qualitative factors. A qualitative perspective was chosen since the research in this area is insufficient or almost nothing at all, but I also thought it would be wise to have some quantity of data. The combination of these two elements was then added into the framework, and together with the MAPIT model, the questions were formed to fit the requirements. The questions are shown in the *Measures* part of the chapter.

While working on the website, I was in contact with some of the operators, and they encouraged me not to publish the site. They had experienced that Keitai-L would probably not respond to the request. I figured that interviews would be the next step. The framework was reconstructed to fit the interviews.

4.6 Design of survey

The operators' business models are mainly open or closed. To compare these models, I have done some interviews with operators, content providers and an aggregator. The interviews gave an indication of what the similarities of the models are, but most important, the differences that separates them. Unfortunately, the closed models are very hard to find. The employees in companies that use the closed model are not very eager to give out information about their business model. This makes the comparison of the two models harder due to the lack of information.

The operators were questioned out of the framework presented in the next sub -chapter, and the content providers and the aggregator answered questions based on the same framework. The comparison of the open and the closed model have been done when

comparing the content providers and aggregators view on their operators' business models.

It is also very interesting to compare each of the different operators' answers to find similarities and differences. This can be done for the content providers and the aggregator as well. Even within a country with operators using business models that are very similar, there are differences that are very interesting. The results are discussed in the two next chapters.

4.7 Measures

The measures below are intended for the operators' business models. For the interview of the content providers and the aggregator about their view on their operators' business model, the relevant questions from this framework were used.

4.7.1 Overview of the questions:

Model descriptive

First we define business models in the mobile data services industry. I asked the interview object to think of the business model applied for providing a specific category of services in your mobile data services market. The first part is just a description of the model to get some background information.

- ? Country
- ? Service category (SMS, MMS, WAP, Java-app, Brew-app, I-mode site, etc.)
- ? Who is the dominant actor/player offering/providing this particular model
- ? Brand name (e.g. Monternet, I-mode, EzWeb, SMS CPA, etc.)
- ? Network platform (GSM, GSM/GPRS, CDMA, CDMA2000 etc.)
- ? Additional standards applied (e.g. WAP, Brew, MIDP, cHTML etc.)
- ? Most successful services (entertainment, gaming, messaging, information services etc.)

Revenue model

The revenue model is very important for all operators' business models. The economical aspects of the model belong here and it also states the revenue share between the operator and the content provider or aggregator.

- ? Startup costs (to enter revenue sharing agreement or use service platform)
- ? Other formal requirements to enter sharing agreement (e.g. minimum subscribers, minimum traffic, minimum number of services offered etc.)
- ? Revenue sharing between operator and content provider (max % - min %)
- ? Revenue sharing between content provider and sub-contractor/application provider (max % - min %)
- ? Data traffic revenue sharing (if applicable) (max % - min %)
- ? Main object of revenue sharing (content, packet, time, monthly fee etc.)
- ? Other cost elements (e.g. fixed costs, monthly membership fees etc.)

Model openness and interconnect

In this part about the model openness, I ask these questions to locate whether the model is open or closed. I also ask for interconnect or roaming agreements.

Openness:

- ? Model information available in public
- ? Model equal to all content providers/participants
- ? Open/public API (application programming interface)
- ? Open portal
- ? Model based upon open standards

Interconnect/roaming:

- ? No interconnect
- ? National interconnect or roaming
- ? International interconnect or roaming

Value network

The value network has a large influence within itself and to the end-users. To rate the influence of each component in the value network gives an indication of where the operator, content provider or aggregator think that the power is situated. To ask about successful services in the value network was supposed to give an indication of what kind of services that are successful and in what area, and than compare it across the country borders. Unfortunately, most of the operators could not give me many answers in the last area.

Indication of the value network influence of the following actors/player (on a 5-point scale from weak to strong):

- ? Infrastructure providers
- ? Content provider sub-contractors
- ? Application providers
- ? Content providers
- ? Carriers/operators
- ? Portals/aggregators
- ? Handset/terminal providers

Give examples of successful services of this service category. Name the service and indicate what the main success factors behind the service for each of the following actors/players are:

- ? Infrastructure providers
- ? Content provider sub-contractors
- ? Application providers
- ? Content providers
- ? Carriers/operators
- ? Portals/aggregators
- ? Handset/terminal providers

Collaboration models

The collaboration model may have some differences when it comes to open and closed models, and the interesting about this part is to see what the operators have included in their CPA model to facilitate collaboration.

Indication of which of the following activities/initiatives that have been taken to facilitate collaboration among value network partners:

- ? Internet based developer forums
- ? Application developer education, courses or seminars/conferences
- ? Establishment of traditional development parks/technology parks by dominant players/operators
- ? Some players provide financial support of application developers or content providers
- ? Some players provide development computer resource sharing/hosting
- ? Some players provide development software resource sharing/hosting
- ? Risk sharing agreements among value network partners

Adoption facilitation

I expected to see differences here between to open and the closed model, especially in the answers from the content providers. The importance for the closed model to have a close relationship to their content supplier is shown in chapter 6.5.

Indication of which steps have been taken by value network partners to facilitate end -user and network partner adoption of the business model:

- ? Minimum number of services or registered end-users required for player to joining the partnership offered by the business model
- ? Minimum financial requirements for joining the partnership offered by the business model
- ? Traffic dependent revenue sharing or financial support (e.g. increasing percentage with increasing traffic)

- ? Specific actions have been taken to recruit significant application developers and content providers
- ? Specific actions taken to stimulate collaboration among application developers and content providers
- ? Extensive use of terminal subventions
- ? Extensive use of service adoption subventions
- ? Specific actions taken to stimulate service adoption among less innovative end-users
- ? Usage costs made dependent of network effects (number of users)
- ? Content or application provider service advertising provided by dominant player or operator

Business model success

Finally the success of the business model is important to see whether the operator, content provider and aggregator think that the business model they are a part of, is successful.

Indication of the success of the business model in terms of (using 5-point scale from few to many):

- ? The number of services offered
- ? The number of end-users using the services

Indication of the success of the business model in terms of the revenues generated by (using 5-point scale from weak to strong):

- ? Infrastructure providers
- ? Content provider sub-contractors
- ? Application providers
- ? Content providers
- ? Carriers/operators
- ? Portals/aggregators
- ? Handset/terminal providers

5 Interviews and data collection

5.1 Getting the models

Every operator I contacted, except Telenor and Netcom, I had to go through the customer service to find out who knew the operators business model. Through “1882 Utenlandsopplysningen” I got the numbers to the customer service for most of the operators. Several employees in the customer service had no idea that there even existed a business model regarding content providers. In O₂ I talked to perhaps 15-20 people all together, before I reached someone who told me that their model was confidential and that I had to send them a letter where I probably not would get an answer. Other operators, like the Swedish ones, have good webpages so I could find who to contact. I managed to get their models from Mr. Ola Berglund in Telia and Mr. David Eriksson in Comviq (Tele2). From the other operators I mainly received their models by mail after reminding them several times. E-plus is the only company that said they should send their business model, but have not done so.

5.2 Model descriptive

The model descriptive is just describing some static facts about the model. I have chosen to collect models from Norway, Sweden, United Kingdom, Germany and the Netherlands. From Norway I have just found the information on the webpage for the CPA model both for Telenor and Netcom. This goes for all the variables and not only the model descriptive.

The service category has three different categories, Premium SMS, MMS, and WAP. Most of the operators have answered with similar values on the different variables for all the service categories.

5.3 Revenue model

The revenue model part includes most of the economical part of the model, i.a. the startup cost and revenue share. The table below gives an overview of the startup costs for content providers to join the various operators business model. Unfortunately some operators have not stated the amount of the startup cost they charge.

