KUNGL TEKNISKA HÖGSKOLAN

Mobile Internet Content Providers and their Business Models

- What can Sweden learn from the Japanese experience?

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Abstract

The mobile Internet has been a topic frequently discussed over the last few years. From a user's point of view and on a global perspective, the mobile Internet has not materialized into anything much else than mostly talk. However, there is one country where the number of users has increased tremendously since the launch of a mobile Internet service there. That country is Japan. In Japan three different mobile Internet solutions called i-mode, EZweb and J-Sky have attracted almost 30 million active subscribers.

The objective has been to study the mobile Internet phenomenon in Japan with the intent of relating the knowledge and experience gained there to the Swedish mobile Internet market. The focus of the study has been on the content providers, that is the companies who deliver content, such as news, information, games, and so on. The different business models used by the content providers have been of special interest in this connection.

When discussing the Swedish and Japanese market for the mobile Internet, there are some major differences between the two countries to take into consideration. One of the most important is the market size. Sweden's population amounts to mere 9 million in comparison to Japan's 126 million. A profitable business due to economies of scale is hence much easier to accomplish in Japan. The Japanese market is also more mature and the market's actors there have begun to realize ways in which to utilize the mobile Internet to the benefit of their businesses. Which of the market's actors that dominate is a third important area in which large differences can be detected. In Japan it is the mobile operators who dominate, they do not only act as mobile Internet service providers but also as access providers, terminal providers, retailers and content aggregators. In addition to these roles they also exercise significant control over the terminal manufacturing and over content providers. In Sweden the operators do not exercise the same overall control of the market, though their position towards the content providers will be one of dominance and control.

Cooperation with other actors in the value chain will be important for the majority of content providers. For some content providers it will be essential to establish a good relationship with the operators. This can spell the difference between success and failure. In Sweden the operators are currently developing systems that will give companies providing content to the operator's portal the possibility of collecting user fees on the mobile phone bill, a system similar to the one utilized in Japan. Relationships to other large portal owners will also be essential, even though at present these do not have a functioning micro payment system. Another relationship that is vital is the one with the customer. Competing for customers and then making sure that they remain loyal will be one of the content provider's primary objectives.

A large number of Japanese companies, both established and new businesses, have entered the field of content provision. Their aims of and methods for providing mobile Internet content vary greatly. We have identified six business models that the content providers have adopted: the *User Fee Model*, the *Shopping Model*, the *Marketing Core Business Model*, the *Improved Efficiency Model*, the *Advertising Model* and the *Revenue Sharing Model*. If certain specific prerequisites are fulfilled then some of these business models are likely to become successful in Sweden. These are the User Fee Model, the Marketing Core Business Model, the Improved Efficiency Model and the Revenue Sharing Model. The other two, the Shopping Model and the Advertising Model, will probably not be taken into use before the market and medium have developed further and become more mature. It is likely that additional models will appear in the future.

The Swedish content providers who will most easily benefit from content provision will be established businesses. By using the mobile Internet as an extra channel to existing customers, they will increase their possibilities for marketing, providing added services and making cost decreases.

New companies will face larger difficulties. Their main problem is where the revenues will be found and whether these will be sufficiently large to support the business. The indications are that only a minority of companies with a business based on user fees will be profitable. Likewise revenues from shopping or advertisements are only likely to support a relatively small number of businesses.

Acknowledgements

This report is a Master Thesis project carried out at the Department of Industrial Engineering and Management at the Royal Institute of Technology in Stockholm, Sweden. The report was produced in cooperation with the strategy consultancy firm Nordic Spring AB.

Working with this project has been both challenging and rewarding and we have thoroughly enjoyed the task. The work has also been very instructive, enabling us to learn a great deal about the mobile Internet in general, but also about the opportunities opening up for the companies who are in the business, as well as the difficulties and problems that they are likely to face.

We would like to thank all the people who have helped us and contributed to the work. First of all we would like to pay our gratitude to our supervisors, Gunnar Eliasson, from the Royal Institute of Technology and Robert Horvath from Nordic Spring AB. They have continuously contributed with valuable insight, experience and ideas.

We would especially like to thank all the people who have offered some of their time to take part in our interviews. Without them this report would not have been possible. Finally, many thanks go to the staff at the Swedish Embassy in Tokyo for all their great help and support while we were visiting Japan, and to the Shimada family who were kind enough to let us stay with them.

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Introduction

1.1 Background

Future predictions of the mobile Internet have been very positive. All over the world people are talking about the impact it will have on our lives and the new possibilities it will bring. In spite of this, the mobile Internet in Europe has yet been far from successful. The users are few and very little content is available. In Japan on the other hand, the mobile Internet has become immensely popular and is widely used since NTT DoCoMo launched their mobile Internet service i-mode in February 1999. Today i-mode has more than 17 million subscribers, who can choose between more than 20 000 different contents.

As a result of the widespread use of the mobile Internet in Japan, the Japanese market is more mature than the Swedish one. Different actors have found their roles to a larger extent than in Sweden and many of the market's initial problems have been solved. In Sweden, numerous companies are currently looking into the possibilities of providing content on the mobile Internet. However, since the market is so young, many are still fumbling in the dark. They have not yet come to terms with how they can best benefit from the new medium. By studying the situation in Japan, we believe that Swedish companies can learn some useful lessons. Therefore, we have chosen to focus our research on the Japanese content providers in order to see if there is anything the Swedish content providers can learn from their situation.

The report is commissioned by Nordic Spring, a Swedish strategy consultancy firm. It is a Master Thesis for the Department of Industrial Engineering and Management at the Royal Institute of Technology, Stockholm.

1.2 Objective

The thesis has two objectives;

1. To investigate the Japanese mobile Internet content providers and their business models.
2. To determine what Swedish content providers can learn from the Japanese experience.

In order to do this, the Japanese market for mobile Internet has been thoroughly studied. This was necessary in order to understand the environment in which the content providers act. The roles of the other actors in the value chain and how they influence each other are essential.

The focus of the study has been on the content providers. We have studied the Japanese content providers, their business models and content closely.

Keeping all the previous information in mind, the final part of the thesis deals with conclusions about what Swedish content providers should consider when active or entering the Swedish mobile Internet market.

1.3 Methodology

The research for this thesis started in September 2000 and the report was completed in January 2001. The course of action for our work was at an early stage identified as follows:

- Gather and study information on the mobile Internet in Japan
- Define the problem
- Structure the problem
- Study relevant literature
- Conduct interviews with interesting actors on the Japanese market

- Analyse the collected information and compile the results in a report

Our first task was to get an understanding of the mobile Internet market in general as well as the specific situation prevailing in Japan. We started by reading numerous articles and reports found on the Internet. Sources on the Internet were news sites, sites presenting statistical information, research institutes and established consultancy firms.

Together with our commissioner, Nordic Spring, we specified what segment to focus on. We soon came to the conclusion that it would be interesting to focus on the content providers. Mobile Internet content provision is an area that is likely to concern a large number of companies in the market, just like it has in the case of the Internet. More in detail we decided to concentrate on the business models that have evolved for content providers in the mobile Internet market.

After the problem had been defined, we structured it with the help of the "Minto Pyramid" (see section 1.3.1 below).

Hardly anything has been written about the content providers' business models so it was obvious that further research in the area was needed. An essential part of our work was therefore to conduct interviews with parties that had the knowledge and information that we were interested in. This information was gathered during a trip to Japan. More detailed information about the interviews can be found below in section 1.3.2.

Following our journey, the collected information was reviewed and analyzed. This was partly done with the help of relevant literature. However, we mainly relied on our own conclusions and ideas. The results are compiled and presented in this report.

1.3.1 The Minto Pyramid

To help structure the problem a method call the Minto Pyramid was used. It was developed by the consultant Barbara Minto and is described in the book *The Pyramid Principle* (1995). The aim of the method is to establish a clear set of relationships between the ideas and various parts of a problem, in order to get a structured and comprehensive picture of it.

A pyramid structure is created when using this method. At the highest level the main point of the problem is stated. The main issue should raise a number of questions in the reader's head - for example why or how? The statements made at the next level in the pyramid answer these questions. These statements in turn raise further questions, which are answered at the level underneath. Finally, at the lowest level of the pyramid, it should be possible to answer the questions through information gathering. Hopefully the method provides for both the problem solver and the reader to see the problem in a structured manner.

1.3.2 Interviews

To gain deeper knowledge about the mobile Internet market in Japan and the content providers there, it was necessary to conduct a number of interviews. The objective of the interview study was to learn about the Japanese market for mobile Internet from first hand sources and to investigate the Japanese content providers. We wanted to understand the content providers' different prerequisites and their strategies. The main focus was the content providers' business models.

Since the people who possessed the relevant knowledge are resident in and work in Japan, a visit there was necessary. The interviews were limited to a period of two and a half weeks, the duration of our trip. During the preceding months we contacted companies and individuals who we found interesting and requested time for an interview. The names of these companies were obtained from the Internet and from articles or recommendations through already contacted Japanese actors in the area. As we learned more about the Japanese market, the picture of which companies we wanted to visit became clearer. Before we left for Japan, practically all of the 25 interviews had already been booked. However, we managed to fit in

some additional interviews while we were in Japan, as new and interesting companies came to our attention.