Operator	Country	Startup cost in €			
		Premium SMS	MMS	WAP	I-mode
Telenor	Norway	12500	12500	2500	X
Netcom	Norway	12500	12500	1850	X
Telia	Sweden	1650	1650	X	X
Comviq (Tele2)	Sweden	330	330	X	X
Vodafone	United Kingdom	0	-	-	X
O ₂ (BT Cellnet)	United Kingdom	3989,75	-	-	X
KPN	The Netherlands	-	-	-	0
T-Mobile	Germany	-	-	-	X
D2 Vodafone	Germany	*	-	-	X
E-plus	Germany	-	-	-	-

X – Service either does not exist or is not a part of their business model

- – Operator has not shared information of their amount

* – Operator has not stated their amount, just that the cost is low

Figure 6, Shows the startup cost for a content provider jointing the different operators

As we can see from the table, there are large differences between the operators in how much they charge as startup cost. It varies from 0 € to as much as 12500 €. High startup cost by some operators is perhaps set to avoid content providers that are not serious about their business. As a result of fewer and more serious applicants joining the model, the administration cost will probably drop and the service provided by the operator will hopefully rise due to less influx. The differences of the country's economy also have to be taken into consideration. An "expensive" country as Norway will naturally have higher entry costs for the content providers compared to "cheap" or less "expensive"

countries. Most of the operators also charge a monthly fee from the content providers. This is mostly for running costs and service offered by the operator.

One should think that the revenue share in percent should be more or less the same in all countries, but several other aspects from the model have to be taken into consideration in this matter. In the table below, some of the revenue shares between operator and content providers are shown.

Operator	Country	Revenue share for the content provider in %			
		Premium SMS	MMS	WAP	I-mode
Telenor	Norway	46 - 70	62 -72	48 - 74	X
Netcom	Norway	71 - 86	75*	56 - 74	X
Telia	Sweden	55 - 80	80	X	X
Comviq (Tele2)	Sweden	85 - 91	85 - 91	X	X
Vodafone	United Kingdom	0 - 78	-	-	X
O ₂ (BT Cellnet)	United Kingdom	59 - 79	-	-	X
KPN	The Netherlands	80	-	-	86
T-Mobile	Germany	-	-	-	X
D2 Vodafone	Germany	0 - 20	-	V	X
E-plus	Germany	-	-	-	85

X – Service either does not exist or is not a part of their business model
V – Operator only states that they share the revenue on content only
 - – Operator has not shared information of their revenue share
 * – Operator subtracts the traffic tax from the revenue share

Figure 7, Shows the revenue share for the content provider at the different operators

5.4 Model openness and interconnect

Most of the operators have not published their business model on the web nor is the model information available in public. Norwegian operators lead the way in this area and both Telenor and Netcom have published their model on certain pages on the web (Telenor: <http://cpa.telenor.no> Netcom: <http://cpa.netcom.no>). Several aspects in the

model is published like, the agreement papers between operator and content provider, the revenue share, the startup cost etc. for Premium SMS, MMS and WAP. Both the Swedish operators, Telia and Comviq, have decided to follow their neighbors and make their model available on the web.

Only one operator, in my survey, answered no without reservation, when I asked if the model is equal to all content providers/participants. Comviq gives the top five content providers better contracts than the rest, probably to make the content providers to work harder trying to get into top 5. This may lead to more services and to raise the quality of the products. D2 Vodafone answered that their model was not equal to all participants, but that it had some similarities, without going thoroughly into the similarities.

Most of the operators did not answer whether they had an open/public application programming interface (API) or not, but Comviq and KPN answered yes. As for the question whether there existed an open portal, only Comviq and KPN said that they had. KPN added that it was only for billing and revenue share on closed part. D2 Vodafone said that they had a partially open portal, but with restrictions. All the operators, of those who answered, had based their model upon open standards. KPN though, pointed out that their HTML pages were based upon open standards, but that the mobile standards not necessarily were. When it comes to the interconnect/roaming part, all operators that answered had at least national interconnect/roaming. Those were Telenor, Netcom, Telia and Comviq. KPN and D2 Vodafone have international interconnect/roaming. Even Vodafone and O₂ did not answer; I believe they have no interconnect/roaming.

5.5 Value network

Unfortunately, few of those who returned the question form wanted to rate the influence of the different participants in the value network. Telia, Comviq and KPN were the only operators to return the rating.

Notice the large differences between the different operators how they rate the variables, especially the influence of content provider sub-contractor. Telia rate them as five in contrast to Comviq and KPN who rates them as respectively one and two. The difference is also large for carriers/operators.

	Telia	Comviq	KPN
Infrastructure providers:	3	2	3
Content provider sub-contractors:	5	1	2
Application providers:	4	2	1
Content providers:	5	2	3
Carriers/operators:	1	4	4
Portals/aggregators:	4	4	-
Handset/terminal providers:	3	2	4

The scale in the table goes from 1 to 5, with 5 as the highest mark.

Figure 8, Shows the operators rating of the influence of the different participants in the value network

As a part of the value network section, the operators were also asked to give examples of a successful service for each of the service categories that they had to rate. Only Comviq and KPN gave examples.

The successful services that Comviq stated were:

1. Infrastructure providers: Economy of scale, which creates low entrance barriers for content providers.
2. Carriers/operators: Billing and traffic relationship with end user.
3. Portals/aggregators: Marketing to improve end user relationship.
4. Handset/terminals providers: Important for preloaded content.

The successful services that KPN stated were:

1. Infrastructure providers: Usages over network.
2. Content providers: Revenue from revenue share.
3. Carriers/operators: Traffic and loyal customers.
4. Handset/terminal providers: Revenue from handsets sold.

5.6 Collaboration models

Four operators, Telia, Comviq, D2 Vodafone, KPN, have completed the question form about the collaboration models. The operators were asked to indicate which activities or initiatives they have taken to facilitate collaboration among value network partners. In the table showed, we can see that there are three variables none of the operators have used for collaboration and that D2 Vodafone has engaged most variables.

	Telia	Comviq	D2 Vodafone	KPN
Internet based developer forums:	No	No	Yes	Yes
Application developer education, courses or seminars/conferences:	No	No	Yes	Yes
Establishment of traditional development parks/technology parks by dominant players/operators:	Yes	No	Yes	No
Some players provide financial support of application developers or content providers:	No	No	No	No
Some players provide development computer resource sharing/hosting:	No	No	No	No
Some players provide development software resource sharing/hosting:	No	No	No	No
Risk sharing agreements among value network partners:	No	Yes	Yes	No

Figure 9, Shows which of the following activities or initiatives the operators have taken to facilitate collaboration among value network partners

Vodafone in United Kingdom has made a webpage (<http://via.vodafone.com>) for both content providers and other participants of the Vodafone network. The page has forums for developers, help for developers, different agreements (not the revenue model), general Vodafone information to customers etc.

5.7 Adoption facilitation

The steps that have been engaged by value network partners to facilitate end-user and network partner adoption of the business model:

	Telia	Comviq	D2 Vodafone	KPN
Minimum number of services or registered end-users required for player to joining the partnership offered by the business model:	No	No	Yes	Yes
Minimum financial requirements for joining the partnership offered by the model:	No	No	Yes	No
Traffic dependent revenue sharing or financial support (e.g. increasing percentage with increasing traffic):	No	Yes	Yes	No
Specific actions taken to recruit significant application developers and content providers:	Yes	No	Yes	Yes
Specific actions taken to stimulate collaboration among application developers and content providers:	Yes	Yes	No	Yes
Extensive use of terminal subventions:	No	Yes	No	Yes
Extensive use of service adoption subventions:	No	No	No	Yes
Specific actions taken to stimulate service adoption among less innovative end-users:	No	No	Yes	Yes
Usage costs made dependent of network effects (number of users):	No	No	No	No
Content or application provider service advertising provided by dominant operator:	Yes	No	No	Yes

Figure 10, Shows the steps that have been engaged by value network partners to facilitate end-user and network partner adoption of the business model

The most interesting in this figure is that the Scandinavian operators, Telia and Comviq, has answered no to most of the question. D2 Vodafone and KPN, who is partially owned by Vodafone, have answered yes to a lot of the questions. This difference comes probably from the fact that Vodafone uses a closed business model and the Scandinavian operators use an open business model. As previously explained, the closed model has a much close relationship to their content providers. When the operators with an open business model choose not to have many adoption facilitations is probably the answer that they have no need for it. The content providers connected to an open model are on their own and are situated in a free market where all content providers are competing against each other.

5.8 Business model success

The first two variables is the success of the business model in terms using a 5-point scale to determine the rating. The next seven variables indicate the success of the business model in terms of the revenues generated using a 5-point scale. D2 Vodafone has unfortunately not answered the second part of the question.

The operators think that their business model have been successful both when it comes to the number of services offered and the number of end-users using the services. Another interesting observation is that Telia and Comviq, who are both Swedish operators, have rated the actors in the value network a bit different.

	Telia	Comviq	D2 Vodafone
The number of services offered :	4	5	5
The number of end-users using the services:	5	5	4
Infrastructure providers:	4	3	-
Content provider sub-contractors:	4	2	-
Application providers:	4	3	-
Content providers:	4	3	-
Carriers/operators:	4	4	-
Portals/aggregators:	3	4	-
Handset/terminal providers:	*	2	-

The scale in the table goes from 1 to 5, with 5 as the highest mark.

* – Operator did not think that the variable fitted in the survey.

- – The operator did not answer the question.

Figure 11, Shows first the operators rating of the success of the business model and second, the success of the business model in terms of revenue generated by the variables

6 The content providers view on the business models

- A discussion of closed models vs. open models

Previously in this thesis, I have been concentrating on the business model from the operators' point of view. The content providers are a large part of the model, so we take a look into how they see their operators' business model. The different actors I have interviewed are TV2 Interaktiv, Norsk Tipping, M-Blox and Namco. These companies are respectively connected to Netcom, Telenor, Telia and Vodafone. M-Blox is not a content provider, but an aggregator. The information provided by all companies, are presented from their point of view towards their operator.

TV2 Interaktiv is a part of the TV2 company, and has the responsibility for the web and phone part of TV2. Their most successful service in the mobile data service market is the SMS Chat on Text TV where they claim to have made a whole new community and had a great profit. Norsk Tipping is a bookmaker company who is responsible for most of the betting in Norway. Their most successful service is a SMS-service which they call, Remote via Card Phone. M-Blox is a Swedish aggregator that provides content providers to Telia and they make no services themselves. Namco is connected to the Vodafone Live program and makes java-games; so games are obviously their most successful service.

6.1 Revenue model

From the content providers and the aggregators point of view, there are no formal requirements for them to enter their respective operators' sharing agreement, except for Namco. Their work has to go through a quality control where Vodafone put themselves in a position where they decide whether the product is good enough for the market or not. Namco totally agrees with Vodafone when it comes to the quality control, and they think that all operators should have a certain amount of quality control.

Namco was not allowed, by Vodafone, to state their share of the revenue, and they pointed out that each content provider to Vodafone has their own sharing agreements.

The revenue shares for the other companies are described in the table below:

Company	Revenue share (CPs part)	Connected to
TV2 Interaktiv	60% - 65%	Netcom
Norsk Tipping	60% without VAT	Telenor
M-Blox	80%	Telia

Figure 12, Revenue share that the operators have to give to the content providers or aggregators

If we compare the results from the operators with the results from the content providers and the aggregator, it seems that TV2 Interaktiv receives a less share than Netcom states on their CPA website. Worth mentioning is that M-Blox receives maximum share of what is possible from Telia.

6.2 Model openness

There is a discussion ongoing in the world whether a business model in the mobile data service market should be open or closed. Out of the four interviewed companies, three of them have an open model, and Vodafone is using a closed model. Both TV2 Interaktiv and Norsk Tipping agree with their operators to have their model open. That their operators publish it on the web brings only positive effects. Telia has an open model, but has not published their model on the web, something that M-Blox think they should do. On the other hand, Namco says that it is quite good the Vodafone has chosen not to publish their model and that there is only benefits to the competitors if they publish it.

Still, the most sensational in this interview was that Namco did not think that Vodafone has a closed model, and that it was based upon open standards. When I confronted them with the fact that they previously had claimed that Vodafone performed quality control

on all the products, they only answered that every operator should have quality control and that the quality control had little to do with whether the model is open or not.

Namco could also tell me that each content provider connected to Vodafone had their own revenue agreement and that the agreement was strictly confidential. The other companies thought that their operators' business model is mostly equal to all participants.

6.3 Value network

The differences between an open and a closed model in the area of the value network is not too notable. The aggregator and all content providers have different views of who is controlling the value network. The reason is probably not whether a model is open or not, but rather that there are differences within the country that may have greater influence on the value network. Namco, M-Blox and, to a certain point also, Norsk Tipping agrees that it is the operator that "call the shots" in the market. They possess a large amount of influence and have the ability to control some of the pricing and other network effects like collaboration and financial support.

TV2 Interaktiv has another view on this matter. They think that Telenor, as an operator, has a large share of the influence, but that the content providers and the handset/terminal providers also possess a great amount of influence towards the market. The content providers gain their power due to the fact that they make the actual content for the mobile phones, but the handset and terminal providers possess the power of technology and decide what is possible for both the content providers and the operators. Norsk Tipping stands out with their opinion on the infrastructure providers. They think that the infrastructure providers have a great influence within the value network.

6.4 Collaboration models

The collaboration model to each of the operators is not so different if we group them into open and closed models. The open models have done little or nothing to stimulate

collaboration among the content providers, aggregators and the operator. The closed model, which is represented by Vodafone in this survey, has made several efforts to stimulate collaboration among value network partners.

Namco pointed out that Vodafone has a very good internet based developer forum which is highly developed. Vodafone has also held some seminars and conferences for the content providers. Namco thinks Vodafone is getting better and better in this area. Vodafone has also provided Namco with some software for development reasons.

The other companies in the survey felt that little had been done to increase the collaboration. The only thing mentioned was that TV2 Interaktiv had received a small amount of development computer resources from Netcom.

I think that the collaboration model to the operators separates the open and the closed model very clearly. The closed model is much more obliging when it comes to taking good care of the content providers and aggregators. It is clearly that the closed model provides a closer relationship among value network partners. In the open model each company is left alone.

6.5 Adoption facilitation

The adoption facilitation made by the operator to the content providers and the aggregators are very different for each country, each operator and open vs. closed model has no certain differences.

All companies has experienced that the operator has had an extensive use of terminal subventions. This is not so surprising, but that Vodafone, according to Namco, had used service adoption subventions is more surprisingly. This is perhaps the only thing that probably is more common within a closed model than in an open model.

Another interesting issue is that TV2 Interaktiv does not think that Netcoms usage cost has been made dependant of network effects when it comes to number of users. The other companies were of a quite opposite opinion. TV2 Interaktiv was also alone on saying that they had received advertising provided by the operator, but that was not in the CPA area.

In M-Blox' relation to Telia, Telia had taken actions to recruit application developers and content providers for them. They had also stimulated the collaboration among M-Blox' application developers and content providers. For both of these adoption facilitations, Telia have just contributed in a small scale. As I see it, they are perhaps trying out how it would be to move in a direction of a more closed model.

6.6 Business model success

On the matter whether the content providers and the aggregator look at their operators business model as successful or not, they all answered that it is very successful, both when it comes to number of services offered and the number of end-users using the service. Namco thought that the Vodafone Live program was very successful in having a large number of services, but as we know, Vodafone set limitation to the content providers who are able to join, and has therefore fewer services compared to operators with an open model. Free competition among the content providers and a high degree of services offered is the trademark of the operators with an open model structure. The open model let each end-user determine if the service is good or bad in terms of using the service or not. Vodafone, on the other hand, makes this decision before the service reaches the end-user. In that way, Vodafone say that the end-users are not capable of determining whether a service is good or bad.