As we wanted to clarify the overall picture of the mobile Internet market, we met with actors from nearly all segments in the value chain. We met with two of the largest mobile phone operators, a mobile phone manufacturer, a software manufacturer, marketing companies and a number of independent people from the mobile Internet area: journalists, consultants and researchers. The majority of the interviews were, however, conducted with content providers. The people that we interviewed at the content providers were generally working in the mobile Internet area at a middle management level. The interviews lasted between one hour and two and a half hours, the average interview being close to two hours.

We decided to perform so called semi-structured interviews[1]. Consequently a sequence of themes was prepared before each interview, as well as suggested questions. However, during the interviews flexibility allowed changes in the sequence or form of the questions in order to follow up on the answers given by the respondent. In this way the flow of the interview becomes more natural. Both before and after the interviews there was usually some "small talk" which often provided us with additional interesting information. A short list of the topics covered during the interviews can be found in Appendix 4.

The majority of the interviews were conducted in English. On one occasion the interview was performed in Japanese with a translator present, other times the languages were mixed. As the respondents usually were at least two or more, the one with the best knowledge of English did some translating on behalf of the others. Generally we had no significant problems understanding each other. During the interviews we took notes by hand. After the interview we compared our findings to see if we had understood things differently. If there were any discrepancies or queries the respondents were contacted by e-mail to clarify facts.

1.4 Delimitations

We have chosen to focus our study on the content providers within the Business-to-Consumer (B2C) sector rather than Business-to-Business (B2B) or Business-to-Employee (B2E). The B2C market has grown large in Japan today, whereas the other markets have not yet taken off. The applications for B2E are limited to a number of groupware and in the B2B area there are even fewer products available. In this respect the Japanese market is just as immature as that in Sweden, and therefore there is not much to learn from a Swedish point of view.

Another aspect where we have chosen to limit our study is with regards to what device is utilized to access the mobile Internet content. Mobile Internet in Japan is accessed mainly through users' mobile phones. In Europe, this will also be the case initially, as it is a device that is already widespread. As a result, we have not taken into account the wide range of other products that also enable mobile Internet access such as PDAs, portable computers, navigation systems, playstations etc. We believe that some of these latter devices will play an important role as access devices in the future, either as specialized tools or with integration of functions from different types of terminals into one multifunctional one. However, in the current state of the mobile Internet development the mobile phone is by far the most widely used access device and therefore the most interesting one for this thesis.

Japan offers three digital mobile phone systems today, PDC (Personal Digital Cellular System), cdmaOne and PHS (Personal Handyphone System). We have chosen not to investigate the mobile Internet service offered by PHS. PHS was created as a system for personal cordless telephones for indoor as well as outdoor use. The system has many limitations, for example incomplete coverage and restrictions in movement while using the device, but also advantages in terms of transmission speed and price for the user. The reason for excluding PHS this is partly because PHS phones are not fully regarded as mobile phones,

[1] Kvale, 1996

a distinction is usually made between PHS and the other mobile phone systems. Also, the market share of PHS is small (less than 10 percent[2]) and declining. We believe that the system will be phased out in time, which also makes it less interesting for this study. Finally, the information available about the PHS mobile Internet service in English is very limited, which made it difficult for us to study.

The knowledge about the Japanese content providers will only be applied to actors' opportunities on the Swedish market. We have chosen to exclude the European market since it is generally still very immature. Sweden also falls into this category, nevertheless it is in the frontline of the communications market and it is very likely that the Swedish market will be among the first in Europe to start experiencing a significant growth within the mobile Internet area. Conclusions drawn for the Swedish market will most probably be applicable to the Scandinavian as well as to the rest of the Western European market.

1.4.1 Limiting Factors

One limiting factor has been the incomplete information available in English about the mobile Internet services in Japan. Websites, articles, reports and statistics are mostly available in Japanese. Also, almost all of the information that does exist in English, is focused on i-mode. Finding facts about the other services is difficult.

Another limiting factor is the fact that the mobile Internet market is very much in its infancy. Prerequisites change fast and what is true today might not be true tomorrow. Much of the information about the current situation of the market will therefore not be valid within a limited period of time. Some information can even be out of date in a couple of months. However, the general results and conclusions in this report will hopefully have a longer validity.

1.5 Definitions

Mobile Internet

Mobile Internet is in this report defined as 'data transactions conducted over a mobile communication system'. Data traffic or in other words, non-voice traffic, is a broad term that among other things includes SMS, e-mail, downloading websites and advertising.

Mobile Internet Service

A mobile Internet service enables a user to connect to the Internet through his mobile phone. These are the services that the operators provide when they enable access. For the users the service is accessed through a menu on the phone, from where further access to content on the Internet is possible. According to the above definition, i-mode, EZweb and J-Sky are mobile Internet services.

Content

Content is all the services and applications that are presented to an end user over the mobile Internet. This can be everything from sites with information and databases, pictures sent as messages, advertisements, e-mail and games.

For definitions of actors in the value chain such as **Mobile Internet Service Provider**, **Content Provider**, **Content Aggregator** and **Content Owner** see section 2.1.

[2] Telecommunications Carriers Association's website, 2000-11-28

1.6 Synopsis

To guide the reader of this report we give a short description of the report's outline below.

Chapter 2-4 provides the user with background information about the mobile Internet market in Japan and the content that is available there. The central part of the report is Chapter 5-7 where the content providers and their business models are described closely and then related to the current situation in the Swedish market.

Chapter 2 gives an overview of the mobile Internet market in Japan. This chapter explains the mobile Internet value chain, the roles of the operators and the operators' services.

Chapter 3 continues with a brief explanation of the success of the mobile Internet in Japan.

Chapter 4 describes the content on the Japanese mobile Internet. This chapter attempts to give the reader an understanding of general characteristics of the mobile Internet medium as well as the situation in Japan today.

Chapter 5 describes who the content providers are and categorizes these into four main groups.

Chapter 6 explains what business models the content providers use, how these function and how successful they are.

Chapter 7 relates the knowledge gained in Japan to the Swedish market. General prerequisites are discussed and conclusions are made regarding what Swedish content providers should have in mind when conducting business concerning the mobile Internet.

A glossary, with explanations of all the abbreviations used within the report, can be found in *Appendix 1*.

2 The Japanese Market

In Chapter 2 we give an overview of the mobile Internet market in Japan. We start by defining the mobile Internet value chain. Then the operators and their dominant roles are described. The chapter goes on to explain the operators' mobile Internet services, where i-mode so far is the most successful and well-known one. We also take a closer look at the mobile Internet users. A short description of the mobile phones and how the mobile Internet services function, concludes the chapter.

2.1 The Value Chain

A value chain is traditionally defined as a sequence of activities that form and add value to a product. Porter's[3] well-known value chain describes the internal processes of a company. However it is also possible to use a value chain to describe the activities that take place as a product passes through different actors in the market, on the way to the end user.

In order to provide an overview and understanding of the activities and actors of the Japanese mobile Internet market we have constructed a value chain. The chain presents the activities that are carried out in order to offer a complete mobile Internet service to the customer.

The value chain for mobile Internet in Japan is similar to ones used in other parts of the world. However, some terminology might differ between Japan and Europe. We have used the names and terms as we have understood them to be defined in the Japanese market. The roles and dominance of the actors also differ between various parts of the world.

The chain shown below is not complete; we have chosen to exclude those activities that are of no or little interest to this report. Therefore, the three parts of the value chain have been cut close to the customer. The actors excluded are mainly technology enablers such as network constructors, application providers, terminal hardware and software providers.