The content providers and the aggregator gave also an indication on the success of the business model in terms of the revenue generated by the different parts in the value network as, the infrastructure providers, the sub-contractors, the application providers, the content providers, the carriers/operators, the portals/aggregators and the handset/terminal providers. Norsk Tipping was a bit special here, because they think that

business model is successful for all parts in the value network. The other companies had other arguments. TV2 Interaktiv claimed that the value network generates a lot of money, but that the business model needs to be adjusted. They like the way of billing end-users via CPA. The only drawback was that the model could be exploited too much, without wanting to deepen the issue any further. M-blox pointed out that Telias business model had been a great success, especially for the content providers and the operator. Finally, Namco could not comment on the issue due to the confidentiality of the matter. They only stated that they were very pleased with their share of the revenue.

7 Conclusion and future work

When I first started to read about business model in the mobile data service market, I realized that it was hard to understand the terminology, and it actually went a while until I had a foundation worth building on. When the framework was ready and the method was chosen, I was ready to do the interviews with the operators, content providers and one aggregator.

I had never thought that that it should be hard to get the models, but apparently it took months. Several phone calls each day to find the right person to interview made me in despair. Especially the closed models were very hard to get. For some reason has, especially Vodafone, chosen to keep their CPA model confidential. I even learned that each Vodafone content provider has its own CPA agreement.

Nowadays, Vodafone is regarded as a very successful company with an outstanding business model. Due to the high degree of quality control and the close relationship to the content providers, they have no need to go public with their business model to draw new content providers to work for them.

The open model is built on former internet philosophy and is developed on a basis where everyone is competing and most important, the cost reduction is significant. The cost reduction has proven itself to only be present in the internet model and can not work in the mobile data service market. But in the end, both open and closed models have their drawbacks and benefits.

The content providers and aggregators are all very pleased with their revenue share and their operators' business model, regardless of which operator they are connected to. Both the number of services and the number of users using the services are commonly agreed upon.

In the mobile data service market, there has been written a large amount of articles that are describing the present situation and the structure of the business models. Unfortunately, there are not explanations of why the business models and the market are how it is.

The future work for this thesis would probably be to extend the MAPIT framework with relevant variables such as described in chapter 3.7. Well-established theories, which created the basis for our theoretical framework, seem inadequate for some of the services offered. The future work should also contain more interviews with more operators and content providers. The mobile data service market in Asia could also be an alternative for data collection.

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8.2 Persons

Berglund, Ola at Teliamobile

Boers, Eelco at KPN

Dizzars, Timo and Roman, Peter at E-plus

Eriksson, David and Vestin, Ulrika at Comviq

Fridén, Christian at M-blox

Gressgård, Leif Jarle at Norges Handelshøyskole (NHH)

Holst, Morten at TV2 Interaktiv

Pedersen, Per Egil

Stephenson, Paul and Otty, John at Vodafone

Aasen, Reidar at Norsk Tipping

8.3 Websites

Comviq (Tele2) <http://www.comviq.se>
CPs: <http://193.12.60.80/Public/T2CuSeCBG.nsf/MainFrame?OpenFrameSet>

D2 Vodafone <http://www.vodafone.de>

E-plus <http://www2.eplus.de/>

IT-avisen (telecom) <http://www.telcom.no>

Joachim Bamrud - Hvem tjener hva på SMS <http://www.telecom.no/art/4888.html>

Keitai-L <http://www.appelsiini.net/keitai-l/>

Netcom <http://cpa.netcom.no>

O₂ BT Cellnet <http://www.o2.co.uk>

Telenor <http://cpa.telenor.no>

Telia <http://www.teliamobile.se>

T-Mobile <http://www.t-mobile.de>

Vodafone <http://www.vodafone.co.uk>

Via Vodafone <http://www.via.vodafone.com>

8.4 Others

“1882 Utenlandsopplysningen” providing me with phone numbers to the operators

Business models in mobile internet services: An exploratory study of wireless portal strategies

Content Billing Gateway Introduction from Comviq

Smartpay: DnBs rolle

Smartpay: Telenors rolle

9 Appendix

9.1 Telenor

1. Model descriptive

Country:	Norway
Service category:	Premium SMS, MMS and WAP
Dominant actor providing model:	Telenor
Band name:	CPA SMS, CPA MMS and CPA WAP
Network platform:	GSM
Additional standards applied:	SMS, MMS and WAP
Most successful service:	-

2. Revenue model

Startup costs:	12500 €, 2500 € for WAP if you have not paid the original 12500 €
Joining requirements:	None
Revenue sharing, operator vs. content provider:	Premium SMS: The content provider gets from 46% - 70% MMS: The content provider gets from 62% - 72% WAP: The content provider gets from 48% - 74%.
Data traffic revenue sharing:	-
Main object of revenue sharing:	-
Other costs elements:	Content providers have to pay a monthly fee for Premium SMS, MMS and WAP.

3. Model openness and interconnect

Openness:	
Model information available in public:	Yes
Model equal to all content providers/participants:	Yes
Open/public API (application programming interface):	-
Open portal:	-

Model based upon open standards: -

Interconnect/roaming: National

9.2 Netcom

1. Model descriptive

Country: Norway
Service category: Premium SMS, MMS and WAP
Dominant actor: Telenor
Band name: -
Network platform: GSM
Additional standards applied: SMS, MMS and WAP
Most successful service: -

2. Revenue model

Startup costs: 12500 €, 1875 € for WAP if you not already have paid the original 12500 €

Joining requirements: None

Revenue sharing, operator vs. content provider: Premium SMS: The content provider gets from 71% - 86% MMS: The content provider gets 75% - traffic tax WAP: The content provider gets from 56% - 74%.

Data traffic revenue sharing: -

Main object of revenue sharing: -

Other costs elements: Content providers have to pay a monthly fee for Premium SMS, MMS and WAP.

3. Model openness and interconnect

Openness:

Model information available in public: Yes

Model equal to all content providers/participants: Yes

Open/public API (application programming interface):	-
Open portal:	-
Model based upon open standards:	-
Interconnect/roaming:	National

9.3 Telia

On the webpage <http://www.teliamobile.se> I found a number to Partner Services for Telia. In Partner Services two persons worked who I was recommended to speak to. It was Ola Berglund and Björn Johansson. I called Ola Berglund and got the information about their CPA model from him. He could also tell me that Telia are working on a website like Netcom and Telenors CPA pages. The page was hopefully ready to be launched soon. When it comes to the WAP model, Telia has not yet managed to make a business model in that area, but are working on it.

1. Model descriptive

Country:	Sweden
Service category:	Premium SMS and MMS
Dominant actor:	Telia
Band name:	-
Network platform:	GSM
Additional standards applied:	SMS and MMS
Most successful service:	-

2. Revenue model

Startup costs:	1650 €
Joining requirements:	None
Revenue sharing, operator vs. content provider:	Premium SMS: The content provider gets from 55% - 80% MMS: The content provider gets 80%.

Data traffic revenue sharing:	-
Main object of revenue sharing:	-
Other costs elements:	Content providers have to pay a monthly fee both for Premium SMS and MMS.

3. Model openness and interconnect

Openness:

Model information available in public:	No, hopefully soon.
Model equal to all content providers/participants:	Yes
Open/public API (application programming interface):	-
Open portal:	-
Model based upon open standards:	Yes

Interconnect/roaming:	National
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4. Value network

The value network influence of the following actors/players on a 5 -point scale:

Infrastructure providers:	3
Content provider sub-contractors:	5
Application providers:	4
Content providers:	5
Carriers/operators:	1
Portals/aggregators:	4
Handset/terminal providers:	3

When Mr. Berglund was asked to give some examples of a successful service of the service categories infrastructure providers, content provider sub-contractors, application providers, content providers, carriers/operators, portals/aggregators, handset/terminal providers, he could not think of any at the moment.