The result is a value chain that looks as follows:

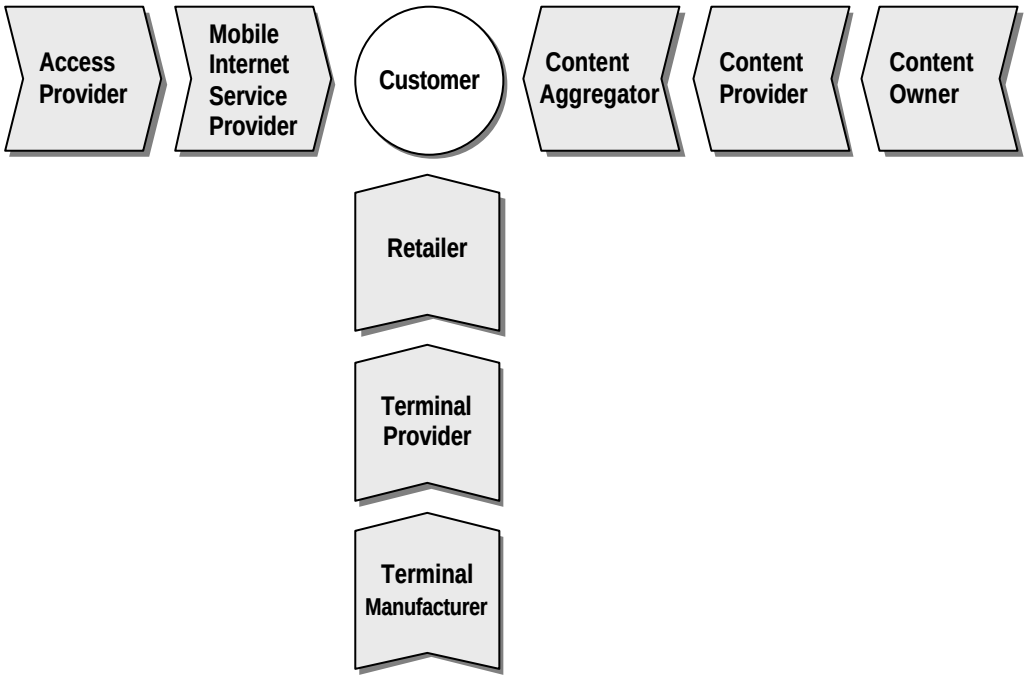


Figure 1. The mobile Internet value chain [Devine, Holmqvist, 2000]

[3] Porter, 1998

Customer

The target for the activities in the value chain is the mobile Internet user. It is the customer who will use the final products realized by the activities in the chain. The customer is therefore presented in the middle of the figure. As the mobile Internet is accessed, the user comes in contact with products or services from all the three chains. To access content on the mobile Internet, the user needs a terminal; in this case a mobile phone. Furthermore, to reach the mobile Internet, the user needs access to the network. This service is obtained from the mobile Internet service provider. Finally the user wants access to content. This content can be reached directly from the content providers or though a content aggregator.

Access Provider

As the name states, the access provider supplies users with access to the network. They own, operate and manage the network and control the functionality of the mobile services. In Japan there are three large access providers or, in other words, mobile operators: NTT DoCoMo, KDDI and J-Phone.

Mobile Internet Service Provider

Access to the mobile Internet is provided by the mobile Internet service provider. Services and content can be reached through a menu provided over a network connection. The users are charged for the traffic they generate. The MISPs have the contract and billing relationship with the end user, but do not necessarily own the network infrastructure. However, in Japan the three largest MISPs also function as Access Providers.

Content Aggregator

Content aggregators are companies that aggregate content on a site, nowadays often termed as a portal. The content aggregators are only concerned with *collecting* content for their specific portal, not adding content or services themselves. Excluded from our definition are therefore all companies that in any way are involved in the process of developing, designing or maintaining the content. According to our definition, the three mobile phone operators NTT DoCoMo, KDDI and J-Phone all act as content aggregators.

Not all content has to be aggregated to reach the user. In spite of this we have chosen to place the content aggregator in between the customer and the content provider in the value chain. The reason is that the content aggregation done by the Japanese operators is a very important channel to reach content and many customers use it. We also believe that offering content through portals will be the most effective way to get the mobile Internet users attention in general.

Content Provider

Content providers make content available to the user over the mobile Internet. They own a site but not necessarily the information that is offered on the site. The customer can access the content either through a content aggregator or without an intermediary.

Content Owner

A content owner is, as the name states, the owner of content suitable for the mobile Internet. This is most often some kind of information. Sometimes the content owners themselves make their information available on the mobile Internet, in which case the company is also a content provider. In other cases the information can be given to another company, which in turn presents it on the web.

Retailer

Retailers are the companies that sell mobile phones to the end users. These can be traditional mobile phone stores or any other actors that see benefits in providing the users with a mobile phone. The three mobile phone operators all have their own chain of retail stores.

Terminal Provider

The terminal providers act as intermediaries between the terminal manufacturers and the retailers. They order the phones from the terminal manufacturers, brand them with their name and distribute them to the retailers. In Japan the terminal providers are the mobile operators.

Terminal Manufacturer

The terminal manufacturers develop and produce the terminals. In Japan the largest mobile phone manufacturers are Matsushita, NEC, Fujitsu and Mitsubishi.

2.2 The Roles of the Operators

The operators play a dominant role on the Japanese mobile Internet market and they currently profit the most from the mobile Internet business. Their power is based on the strong relationship they have with their customers. The operators do not only act as access providers but also as mobile Internet service providers and they exercise significant control over the mobile phone manufacturing industry as well as over the content industry. In this way they build a solid wall around the customer, a so-called "walled garden".

2.2.1 The Operators

There are three main mobile operators in Japan; NTT DoCoMo, J-Phone and KDDI. These three companies offer three different mobile Internet services. In addition to these three main companies, there are a few smaller operators and currently at least one virtual operator.

NTT DoCoMo is the largest operator with a market share close to 55 percent[4]. The company was established by Japans largest telecommunication operator NTT (Nippon Telegraph and Telephone Corporation) in 1991[5]. NTT today hold 67 percent[6] of NTT DoCoMo's shares. The majority of NTT's shares are in turn owned by the Japanese government[7]. NTT DoCoMo offer a mobile Internet service called i-mode.

KDDI/au has a market share of 23 percent[8]. KDDI is the result of a merge that took place in October 2000[9], between the long distance telecommunications company DDI Corp., Japan's main international operator KDD Corp. and mobile phone operator IDO. The mobile service was in November renamed au, which is now a wholly owned subsidiary to KDDI.[10] The name of au's mobile Internet service is EZweb.

KDDI/Tu-Ka belonged to DDI before the merge of DDI, KDD and IDO. Tu-Ka is today an affiliate company of KDDI. The operator's main shareholders are KDDI, Motorola, Sony and

[4] Telecommunications Carriers Association's website, 2000-12-15

[5] Shimomae, Japan Telecom, e-mail 2000-12-01

[6] NTT DoCoMo's Annual Report, 1999

[7] Eurotechnology's website, 2000-11-23

[8] Telecommunications Carriers Association's website, 2000-12-15

[9] Scuka, Japan Inc, November 2000

[10] KDDI's website, 2001-01-10

Hitachi. Tu-Ka was established in 1991 and currently holds about 6 percent[11] of the market. Similar to au they offer EZweb as their mobile Internet service.[12]

J-Phone is the third largest operator with 15 percent[13] of the market. The company was established in 1991 and is owned by Japan Telecom (54 percent), Vodafone AirTouch (26 percent), and British Telecom (20 percent).[14] J-Phone has named its mobile Internet service J-Sky.

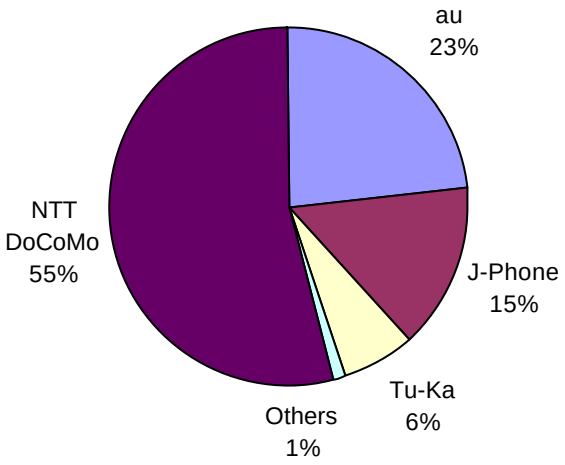


Figure 2. The mobile phone operators' market share [Telecommunications Carriers Association, 2000].

The Dominance of NTT DoCoMo[15]

NTT DoCoMo is the most dominant player in the market. In many cases they lead the way and the other operators follow their example.

NTT started their mobile service in 1979 and had a monopoly until 1987. There is no doubt that NTT's early entry to the market has built the strong reputation among Japanese consumers, which in turn has contributed to NTT DoCoMo's dominant position today. However, there are several other reasons that have contributed to NTT DoCoMo's growth also after the deregulation. The increase of DoCoMo's subscriber base cannot be accounted for solely by the previous monopoly.

When the new carriers were allowed to enter the market, their service territories were divided and no one other than NTT DoCoMo had nationwide service coverage. For example, DDI were only appointed western Japan whereas IDO only eastern Japan. This strange situation was created due to the political pressure from the US to make Motorola's system available in Japan. As a result, the NTT group had a big advantage over its competitors in respect of the nationwide coverage.

The network technologies adopted by NTT DoCoMo's competitors were no more advanced than NTT DoCoMo's network. In fact, J-Phone and Tu-Ka adopted NTT DoCoMo's system, which created a dependency situation. IDO and DDI had a different system from NTT

[11] Telecommunications Carriers Association's website, 2000-12-15

[12] Shimomae, Japan Telecom, e-mail 2000-12-01 (Tu-ka's website)

[13] Telecommunications Carriers Association's website, 2000-12-15

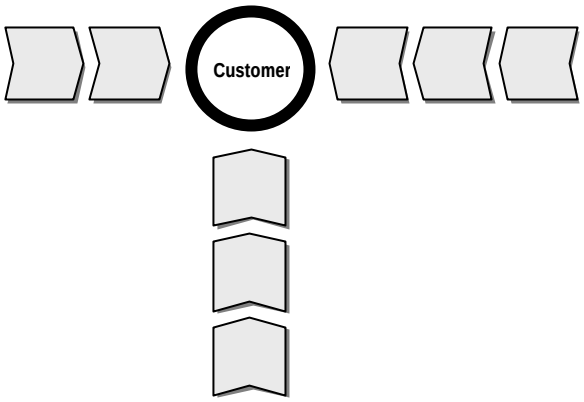
[14] GSMBOX, September 2000

[15] Yamano, Eupholink, e-mail 2001-01-09

DoCoMo, but it was analogue and not replaced by CDMA until 1999. This was a too late to capture the excitement of the Japanese consumers.

NTT DoCoMo have lead Japan into the age of the mobile Internet. The success of i-mode has further increased the operator's already strong position. The competitors are doing their best to catch up, but it is not an easy task.

2.2.2 The Power of the Customer Relationship



Before the introduction of the mobile Internet, the operators had a close relationship with their mobile phone customers through their role of service providers. Later when the operators entered the mobile Internet business, they could take advantage of this relationship. They had, for example, the strengths of the already existing billing system and the trust that the customers had developed for the providers over time. The customer relationship is the foundation on which the Japanese operators build their mobile Internet business. It is furthermore one of the most important reasons behind the operators' dominant position in the Japanese market. This relationship gives the operators an advantage over other actors in the market, which is difficult to overcome.

2.2.3 The Mobile Operators' Vertical Integration

As mentioned in the introduction to this chapter, the operators dominate the Japanese market for mobile Internet. They themselves take on many different roles. The operators also exercise significant control over other parts of value chain. In other words the operators' strategies have been that of vertical integration.

Vertical integration is, according to Porter[16]:

"...the combination of technologically distinctive production, distribution, selling, and/or other economic processes within the confines of a single firm."

In this discussion, we view the operators as originally being access providers but also acting in the role of mobile Internet service providers. They integrate vertically by incorporating processes such as mobile phone provision and content aggregation. Other activities, such as phone manufacturing and content provision, are what Porter calls quasi-integrated. That is, the operators have established a very close relationship with the phone manufacturers and content providers respectively. The relationship between the operators and the phone manufacturers build on cooperative R&D, whereas the one with the content providers is established through exclusive dealing agreements.

Vertical integration often brings several benefits to a company, but it might also include some extra costs. Quasi-integration can reduce some of the drawbacks while keeping many of the advantages. As in the case of the Japanese operators' strategy in the mobile Internet business the major advantages are as follows:

- *Assure Supply and/or Demand*. By integrating vertically, the operators / mobile Internet service providers assure the supply of mobile phones as well as mobile Internet content. This is the most important effect of the integration of processes.

[16] Porter, 1998

- *Influence on Processes*. The close relationships that the operators / service providers have developed with the other actors give them an insight into the technology produced in all parts of the value chain. With this knowledge and their good possibilities to influence they can adapt the network, mobile phones and content to each other.
- *Elevate Entry Barriers.* A company that wants to enter the Japanese market as a mobile Internet service provider will have to overcome very effective entry barriers. As a result of extensive vertical integration, the operators have taken on many roles. For a new entrant, trying to survive without the same integration and trying to manage these roles will be tough, if not impossible.

2.2.4 The Operators Control which Phones are Available on the Consumer Market

In Japan the customer does not buy a Panasonic, Fujitsu or NEC mobile phone. Instead they buy a NTT DoCoMo, KDDI or J-Phone phone, manufactured by Panasonic, Fujitsu or NEC. The mobile phones are not labeled with the name of the manufacturer but with the name of the operator and only this operator's service can be used from that phone. If the customer decides to subscribe to an operator's service he or she has no option but to buy a phone that is supplied by that specific operator. The customer cannot change operators without changing phones!

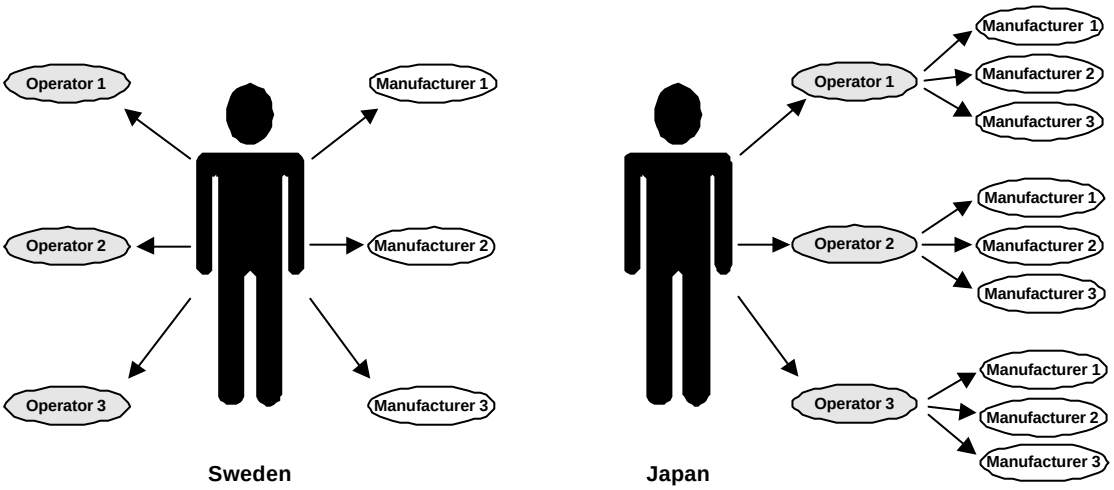
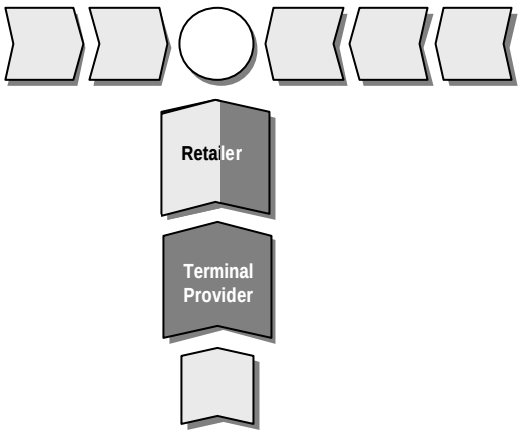


Figure 3. Relationships between the user, the operators and the phone manufacturers [Devine, Holmqvist, 2000]

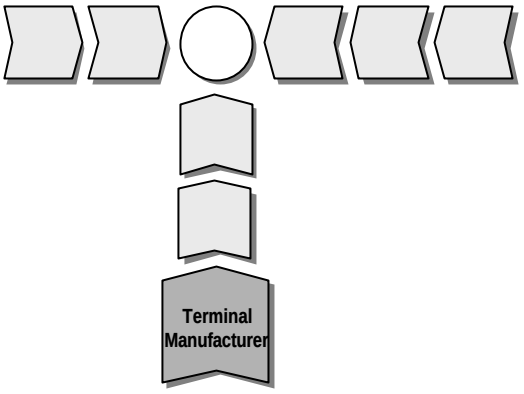
The Operators Act as Terminal Providers and Retailers

Mobile phone retailers do not buy phones from the mobile phone manufacturer. Instead they buy them from the operators, who in their turn have ordered them from the manufacturers. The operators buy the phones on OEM basis (Original Equipment Manufacturer). In other words, they buy phones from the manufacturer and then sell them under their own company name and brand. This is why the phones carry the brand name of the operators. Consequently the operators are able to fully control what phones are available on the consumer market.



The operators all have their own chain of retail stores where they sell mobile phones to the customers. NTT DoCoMo being the largest actor naturally has the largest number of shops. In addition to their own stores, the operators also sell their phones through independently owned retail stores.

The Operators Control the Mobile Phone Manufacturing[17]



The operators influence the looks and features of the mobile phones in a very explicit manner. They develop specifications for the next generation mobile phone models and give them to the manufacturers, so that the phones will support the services that the operators want to offer.

NTT DoCoMo has its own research center where, amongst other things, research and development of new mobile phone technologies is carried out. In cooperation with a number of specially selected phone manufacturers, NTT DoCoMo work on a specification for the next generation mobile phones. Every member of the group contributes with research and ideas and in return they get to take part of the other members' contributions. The cooperation between the companies results in a faster development process and superior technical solutions. For manufacturers belonging to the group, the main gain is the ability to actively influence the final specification and as a consequence the manufacturers can work in a proactive manner. Since they take part of the specification before it is released they can start their development a couple of months before manufacturers that are not members of the group. The group members are the largest and most successful phone manufacturers in Japan; Matsushita, NEC, Fujitsu and Mitsubishi. It is very difficult for the other more than ten manufacturers to compete with these.

For the development of mobile phones intended for the 3G networks, NTT DoCoMo has selected a group of ten different phone manufacturers to cooperate with. This group is intended to function in the same manner as the previous group of four manufacturers.