5. Collaboration models

Please indicate which of the following activities initiatives have been taken to facilitate collaboration among value network partners:

Internet based developer forums:	No
Application developer education, courses or seminars/conferences:	No
Establishment of traditional development parks/technology parks by dominant players/operators:	Yes
Some players provide financial support of application developers or content providers:	No
Some players provide development computer resource sharing/hosting:	No
Some players provide development software resource sharing/hosting:	No
Risk sharing agreements among value network partners:	No

6. Adoption facilitation

Please indicate which steps have been taken by value network partners to facilitate end-user and network partner adoption of the business model:

Minimum number of services or registered end-users required for player to joining the partnership offered by the business model:	No
Minimum financial requirements for joining the partnership offered by the model:	No
Traffic dependent revenue sharing or financial support (e.g. increasing percentage with increasing traffic):	No
Specific actions taken to recruit significant application developers and content providers:	Yes
Specific actions taken to stimulate collaboration among application developers and content providers:	Yes
Extensive use of terminal subventions:	No
Extensive use of service adoption subventions:	No

Specific actions taken to stimulate service adoption among less innovative end-users:	No
Usage costs made dependent of network effects (number of users):	No
Content or application provider service advertising provided by dominant operator:	Yes

7. Business model success

The success of the business model in terms of (using 5 -point scale):

The number of services offered :	4
The number of end-users using the services:	5

The success of the business model in terms of the revenues generated by (using 5 -point scale):

Infrastructure providers:	4
Content provider sub-contractors:	4
Application providers:	4
Content providers:	4
Carriers/operators:	4
Portals/aggregators:	3
Handset/terminal providers:	-

Mr. Berglund did not think that the variable “Handset/terminal providers” had anything to do with this question and refused to answer it.

9.4 Comviq (Tele2)

First I got the number to Comviq customer service from “1882 Utenlandopplysningen” in Norway and the customer service could then tell me the number to the head office in Stockholm. At the head office they advised me to call Ulrika Vestin, so I did. When reaching her, she could tell me that the right person to talk to was David Eriksson. He

was a very nice man who provided me with their business model. I mailed him my questions and got his answers back. The information is mostly the same for both Premium SMS and MMS. When it comes to WAP, Comviq has not yet made a business model in that area.

1. Model descriptive

Country:	Sweden
Service category:	Premium SMS and MMS
Dominant actor:	Telia
Band name:	-
Network platform:	GSM
Additional standards applied:	SMS and MMS
Most successful service:	-

2. Revenue model

Startup costs:	330 €
Joining requirements:	None
Revenue sharing, operator vs. content provider:	Premium SMS and MMS: The content provider gets from 85% - 91 %
Data traffic revenue sharing:	-
Main object of revenue sharing:	-
Other costs elements:	Content providers have to pay a monthly fee both for Premium SMS and MMS. And also a monthly fee for a reservation of abbreviated number

3. Model openness and interconnect

Openness:	
Model information available in public:	No, hopefully soon.
Model equal to all content providers/participants:	No*
Open/public API (application programming interface):	Yes
Open portal:	Yes

Model based upon open standards: Yes

Interconnect/roaming: National

* The model is equal to everyone except when it comes to revenue sharing. The top 5 content providers get a larger share of the income than other content providers.

4. Value network

The value network influence of the following actors/players on a 5-point scale:

Infrastructure providers:	2
Content provider sub-contractors:	1
Application providers:	2
Content providers:	2
Carriers/operators:	4
Portals/aggregators:	4
Handset/terminal providers:	2

Please think of an example of a successful service of this service category. Name the service and indicate using only a few words what you consider to be the main success factors behind the service for each of the following actors/players:

Infrastructure providers:	Economy of scale, creates low entrance barriers for CP
Content provider sub-contractors:	-
Application providers:	-
Content providers:	-
Carriers/operators:	Billing and traffic relationship with end user
Portals/aggregators:	Marketing, end user relationship
Handset/terminal providers:	Important for preloaded content

5. Collaboration models

Please indicate which of the following activities initiatives have been taken to facilitate collaboration among value network partners:

Internet based developer forums:	No
Application developer education, courses or seminars/conferences:	No
Establishment of traditional development parks/technology parks by dominant players/operators:	No
Some players provide financial support of application developers or content providers:	No
Some players provide development computer resource sharing/hosting:	No
Some players provide development software resource sharing/hosting:	No
Risk sharing agreements among value network partners:	Yes

6. Adoption facilitation

Please indicate which steps have been taken by value network partners to facilitate end-user and network partner adoption of the business model:

Minimum number of services or registered end-users required for player to joining the partnership offered by the business model:	No
Minimum financial requirements for joining the partnership offered by the model:	No
Traffic dependent revenue sharing or financial support (e.g. increasing percentage with increasing traffic):	Yes
Specific actions taken to recruit significant application developers and content providers:	No
Specific actions taken to stimulate collaboration among application developers and content providers:	Yes
Extensive use of terminal subventions:	Yes
Extensive use of service adoption subventions :	No

Specific actions taken to stimulate service adoption among less innovative end-users:	No
Usage costs made dependent of network effects (number of users):	No
Content or application provider service advertising provided by dominant operator:	No

7. Business model success

The success of the business model in terms of (using 5-point scale):

The number of services offered :	5
The number of end-users using the services:	5

The success of the business model in terms of the revenues generated by (using 5-point scale):

Infrastructure providers:	3
Content provider sub-contractors:	2
Application providers:	3
Content providers:	3
Carriers/operators:	4
Portals/aggregators:	4
Handset/terminal providers:	2

9.5 Vodafone

To get the phone number for the customer service in Vodafone I called “1882 Utenlandopplysningen” and they provided me with the number. The customer service told me the number to the head office where they said I should call Mr. Paul Stephenson. He did not answer the phone, but I managed to get his mail address from his secretary and I mailed him my question. I then got a reply from him where he told me to contact Mr. John Otty. I mailed him and got a reply where he told me that he could not answer as long as he did not know me. I mailed him once more trying to explain, but he did not

reply at all. I found out that I should try to call him, but I only got to speak to his secretary. Later, she sent me an e-mail where she told me that Mr. Otty was a very busy man, so he was not able to answer my questions.

The information I have managed to find is taken from an article in “IT-avisen telecom” “Hvem tjener hva på SMS” (2002).

1. Model descriptive

Country:	United Kingdom
Service category:	Premium SMS
Dominant actor:	-
Band name:	-
Network platform:	GSM
Additional standards applied:	SMS
Most successful service:	-

2. Revenue model

Startup costs:	0 €
Joining requirements:	None
Revenue sharing, operator vs. content provider:	Premium SMS: The content provider gets from 0% - 78 %
Data traffic revenue sharing:	-
Main object of revenue sharing:	-
Other costs elements:	Content providers have to pay a monthly fee.

3. Model openness and interconnect

Openness:	
Model information available in public:	No
Model equal to all content providers/participants:	-
Open/public API (application programming interface):	-
Open portal:	-
Model based upon open standards:	-

Interconnect/roaming: -

9.6 O₂ (BT Cellnet)

To get O₂s phone number I called “1882 Utenlandsopplysningen” to get the customer service number. I asked for the number to the head office and then called there. At the head office I talked to a nice woman who wanted to help me. She should provide me by mail with the name of a person I could call to get the model. Unfortunately I never received any mails from her, so I had to start calling the head office again. After talking to perhaps 5-6 persons I finally reached a man who should call me back after he had found out who the right person to contact was. He never called. Once more I started calling the head office for information. Another woman at the head office helped me and actually got in touch with the right person. The only bad thing was that I could not get his name or his phone number. She also told me that their model was confidential information so I had to write them and ask for it, but I would probably be turned down. I just had to realize that United Kingdom was an unconquered country.