Even though KDDI and J-Phone do not conduct research themselves, the process of developing new mobile phone models is very similar to that of NTT DoCoMo. They too release specifications to the manufacturers. However, since KDDI and J-Phone lack inhouse research, their requirements are generally not as specific as NTT DoCoMo's with regards to what technical solutions should be used in the phones. It is primarily up to the manufacturers to decide what technology to use, as long as the result satisfies the operators' specifications.

Between ten to twelve months before the planned release of a new phone model the operator releases the final specification to the manufacturers. The manufacturers do their best to develop a phone model that will satisfy the specification and approximately half a year later they return with a prototype, including functionality, design and colour descriptions as well as a detailed delivery plan. Thereafter negotiations about price and quantity take place. The competition between the manufacturers is fierce and the operator has sole power over how much each manufacturer gets to sell. The testing phase starts a few months before the new phones are to be released on the market. The mobile phones are tested thoroughly, every single bug has to be detected and eliminated before the new model reaches the market. The quality requirements are high, but as a consequence Japanese mobile phones are generally considered to be of better quality than the ones that are sold on the US or European markets.

[17] Söderqvist, Ericsson Mobile Communications Japan KK, interview 2000-11-10

The control exercised by the operators on the manufacturing industry results in high quality phones being developed in a short period of time. The operators see to that the phones suit the services that they themselves offer. They also make sure that only phones that they have approved of reach the customers. However, the manner by which the development process is carried out is very expensive for the manufacturers. This especially since they often have to develop three totally different phone models due to significant differences in the operators' specifications. The consequence of this is that only the largest mobile phone manufacturers in the Japanese market actually make a profit from their manufacturing.

2.2.5 The Operators Control what Content is Available on the Consumer Market

The Japanese operators have adopted a "semi-walled garden" approach in regards to what content is available through their services. Content is divided into *official* and *unofficial* (the latter is also referred to as *voluntary*) sites. The former are listed on the menu of the mobile perators' services and can easily be reached by four or five clicks down the menu tree. The latter can be reached by users in other ways (see Appendix 2).

In the case of NTT DoCoMo's i-mode the sites are all reached through a relay station referred to as an "i-mode server" or "i-mode center". The official sites are connected directly to the server, which means that the data is not transported over the Internet on its way from the content provider's server to the user. The i-mode server also enables Internet access from i-mode phones by relaying communications between the NTT DoCoMo packet network and the open Internet network. This is the manner in which unofficial sites are reached.[18]

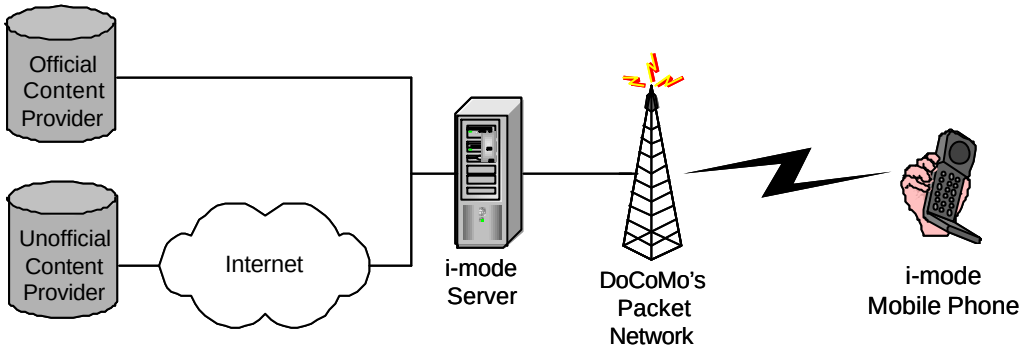
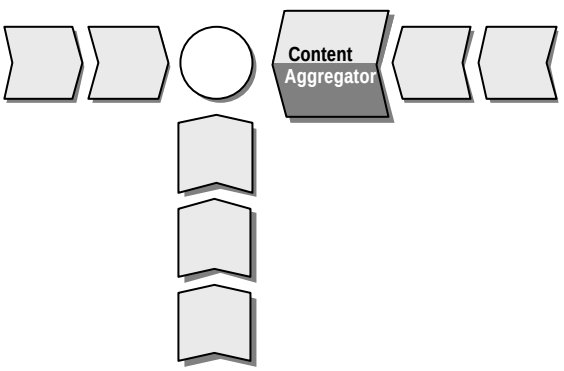


Figure 4. NTT DoCoMo's network structure [NTT DoCoMo 1999, modified]

The Operators Act as Dominant Content Aggregators

A majority of the customers use the mobile Internet service's menu primarily for accessing sites. It is easy to use, convenient and they know that the content offered there is of high quality. Consequently the official sites generally become the most popular ones. The operator's role of content aggregator is therefore very important. In addition to the operators' menus, there are also a number of alternative unofficial portals through which the customer can access content.



[18] Kamada, 2000

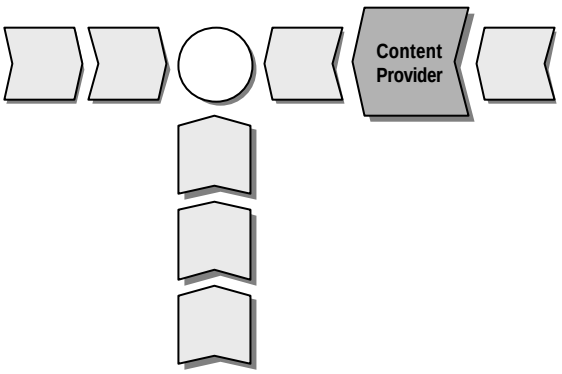
The operators aim at making the official content an attractive selection for the users. The content must be of high quality and the mixture of content should be such that all the customer's needs are satisfied. The operators are therefore very selective both in their choice of official content providers and official content.

There are several benefits connected with being an official content provider (see section 5.3.1). These advantages are so important that almost all content providers aim at becoming official. However, it is not an easy task. Becoming an official content provider for EZweb or J-Sky is considered difficult, but it is even harder to get approved of by NTT DoCoMo. The reason for this difference is most likely that NTT DoCoMo can afford to be more selective than the other operators. They are the leading mobile phone operator and their mobile Internet service has more than three times the number of subscribers than any other operator. The success of i-mode, combined with the fact that it is a relatively easy technology to implement, makes content providers want to offer their content primarily on this service. NTT DoCoMo's criteria for selecting content are that it is should be new and particularly interesting and also add to the general collection of content on the menu. The operator also makes sure that the content provider has a well functioning and reliable technical platform to work from. High quality content is essential for becoming official, but equally important are the right connections and relationships with people at NTT DoCoMo.

The Operators Control the Official Sites

The main aim of each of the operators is to offer a service that is attractive to the users. They carefully control the content on the menu, that is the official content, to make sure that it is satisfactory to the users. For example, they are very careful not to include sites that in any way can be conceived as offensive. It would damage them to have their brand names connected with such things as pornography or crime.

If the operator is of the opinion that the content includes information or services that is not relevant to the content portfolio, or will not be appreciated by the users, or could hurt the reputation of the service, then the content provider is asked to remove that part. Furthermore, the operators influence the price of the content by suggesting a suitable price level or, as in NTT DoCoMo's case, always approving the user charges before letting a content become official.



NTT DoCoMo started by having three basic rules for the official sites. These are a good illustration of how the operator controls the content. The rules have changed somewhat since then, but large parts of the original formulations still remain.

- *Advertisements*. From the beginning the official sites were not allowed to include any kind of advertisements. The reason for this was said to be care of the customer. Since the user pays for the download of any content, then he or she would involuntarily have to pay for the data traffic that is generated by the advertisements. However, in June 2000 NTT DoCoMo decided to remove this restriction, a result of the pressure brought upon them by the content providers. The providers pointed out that advertisements are an important source of income and that in the long run they probably would not be able to do without them.
- *"People to People" Sites.* No sites with the aim of helping users get in touch with other, for them previously unknown users are allowed. Examples of sites that are sorted under this category are bulletin boards, chat sites and dating services. According to NTT DoCoMo these types of sites are prohibited because of bad

experiences from similar ones on the fixed Internet. There have been cases where crimes have been committed in connection to these kinds of sites. NTT DoCoMo does not want to be associated with such activities.

- *Links.* At first no links were allowed from an official i-mode site to any other sites, official or unofficial. This was because NTT DoCoMo would loose control over which sites the user could reach through the i-mode menu. Once again the aim was to keep the user from reaching socially undesirable sites while at the same time avoiding NTT DoCoMo from being associated with that kind of content. However, with the introduction of advertisements the operator had to partly abandon this rule. Advertisements on the web often rely on links to a site with further information. As of November 2000, official sites were allowed to link to other official sites following special permission from DoCoMo. Permission has been given in cases where there are banner-ads that are considered to be appropriate. Links to unofficial sites are still prohibited.

While the operators exercise strict control over the official content they do not in any way influence the unofficial sites. One of the main characteristics of the Internet is that it is free space for everyone. The Japanese operators have made the technology platforms for their services open standards. Therefore, it is possible for anyone to create his or her own unofficial site. The operators do not put any restrictions on the content that is available as unofficial. Even so, theoretically they can still exercise some control over them. Since all users access the operators' servers to reach the Internet the operators can build barriers for specific sites if they so wish, simply by stopping the URL from passing through their own servers.[19]

2.2.6 Conclusion: The Operators Control the Mobile Internet Market

The operators have a dominant position in the mobile Internet market. Apart from being the mobile Internet service providers, they also act as access providers, terminal providers and content aggregators. Additionally they exercise significant control over the terminal manufacturing and the content provision. As a result the Japanese operators fully control the customers' mobile Internet experiences.

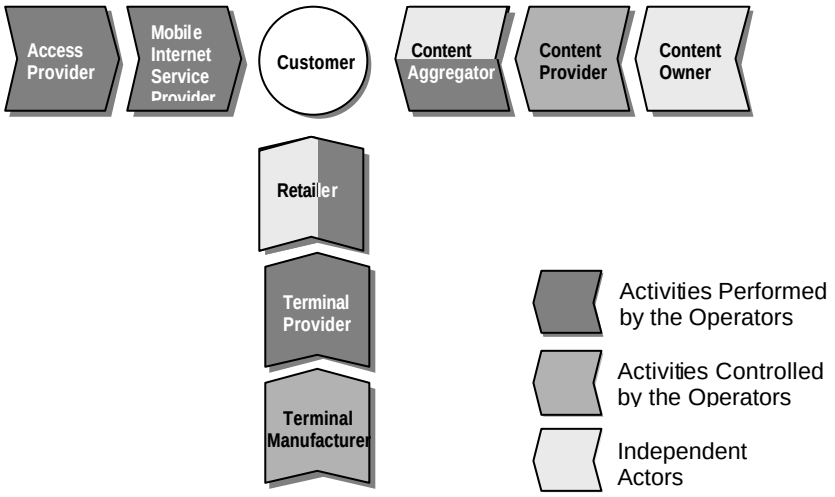


Figure 5. The mobile Internet value chain as influenced by the operator [Devine, Holmqvist, 2000]

[19] Jonason, Ericsson / KTH, e-mail 2000-12-06

Furthermore, each operator locks its customers to the mobile Internet service that it provides. It is not possible for a customer that has a specific mobile phone operator to choose the Internet service offered by another operator. An NTT DoCoMo customer is for example locked to i-mode and the i-mode menu; he or she cannot choose to use J-sky or EZweb instead. A customer's mobile Internet experience is thereby to a great extent limited to what his or her operator can offer.

Entry Barriers

As mentioned previously one factor that has enabled the operators to become so dominant has been their monopoly on access to their customer base. Through the control exercised on other parts of the value chain, the operators have been able to take an even firmer grip of the customers and therefore the whole market. As a result, there are a number of entry barriers that hinder successful entry and competition for new operators. One entry barrier previously mentioned is that of vertical integration. Other entry barriers are the strong brand names that the mobile phone services have built over time. Furthermore, switching between operators results in significant costs for the customers since they have to change their phone sets in the process. Another important factor is the know-how of the current operators. As previously mentioned, NTT DoCoMo have extensive R&D experience that has no doubt favoured their position in the market.

Becoming established as an operator by building an entirely new network is unlikely to be interesting due to the enormous investments required. A way to enter the market and at the same time avoid some of the entry barriers is buying shares of the existing operators. Vodaphone and British Telecommunications have bought 26 and 20 percent respectively of J-Phone.[20]

Business as a virtual operator can also be a means of getting around some of the entry barriers. The virtual operators do not have to build networks of their own, but rely on the excess capacity sold by the network owners.

The Operators' Roles in the Future

In other parts of the world, the power balance in the mobile Internet market is different. In Europe and the US operators have nowhere close to the amount of power possessed by their Japanese counterparts. The question is whether the situation in Japan is durable or if the market structure will change. Innovation in business models and products could change the structure of the market and bring the operators down from their thrones. However, this seems highly unlikely in the near future, especially after the success that the mobile Internet services have experienced during the last few years. This has rather strengthened the operators' relationships with the customers and therefore also increased their power over other market actors.

2.3 The Mobile Internet Services

The three major mobile phone operators in Japan today, NTT DoCoMo, KDDI and J-Phone, all offer mobile Internet services. These are called i-mode, EZweb and J-Sky.

i-mode was launched by NTT DoCoMo in February 1999. While the rest of the world's mobile community was discussing the WAP protocol, NTT DoCoMo were already ready to launch mobile Internet in Japan. With the WAP discussions not progressing fast enough for NTT DoCoMo's taste, they went ahead and designed their own solution. The technology used was not as sophisticated as the one planned by the WAP-forum but it was considered good enough, and most importantly it was a complete solution that was ready for the market. The

[20] GSMBOX, September 2000

service was initially intended as an application for businessmen. However, that service was not very successful so the whole concept was soon repackaged as a private application and introduced as i-mode.

The service today offers content on more than 600 official sites.[21] Apart from the large number of official sites there are also, just like on the Internet, a large number of unofficial sites. This number currently exceeds 20 000. As of January 2000 i-mode has more than 17.4 million users[22]. The target group is said to be universal[23].

EZweb is the service offered by KDDI (au and Tu-ka). It was launched in April 1999[24] by Tu-ka and later adopted by KDDI. At the same time, EZweb absorbed the substantially similar service EZaccess, which was previously offered by IDO.[25] (KDD, DDI and IDO, became KDDI in October 2000.) In November 2000 there were about 340 official content providers on EZweb.[26] The service has 5.2 million subscribers (December 2000), mainly targeting businessmen (au) and young women (Tu-ka).

J-sky is J-Phone's mobile Internet service which was launched in December 1999. J-Phone launched a similar but simpler service called Sky-web in January 1999, one month before i-mode was released. Sky-web could offer HTML text but no sound or graphics. The service never became a success and is not widely used today. J-Sky on the other hand has about 400 official content providers[27] (October 2000) and about 4.5 million users (December 2000). J-Phone target young women in their 20's and 30's.

2.3.1 Technology

i-mode, EZweb and J-Sky are all built on different technical solutions. The most important difference is that they all use separate markup languages in which the contents of the sites are presented. I-mode uses compact HTML (cHTML), a subset of the language used to code content over the Internet today, HTML. The content of J-Sky is presented in MML, a language with some similarities to HTML. Content on the third solution, EZweb, is presented in HDML. This solution is sometimes referred to as a "WAP solution" which is not entirely true. It is rather a "pre-WAP solution", based on an early WAP developed by the company Phone.com.

The usage of three different markup languages has significant consequences for the content providers. If a company wants their content to be available to all the mobile Internet users, it means that the content must be translated into three different languages. The content providers must have programming competences in three separate areas. The most convenient solution has been i-mode's cHTML. This is because of the fact that the programmers are used to programming web pages in HTML, therefore the step to cHTML is small. The most difficult solution has been HDML since this is not at all related to the HTML used today.

There are companies that provide solutions to this problem, for example by using a system that represents the content in only one markup language, XML. A program then automatically translates this content into the three different markup languages needed for the different services; cHTML, MML and HDML. These solutions are still not optimal, the content is always a bit distorted. The best results are still produced when the content is manually coded into each language. In the future, all content will be represented in XML and this problem will gradually disappear.

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[21] NTT DoCoMo's website, December 2000

[22] Telecommunications Carriers Association's website, 2001-01-08

[23] NTT DoCoMo Technical Journal, October 1999

[24] AsiaBizTech, November 1999

[25] Scuka, Japan Inc, November 2000

[26] KDDI's website, 2000-01-08

[27] J-Phone, interview, 2000-10-31

Another factor that separate the solutions from each other is whether they are packet switched or circuit switched. Two of the solutions, i-mode and EZweb, are packet switched. As a result the users do not occupy a full line when connected and they are only charged for the amount of data that is actually transmitted when online. J-Sky on the other hand is currently circuit switched. Being circuit switched means that the user is connected to the network all the time the service is utilized. As a consequence users reserve more space and the probability of the network being overloaded increases. J-Phone plan to introduce a packet switched network in mid 2001.

2.3.2 Revenues for the Operators

The operators are the ones making the largest profits from the mobile Internet today. Taking NTT DoCoMo as an example, they earn 25 times as much from their mobile Internet service as all the official content providers put together.[28]

NTT DoCoMo has, by so called Innovative Pricing[29], found new ways to profit on an old product, the mobile traffic. The content providers supply the customers with value-adding products, but it is the operator that makes the money. Through utilizing the parameters mobile access and end user billing the operators let content providers increase their own revenues, while the content providers in turn only get a small portion of the total revenues generated.

There are three main revenue streams for the operators that derive from the mobile Internet service's users, see figure 6. The revenues are a result of different fees that the user pays; a monthly fee for the service itself, a communication fee for the traffic that they generate and a monthly fee for any content that they subscribe to, which the operator gets a percentage of.