The information I have managed to find is taken from an article in “IT-avisen telecom” “Hvem tjener hva på SMS” (2002).

1. Model descriptive

Country:	United Kingdom
Service category:	Premium SMS
Dominant actor:	-
Band name:	-
Network platform:	GSM
Additional standards applied:	SMS
Most successful service:	-

2. Revenue model

Startup costs:	3989,75 €
Joining requirements:	None
Revenue sharing, operator vs. content provider:	Premium SMS: The content provider gets from 59% - 79 %
Data traffic revenue sharing:	-
Main object of revenue sharing:	-
Other costs elements:	Content providers have to pay a monthly fee.

3. Model openness and interconnect

Openness:

Model information available in public:	No
Model equal to all content providers/participants:	-
Open/public API (application programming interface):	-
Open portal:	-
Model based upon open standards:	-
Interconnect/roaming:	-

9.7 KPN

To get KPNs phone number, I first looked at their web page, but there were only short-numbers there, which you can not dial from abroad. “1882 Utenlandsopplysningen” was again very helpful and provided me with the number to KPN in Amsterdam. In Amsterdam they could give me the number to the head office and I called them. They had no problems of finding the right person to me, and his name was Mr. Eelco Boers. When I called him, I first got to his secretary, Ms. I. A. Maspaitella, who told me to send my request to her, and she should make sure that Mr. Boers got it and returned his answers. Perhaps a week later I still had not received anything from KPN so I called Ms Maspaitella and talked to her. I got Mr. Boers cell phone number and called him. He told me that he had looked at my questions and that he should send it too me within 3 day, and if he did not, I had to call and remind him. Of course I had to call, and he promised to do it the same day. I have not received his answers yet.

The information I have managed to find on Premium SMS is taken from an article in “IT-avisen telecom” “Hvem tjener hva på SMS” (2002). The WAP and I-mode part has been submitted from Mr. Eelco Boers in KPN.

Premium SMS

1. Model descriptive

Country:	Holland
Service category:	Premium SMS and Mobile Internet
Dominant actor:	KPN
Band name:	-
Network platform:	Premium SMS: GSM
Additional standards applied:	Premium SMS: SMS
Most successful service:	-

2. Revenue model

Startup costs:	-
Joining requirements:	None
Revenue sharing, operator vs. content provider:	Premium SMS: The content provider gets from 80% - 90% Mobile Internet: The content provider gets 80%
Data traffic revenue sharing:	-
Main object of revenue sharing:	-
Other costs elements:	Premium SMS: Content providers have to pay a monthly fee.

3. Model openness and interconnect

Openness:	
Model information available in public:	No
Model equal to all content providers/participants:	-
Open/public API (application programming interface):	-
Open portal:	-

Model based upon open standards: -

Interconnect/roaming: -

Mobile Internet, WAP

1. Model descriptive

Country: Holland

Service category: I-mode

Dominant actor offering the model: Partnership between the content provider, operator and handset vendors; the operator is the coordinator in this value chain

Band name: I-mode

Network platform: Mobile Internet: GSM/GPRS

Additional standards applied: WAP, MIDP, cHTML, Doja and later WAP 2.0

Most successful service: 1 Entertainment: Ring tones, screensavers
2 Information, news and weather, phone guide and then a breath of other services.
Also unregistered content like adult is popular

2. Revenue model

Startup costs: Only development costs for Content provider, as an operator, KPN charges nothing

Joining requirements: Quality of service and relevance for the end-users

Revenue sharing, operator vs. content provider: Mobile Internet: The content provider gets 86%

Data traffic revenue sharing: Not applicable

Main object of revenue sharing: Content fee for the content providers.
Traffic fee for the operator.

Other costs elements: -

3. Model openness and interconnect

Openness:	
Model information available in public :	Yes
Model equal to all content providers/participants :	Yes
Open/public API (application programming interface):	Yes
Open portal:	Yes, but only billing and revenue share on closed part
Model based upon open standards :	Yes, HTML internet standards, not necessarily mobile standards
Interconnect/roaming:	International

4. Value network

The value network influence of the following actors/players on a 5 -point scale:

Infrastructure providers:	3
Content provider sub-contractors:	2
Application providers:	1
Content providers:	3
Carriers/operators:	4
Portals/aggregators:	-
Handset/terminal providers:	4

Please think of an example of a successful service of this service category. Name the service and indicate using only a few words what you consider to be the main success factors behind the service for each of the following actors/players:

Infrastructure providers:	Usage over network
Content provider sub-contractors:	-
Application providers:	-
Content providers:	Revenue from revenue share
Carriers/operators:	Traffic and loyal customers

Portals/aggregators:	Marketing, end user relationship
Handset/terminal providers:	Revenue from handset sold

5. Collaboration models

Please indicate which of the following activities initiatives have been taken to facilitate collaboration among value network partners:

Internet based developer forums:	Yes
Application developer education, courses or seminars/conferences:	Yes
Establishment of traditional development parks/technology parks by dominant players/operators:	No
Some players provide financial support of application developers or content providers:	No
Some players provide development computer resource sharing/hosting:	No
Some players provide development software resource sharing/hosting:	No
Risk sharing agreements among value network partners:	No

6. Adoption facilitation

Please indicate which steps have been taken by value network partners to facilitate end-user and network partner adoption of the business model:

Minimum number of services or registered end-users required for player to joining the partnership offered by the business model:	Yes
Minimum financial requirements for joining the partnership offered by the model:	No
Traffic dependent revenue sharing or financial support (e.g. increasing percentage with increasing traffic):	No
Specific actions taken to recruit significant application developers and content providers:	Yes
Specific actions taken to stimulate collaboration among application developers and content providers:	Yes

Extensive use of terminal subventions:	Yes
Extensive use of service adoption subventions:	Yes
Specific actions taken to stimulate service adoption among less innovative end-users:	Yes
Usage costs made dependent of network effects (number of users):	No
Content or application provider service advertising provided by dominant operator:	Yes

7. Business model success

Mr. Eelco Boers was asked to rate the success of the business model in terms of a 5-point scale. He probably misunderstood the question, and answered that the numbers of services offered was currently five with 450 different sites. He also said that the numbers of end-users using the service is 285.000 users.

Unfortunately, he did not answer the next question at all. He was asked to answer the question about the success of the business model in terms of the revenues generated by infrastructure providers, content provider sub-contractors, application providers, content providers, carriers/operators, portals/aggregators and handset/terminal providers by using a 5-point scale, he did not.

9.8 T-Mobile

T-Mobile was no different than the other operators, I had to call to “1882 Utenlandsopplysningen” to get their number in Hamburg. In Hamburg they told me that I had to send a fax to the head office in Bonn to get answers to my question, so I faxed them. I did not get an answer so I called Hamburg again and asked for the number to the head office (Bonn). At the head office I finally got to talk to Mr. Rene Wellner who was more than willing to help answer my questions by e-mail. Later I had to call him to make sure that he had not forgotten it all, and he promised to send his answers to me, but I still have not received his answers.

1. Model descriptive

Country:	Germany
Service category:	Premium SMS
Dominant actor:	T-Mobile
Band name:	-
Network platform:	GSM
Additional standards applied:	SMS
Most successful service:	-

2. Revenue model

Startup costs:	-
Joining requirements:	None
Revenue sharing, operator vs. content provider:	-
Data traffic revenue sharing:	-
Main object of revenue sharing:	-
Other costs elements:	-

3. Model openness and interconnect

Openness:	
Model information available in public:	No
Model equal to all content providers/participants:	-
Open/public API (application programming interface):	-
Open portal:	-
Model based upon open standards:	-
Interconnect/roaming:	-

9.9 D2 Vodafone

The D2 Vodafone customer service phone number I got from “1882 Utenlandsopplysningen.” At customer service they could tell me that I should probably talk to Mr. Elbrecht about my enquiry. I talked to him, but he did not know their model, though he probably knew the name of the right person. He asked me to call to the head office in Düsseldorf and ask for Mr. Stefan Toelke. When i finally got to talk to Mr. Toelke he asked me to e-mail him my questions and he would answer them as best as he could. I mailed him, reminded him twice, and finally I got a mail from him providing me with information.