- *Subscription Fee.* Through paying the basic subscription fee the user gets access to the service and can send e-mail, short messages, use the service menu and browse the Internet. For access to i-mode NTT DoCoMo charges 300 yen per month.[30] The idea is that the price of the service has to be comparable with competing products. Thus, the basic fee is about the same as the price of a monthly magazine. The mobile service au is a little cheaper charging 200 yen per month while J-Phone does not charge a monthly fee at all.
- *Traffic Fees.* Data traffic fees are the operators' main revenues from the mobile Internet service. The traffic fee depends on how much traffic the user has generated on the operator's network. Every time the user accesses a site, sends e-mail or downloads something, data is sent to or from the mobile phone. The cost for this data traffic is 0,3 yen per packet (128 bytes) for the i-mode subscriber and 0,27 yen per package for the user of EZweb. Unlike the two other services J-Sky is operated over a circuit switched network. However, charging the subscriber for the time he or she is connected would result in huge phone bills for the user. To be able to compete with the other solutions J-Phone instead bill the customer for the amount of requests and replies made. One request, as well as one reply, costs 2 yen and consists of one kilobyte of data.
- *Percent of Content Subscription.* The operator collects a commission on the monthly subscription fees that some content providers charge for their content. The commission is a compensation for the service of taking care of billing users for the use of any official content that these decide to subscribe to. This billing system plays a central role in the success of the mobile Internet in Japan. The content providers do not have to be concerned with the billing relation to the users. The customer simply pays the fee on the monthly mobile phone bill, a method that is secure and easy to handle for all parties involved. NTT DoCoMo takes a 9 percent commission and the

[28] Eliasson & Jonason, 2000

[29] Jonason, 2000

[30] 100 Yen = SEK 8,24 or USD 0,87 (2001-01-04)

other two charge somewhere between 10 and 15 percent (the exact figures are not official). The commission is meant to cover some of the costs involved in the handling of the billing, but it far from covers the total costs of the system.[31]

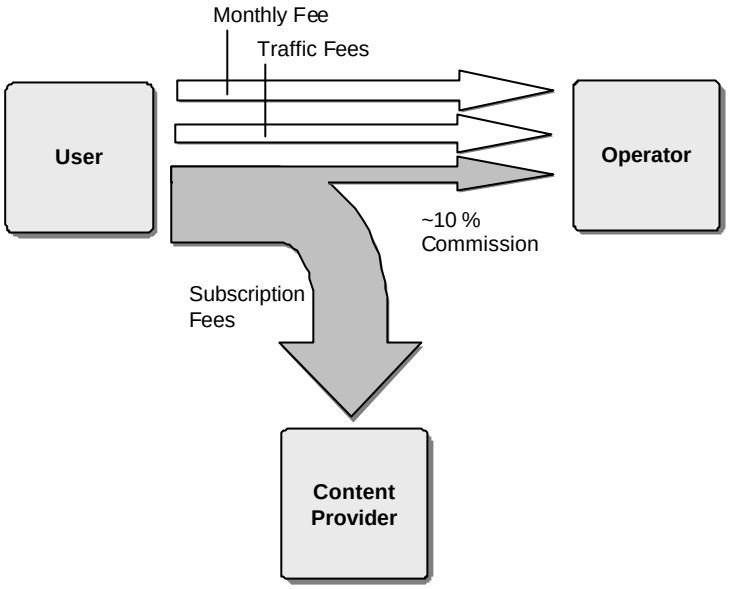

Figure 6. The billing system [Devine, Holmqvist, 2000]

On an average the i-mode user pays 2000 yen per month in packet fees and between 400 and 500 yen in content charges. About 50 percent of the users subscribe to official content and on an average these subscribe to four contents each.[32] One of the reasons for NTT DoCoMo's large profits is the company's large number of users. The economies of scale are significant.

It is worth noting that the killer application for mobile phones still is voice; this traffic is the main revenue source for the operators. In addition to generating data traffic, the mobile Internet service helps raise revenues from voice traffic as well. According to NTT DoCoMo's own research the use of, for example, e-mail in turn increases the amount of voice traffic.

[31] NTT DoCoMo, interview 2000-10-31 and J-Phone, interview 2000-10-31

[32] Yamada, NTT DoCoMo, e-mail 2000-11-22

2.3.3 Overview of the Mobile Internet Services in Japan

	NTT DoCoMo	J-Phone	Au	Tu-Ka
Mobile Internet Service	i-mode	J-Sky	EZweb	
Number of users	17.4 million (January 2000)	4.5 million (December 2000)	5.2 million (December 2000)	
Number of official sites	618 (September 2000)	414 (October 2000)	339 (November 2000)	
Mobile Internet fee	300 yen monthly basic fee + 0.3 yen per packet (128 bytes)	2 yen per request (no monthly basic fee)	200 yen monthly fee + 0,27 yen per packet (128 bytes)	
Markup language	cHTML	MML	HDML	
Network	Digital Packet switched PDC	Circuit switched PDC	Digital Packet switched cdmaOne	Circuit switched PDC
Capacity	9.6 kbps	9.6 kbps	64 kbps	9.6 kbps

Table 1. Overview of the mobile Internet services in Japan [Mobile Media Japan 2000, modified]

2.4 The Users

The Japanese market for mobile Internet is huge. There are currently 58 million[33] mobile phone users in Japan (December 2000). Of these over 27 million also subscribe to a mobile Internet service. This can be compared to the number of mobile Internet subscribers in the world, who amount to more than 30 million. More than 80 percent of the world's mobile Internet subscribers are thus Japanese[34]. It should be noted that this figure excludes the world's SMS users, who are often not included in the definition of mobile Internet users. It is also important to emphasize that estimations of the number of mobile Internet users in the world vary tremendously between different sources. As an example, Forrester Research estimates the European mobile Internet population to 2,5 million people under year 2000.[35]

[33] Telecommunications Carriers Association's website, 2000-10-31

[34] Eurotechnology's website, 2000-11-22

[35] Forrester Research, 2000

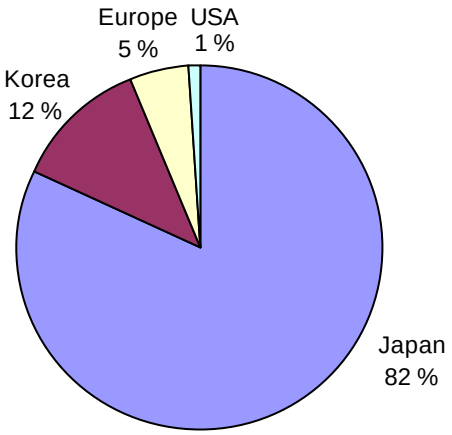

Figure 7. The number of mobile Internet users in the world [Eurotechnology, 2000]

2.4.1 Subscriber Growth

The number of users has grown rapidly, far beyond previous predictions. Since the launch of i-mode in February 1999 the service has attracted almost 18 million paying subscribers (January 2000), representing more than 25 percent of the number of mobile phone subscribers in Japan. When the service was introduced, NTT DoCoMo's goal was to reach 10 million subscribers within the first three years.[36] This goal was fulfilled after only eighteen months, in August 2000. The other two services have an equally impressive number of users, J-Sky has about 4.5 million subscribers and EZweb 5.2 million (December 2000).[37]

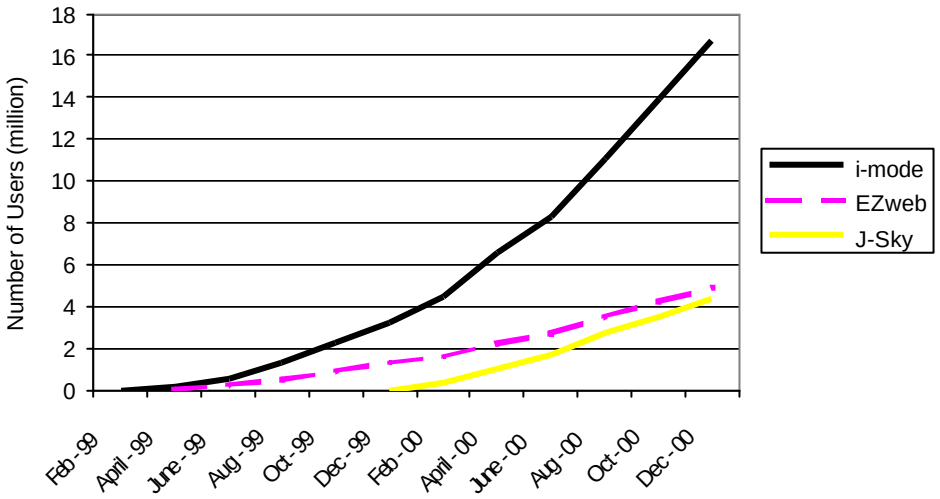

Figure 8. Growth of mobile Internet users [Telecommunications Carriers Association, 2000]

[36] Mobile Media Japan's website, August 2000

[37] Telecommunications Carriers Association's website, 2001-01-08.