I have chosen to have separate answers for the Premium SMS and WAP since Mr. Toelke just answered my questions about D2 Vodafones WAP situation. Unfortunately all the answers in the WAP section are not what I hoped for. The information about Premium SMS, I have found in an article in “IT-avisen telecom” “Hvem tjener hva på SMS” (2002).

Premium SMS

1. Model descriptive

Country:	Germany
Service category:	Premium SMS
Dominant actor providing model:	T-Mobile
Band name:	-
Network platform:	GSM
Additional standards applied:	SMS
Most successful service:	-

2. Revenue model

Startup costs:	-
Joining requirements:	None
Revenue sharing, operator vs. content provider:	The content provider gets from 0% - 20%

Data traffic revenue sharing:	-
Main object of revenue sharing:	-
Other costs elements:	-

3. Model openness and interconnect

Openness:

Model information available in public:	No
Model equal to all content providers/participants:	-
Open/public API (application programming interface):	-
Open portal:	-
Model based upon open standards:	-
Interconnect/roaming:	-

WAP

1. Model descriptive

Country:	Germany
Service category:	WAP
Dominant actor:	Vodafone D2 GmbH
Band name:	Vodafone Live
Network platform:	GPRS
Additional standards applied:	-
Most successful service:	-

2. Revenue model

Startup costs:	Very low costs, limited to the technical implementation, dependant on partner background
Joining requirements:	Service quality level, different customer value
Revenue sharing, operator vs. content	

provider:	Revenue share on content only
Data traffic revenue sharing:	No airtime sharing
Main object of revenue sharing:	Content revenue, event-based and subscription-based (daily, weekly, monthly)
Other costs elements:	None

3. Model openness and interconnect

Openness:

Model information available in public:	No
Model equal to all content providers/participants:	No, but some similarities
Open/public API (application programming interface):	-
Open portal:	Partially with some restrictions
Model based upon open standards:	-
Interconnect/roaming:	International

4. Value network

Did not answer anything in the value network.

5. Collaboration models

Please indicate which of the following activities initiatives have been taken to facilitate collaboration among value network partners:

Internet based developer forums:	Yes
Application developer education, courses or seminars/conferences:	Yes
Establishment of traditional development parks/technology parks by dominant players/operators:	Yes
Some players provide financial support of application developers or content providers:	No

Some players provide development computer resource sharing/hosting:	No
Some players provide development software resource sharing/hosting:	No
Risk sharing agreements among value network partners:	Yes

6. Adoption facilitation

Please indicate which steps have been taken by value network partners to facilitate end-user and network partner adoption of the business model:

Minimum number of services or registered end-users required for player to joining the partnership offered by the business model:	Yes
Minimum financial requirements for joining the partnership offered by the model:	Yes
Traffic dependent revenue sharing or financial support (e.g. increasing percentage with increasing traffic):	Yes
Specific actions taken to recruit significant application developers and content providers:	Yes
Specific actions taken to stimulate collaboration among application developers and content providers:	No
Extensive use of terminal subventions:	No
Extensive use of service adoption subventions:	No
Specific actions taken to stimulate service adoption among less innovative end-users:	Yes
Usage costs made dependent of network effects (number of users):	No
Content or application provider service advertising provided by dominant operator:	No

7. Business model success

The success of the business model in terms of (using 5-point scale):

The number of services offered :	5
The number of end-users using the	

services:

4

The success of the business model in terms of the revenues generated by (using 5-point scale):

Did not answer the question.

9.10E-plus

“1882 Utenlandsopplysningen” provided me with the number to customer service at e - plus. They told me to call the head office in Düsseldorf. I did, and they actually knew who I needed to talk to; his name was Mr. Timo Dizzars. I talked to him and sent him an e-mail with my questions. After a while I reminded him of my request, and he told me that he was not the right person to answer my questions, so he had sent it to Mr. Peter Roman. I called Mr. Roman, but he did not answer his phone and he has not answered it yet, even I have tried to call him perhaps ten times. A few weeks later, suddenly a mail from a woman in E-plus arrived where she said that the information I was asking for was strictly confidential.

The information I have managed to find is taken from an article in “IT-avisen telecom” “Hvem tjener hva på SMS” (2002).

1. Model descriptive

Country:	Germany
Service category:	Premium SMS
Dominant actor:	T-Mobile
Band name:	I-mode
Network platform:	GSM/GPRS
Additional standards applied:	cHTML
Most successful service:	-

2. Revenue model

Startup costs:	-
Joining requirements:	None
Revenue sharing, operator vs. content provider:	The content provider gets 85%
Data traffic revenue sharing:	-
Main object of revenue sharing:	-
Other costs elements:	-

3. Model openness and interconnect

Openness:

Model information available in public:	No
Model equal to all content providers/participants:	-
Open/public API (application programming interface):	-
Open portal:	-
Model based upon open standards:	-
Interconnect/roaming:	-

9.11 TV2 Interaktiv

An interview with Mr. Morten Holst in TV2 Interaktiv about how they see the business model that Netcom offers.

? Most successful service?

SMS Chat in Text TV. The chat made a new community and we had a great profit.

? Formal requirements to enter sharing agreement (e.g. minimum subscribers, minimum traffic, minimum services offered etc.)?

None

- ? Revenue share between operator and content provider (in %)?
 - Operator takes 35% - 40%

- ? Does TV2 Interaktiv experience that Netcom (yes/no):
 - Has their business model available in public ?
 - Yes
 - Model is equal to all participants?
 - Yes, but with modifications
 - Offer an open API? (Application programming interface)?
 - No
 - Offer an open portal?
 - No
 - Model is based upon open standards?
 - Yes

- ? When it comes to the value network; how large is the influence of these seven different actors in the market?
 - Infrastructure providers?
 -
 - Content providers/sub-contractors?
 - Least
 - Application providers?
 -
 - Content providers?
 - Large share
 - Operators?
 - A lot
 - Portals/Aggregators?
 -
 - Handset/terminal providers?

Large share

? What has Netcom done to increase the collaboration between them and the content providers (yes/no)?

- Internet based developer forum?

No

- Application developer education, courses or seminars/conferences?

No

- Establishment of traditional development parks/technology parks?

No

- Financial support of application developers or content providers?

No

- Provide development computer resource sharing/hosting?

Little

- Provide development software resource sharing/hosting?

No

- Risk sharing agreement among value network partners?

No

? Which adoption facilitation or limitations has Netcom done to you (yes /no)?

- Minimum number of services or registered end-users required for player to join the partnership offered by the business model?

No

- Minimum financial requirements for joining the partnership offered by the business model?

No

- Traffic dependant revenue sharing or financial support?

No

- Specific actions have been taken to recruit significant application developers and content providers?

No

- Specific actions taken to stimulate collaboration among application developers and content providers?

No

- Extensive use of terminal subventions?

Yes

- Extensive use of service adoption subventions?

No

- Usage costs made dependent of network effects (number of users)?

No

- Content or application provider service advertising provided by dominant player or operator?

Yes, but not in CPA

? How successful is the business model in terms of:

- The number of services offered?

It is very important to have many different services, and Netcom has that

- The number of end-users using the services?

Very successful

? Indication of the success of the business model in terms of the revenues generated by:

- Infrastructure providers
- Content provider sub-contractors
- Application providers
- Content providers
- Carriers/operators
- Portals/aggregators

- Handset/terminal providers

The value network generates a lot of money, but the business model need to be adjusted. Billing of end-users via CPA is good. The model can be exploited too much.

9.12 Norsk Tipping

An interview with Mr. Reidar Aasen in Norsk Tipping about how they see the business model that Telenor offers.

- ? Most successful service?

Remote via Card Phone/SMS-service 2020

- ? Formal requirements to enter sharing agreement (e.g. minimum subscribers, minimum traffic, minimum services offered etc.)?

None

- ? Revenue share between operator and content provider (in %)?

The revenue sharing on the SMS-services in percent is varying on the individual service, but without the VAT, Norsk Tipping receives approximately 60% of the revenue generated.

- ? Does Norsk Tipping experience that Telenor (yes/no):

- Has their business model available in public?

Yes

- Model is equal to all participants?

Yes

- Offer an open API? (Application programming interface)?

Yes on the SMS part.

- Offer an open portal?

No

- Model is based upon open standards?

Well, they are defending their SMS-model very hard, and there are no room for negotiations. It is a “take it or leave it”.

? When it comes to the value network; how large is the influence of these seven different actors in the market?

- Infrastructure providers?

Great

- Content providers/sub-contractors?

Depends on the size

- Application providers?

Little

- Content providers?

A bit

- Operators?

Great

- Portals/Aggregators?

More lately

- Handset/terminal providers?

Great

? What has Telenor done to increase the collaboration between them and the content providers (yes/no)?

- Internet based developer forum?

No

- Application developer education, courses or seminars/conferences?

Do not know

- Establishment of traditional development parks/technology parks?

No

- Financial support of application developers or content providers?

No

- Provide development computer resource sharing/hosting?

No

- Provide development software resource sharing/hosting?

Do not know

- Risk sharing agreement among value network partners?

Do not know

? Which adoption facilitation or limitations has Telenor done to you (yes/no)?

- Minimum number of services or registered end-users required for player to join the partnership offered by the business model?

No

- Minimum financial requirements for joining the partnership offered by the business model?

Do not know

- Traffic dependant revenue sharing or financial support?

Do not know

- Specific actions have been taken to recruit significant application developers and content providers?

Do not know

- Specific actions taken to stimulate collaboration among application developers and content providers?

Do not know

- Extensive use of terminal subventions?

Yes

- Extensive use of service adoption subventions?

Do not know

- Usage costs made dependent of network effects (number of users)?

Yes, we receive a larger discount the more subscribers we have

- Content or application provider service advertising provided by dominant player or operator?

Do not know

? How successful is the business model in terms of:

- The number of services offered?

Great

- The number of end-users using the services?

Great

? Indication of the success of the business model in terms of the revenues generated by:

- Infrastructure providers

Great

- Content provider sub-contractors

Great

- Application providers

Pretty great

- Content providers

Pretty great

- Carriers/operators

Great

- Portals/aggregators

Great

- Handset/terminal providers

Great

9.13 M-blox

M-blox is a Swedish aggregator connected to Telia. I interviewed Mr. Christian Fridén in M-blox about how they see the business model that Telia offer.

? Most successful service?

Don not exist since they are an aggregator

? Formal requirements to enter sharing agreement (e.g. minimum subscribers, minimum traffic, minimum services offered etc.)?

None

? Revenue share between operator and content provider (in %)?

M-blox get approximately 80% of the revenue in the split with Telia, but M-blox have to share those 80% with their content providers in the next step.

? Does M-blox experience that Telia (yes/no):

o Has their business model available in public?

No, but they should have had it available on the web

o Model is equal to all participants?

Yes

o Offer an open API? (Application programming interface)?

Yes

o Offer an open portal?

No, but they are working on it

o Model is based upon open standards?

Yes

? When it comes to the value network; how large is the influence of these seven different actors in the market?

o Infrastructure providers?

o Content providers/sub-contractors?

o Application providers?

o Content providers?

o Operators?

o Portals/Aggregators?

o Handset/terminal providers?

The operator possesses a controlling position in the market, but the aggregators have great influence, too.

? What has Telia done to increase the collaboration among your content providers and themselves (yes/no)?

- o Internet based developer forum?

No

- o Application developer education, courses or seminars/conferences?

No

- o Establishment of traditional development parks/technology parks?

No

- o Financial support of application developers or content providers?

No

- o Provide development computer resource sharing/hosting?

No

- o Provide development software resource sharing/hosting?

No

- o Risk sharing agreement among value network partners?

No

? Which adoption facilitation or limitations has Telia done to you (yes/no)?

- o Minimum number of services or registered end-users required for player to join the partnership offered by the business model?

No

- o Minimum financial requirements for joining the partnership offered by the business model?

No

- o Traffic dependant revenue sharing or financial support?

No

- o Specific actions have been taken to recruit significant application developers and content providers for m-blox?

Yes, at least some

- Specific actions taken to stimulate collaboration among application developers and content providers?

Yes

- Extensive use of terminal subventions?

Yes

- Extensive use of service adoption subventions?

No

- Usage costs made dependent of network effects (number of users)?

Yes

- Content or application provider service advertising provided by dominant player or operator?

No

? How successful is Telias business model in terms of:

- The number of services offered?

It is successful

- The number of end-users using the services?

It is successful

? Indication of the success of the business model in terms of the revenues generated by:

- Infrastructure providers
- Content provider sub-contractors
- Application providers
- Content providers
- Carriers/operators
- Portals/aggregators
- Handset/terminal providers

When it comes to the content providers, it has had a great success and it is not bad for the operators either

9.14 Namco

Namco is a game producer and they make different games to the Vodafone Live concept. I interviewed an employer, who wanted to be anonymous, about Namcos opinions on the business model that Vodafone offer.

? Most successful service?

Make only games

? Formal requirements to enter sharing agreement (e.g. minimum subscribers, minimum traffic, minimum services offered etc.)?

Quality control

? Revenue share between operator and content provider (in %)?

Namco could not answer since the revenue share is confidential

? Does Namco experience that Vodafone (yes/no):

o Has their business model available in public?

No, and it is ok that it is not on the web

o Model is equal to all participants?

Do not know

o Offer an open API? (Application programming interface)?

Do not know

o Offer an open portal?

Quite open

o Model is based upon open standards?

Mostly, yes

? When it comes to the value network; how large is the influence of these seven different actors in the market?

o Infrastructure providers?

o Content providers/sub-contractors?

- Application providers?
- Content providers?
- Operators?
- Portals/Aggregators?
- Handset/terminal providers?

The operator “calls all the shots”, but the content provider is important, too.

? What has Vodafone done to increase the collaboration among your content providers and themselves (yes/no)?

- Internet based developer forum?
Yes
- Application developer education, courses or seminars/conferences?
Some, it is getting better and better
- Establishment of traditional development parks/technology parks?
No
- Financial support of application developers or content providers?
No
- Provide development computer resource sharing/hosting?
No
- Provide development software resource sharing/hosting?
Some
- Risk sharing agreement among value network partners?
No

? Which adoption facilitation or limitations has Vodafone done to you (yes/no)?

- Minimum number of services or registered end-users required for player to join the partnership offered by the business model?
No
- Minimum financial requirements for joining the partnership offered by the business model?

No

- Traffic dependant revenue sharing or financial support?

No

- Specific actions have been taken to recruit significant application developers and content providers for m-blox?

No

- Specific actions taken to stimulate collaboration among application developers and content providers?

No

- Extensive use of terminal subventions?

Yes

- Extensive use of service adoption subventions?

Quite so

- Usage costs made dependent of network effects (number of users)?

Yes, it has an influence

- Content or application provider service advertising provided by dominant player or operator?

No

? How successful is Vodafones business model in terms of:

- The number of services offered?

It is successful

- The number of end-users using the services?

It is very successful

? Indication of the success of the business model in terms of the revenues generated by:

- Infrastructure providers
- Content provider sub-contractors
- Application providers
- Content providers

- Carriers/operators
- Portals/aggregators
- Handset/terminal providers

Namco did not want to comment this beyond that they are pleased with their share of the revenue.