2.4.2 User Characteristics

When i-mode was first launched, the users were primarily young women. This group is still large, but the user group has since then grown into better reflecting the average NTT DoCoMo's voice subscribers.[38]

The age distribution of for example i-mode users reveals that 30 percent of the users are younger than 25 and more than 60 percent of the users are below 35.[39] It should be noted that a considerable number of users over 45 years of age subscribe to i-mode on behalf of their children. This is due to the fact that it is very hard to subscribe to a mobile phone service if you are under the age of 19. Therefore the actual usage shown for the youngest group should be even higher.

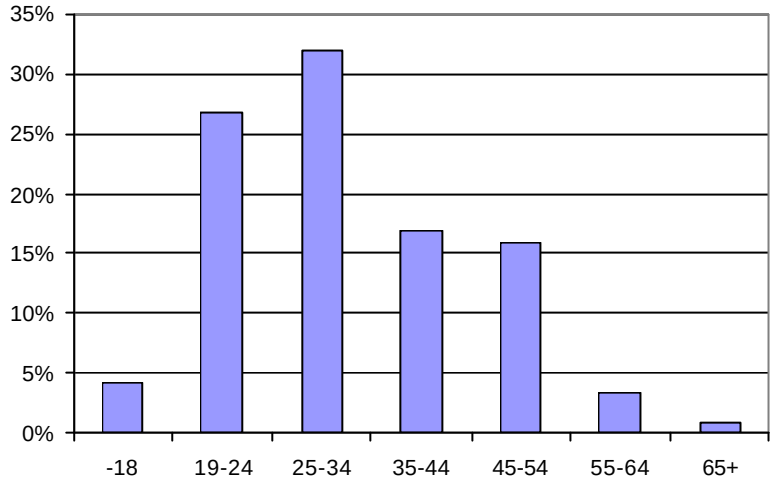

Figure 9. The age distribution of i-mode users [D2Communication, 2000]

If broken down by occupation, the largest group of i-mode users with 45 percent is students according to a recent study. About 39 percent are people in the workforce and the remaining group of 16 percent mainly consists of housewives.[40]

In Japan, most of the mobile phone users are private persons, i.e. they buy their own phones and pay their own phone bills, as opposed to the company where they are employed at paying them. Also, people that do have a company-paid mobile phone for work tend to buy an additional phone for private use. Only just over 10 percent have their phone bill paid by their employer. More than 60 percent of the i-mode users pay for themselves while the remaining number have their bill paid for by another member of their household.[41] With the mobile Internet subscribers mainly being young students without employment, it is probable that the percentage of private users among this group is even higher.

[38] Jonason, Ericsson / KTH, e-mail 2000-12-06

[39] D2Communication's website, 2000-12-15

[40] Research by NTT-X and Mitsubishi Institute, 2000-10-05

[41] Söderkvist, Ericsson Mobile Communications Japan KK, Powerpoint presentation, September 2000

2.5 The Mobile Phones

Japanese mobile phones differ somewhat from those that are available in Europe. They look different, sound different and feel different. Japanese phones are also generally considered to be more advanced than the European ones.

The appearance of an Internet enabled mobile phone is similar to most mobile phones. One difference is the existence of a special button, which connects the user to the mobile Internet service by one single press, and a navigation button, which allows the user to control the pointer on the display.

The mobile phones have a comparatively large high-resolution liquid-crystal display (LCD). Both NTT DoCoMo and J-Phone began selling phones with colour displays in December 1999. KDDI followed in August 2000.

Figure 10. NTT DoCoMo models d209 and n502 [NTT DoCoMo, 2000]

The ringing tones on the Japanese mobile phones are more advanced than in Europe. The phones can handle four chord harmonies, a pitch range of more than 3 octaves and a large number of sounds and tempos. The ringing melodies therefore actually sound like music and not monotone notes played in a set order.

The Japanese phones are small and light compared to the phones available in Sweden today. The smallest i-mode phones weigh 60 grams and the largest on the market around 100 grams. The main reason for the phones being so much lighter is the size of the battery. Due to differences in how the signalling works in the Japanese PDC network as compared to the GSM net, the standby time is much longer. This enables smaller and lighter batteries.

The phones do not have a SIM card. This means that a telephone number is pre-set in the phone. It is possible for the users to keep to their old number when purchasing a new telephone but it is not a procedure of simply moving a SIM card.

As mobile phones become more and more advanced, functionalities that traditionally do not belong in a phone are built in. For example, many predict that the PDA and the mobile phone soon will merge into one device. On the Japanese market, there is little hesitation in trying out new concepts. An example is the mobile phone model with a small digital camera, released by Nokia. The user can take pictures, view them on the phone's screen and send them to friends.

3 The Success of Mobile Internet in Japan

The success of the mobile Internet in Japan is a topic that has been in focus lately and in Chapter 3 we give our explanation of the phenomenon. The chapter starts with a discussion of the importance of NTT DoCoMo's strategy. We then continue by explaining the users' part in the success.

NTT DoCoMo was the company that introduced the world's first widely used mobile Internet service. While the rest of the world was discussing the WAP-standard in the WAP-Forum, NTT DoCoMo went ahead and created a complete solution of their own, i-mode. NTT DoCoMo's i-mode is primarily a business model, using technology developed by the operator, whereas WAP is a technical standard. The success of i-mode has been far beyond any expectation. As a result the world's attention has turned to Japan. Endless articles are being written about the explosion of users and services. People in the business are travelling there to experience the phenomenon themselves. A large number of reports are trying to explain why mobile Internet turned out to be such as success in Japan when it has failed to take off in Europe.

In Japan there are plenty of users and available content, quite the opposite from the situation in Europe. The Japanese mobile Internet market has been, and still is, experiencing a positive upward turning spiral with growing amounts of subscribers and content. Content on NTT DoCoMo's very first i-menu attracted users to the service, who in their turn attracted even more content providers. A more comprehensive service then attracted larger and larger numbers of users and the spiral continued to turn upwards. As the number of content providers increases so do the number of users.

NTT DoCoMo's i-mode certainly got the mobile Internet market off to a flying start. The other companies launched their services a few months later and were in some ways able to ride on the wave that i-mode had started. J-Phone and KDDI have copied many of NTT DoCoMo's success factors. Other factors are specific characteristics of the Japanese market and its users. Below we give our view of the reasons for i-mode's success.

3.1 NTT DoCoMo's Strategy

NTT DoCoMo has a dominant position in the Japanese market for mobile Internet. As previously mentioned in Chapter 2, the operators in Japan, and particularly NTT DoCoMo, has a large degree of influence over other actors in the market. They control the networks, the phone manufacturing, content and finally also content aggregation. They can therefore lead the other actors in a direction that they themselves wish to take.

NTT DoCoMo has synchronised all the separate parts of the market and made them function as a group in a wholly different manner than for example the way the European market works. There is a functioning network, there are mobile Internet capable phones available, there is content for the customer to utilise and finally also a service that presents a solution to the user. Problems that would have limited the users or content providers interest in the mobile Internet service have been solved and a win-win situation for all parties has been created. A synchronised and functioning market has resulted in a complete and valuable end product for the users.

3.1.1 The Billing System

The efficient system of micro payments charged on the mobile phone bill, is one of i-mode's most important success factors. As NTT DoCoMo charges users the monthly content subscription fees of 10-300 yen on the regular phone bill, it is handled in a safe and convenient manner for both the content providers and users. They are respectively able to concentrate on developing and using content without being distracted by the subjects of costs.

At the same time NTT DoCoMo earns extra money from the commission collected. (See section 2.3.2 for a more detailed description of the billing system.) This is one example of how NTT DoCoMo has created a win-win solution for all the parties involved.

With the billing system the content providers are able to charge users in a simple and safe way. This gives them the possibility to make money from their content, which is essential for many of them, without having to set up an expensive billing system of their own. Furthermore they do not have to establish a direct relationship with the customers or create databases, etc. It would have been difficult for any other institution to create a billing system as smooth and well functioning as NTT DoCoMo's. The operator has a natural connection to the user through the monthly mobile phone bill. This bill is special in the way that it is the most personal bill that the users in Japan have. It is not shared with anyone else and every person who uses the mobile Internet service gets one. This makes it perfect for billing content, together with the other fees connected with using the service.

From the users' point of view, having the charges added to their phone bill is a simple and secure solution. All the charges are paid for at one time without any extra effort. The charges are added to a bill that the users already receive from to a trusted actor. Thereby they are not forced to give out their credit card number to a content provider that they do not have complete information about, or deal with third-party billing systems.

The reason that NTT DoCoMo handles the billing is to offer a convenient solution to the content providers. As mentioned before, the 9 percent in fees that they charge the content providers are unlikely to cover the whole cost associated with the content providers part of the system.[42]

3.1.2 Reasonable Pricing

The first step for getting users to adopt i-mode was to ensure that they had an i-mode phone and the second step was to make them willing to pay for the service itself. NTT DoCoMo succeeded with both these things.

Subsidies on Phones

The strategy of NTT DoCoMo has been to charge roughly the same price for an i-mode phone as for a phone that is not Internet enabled, even though the i-mode phones are more expensive to manufacture. Phones in Japan are heavily subsidised by the operators, the subsidies on i-mode phones have been about 75 percent[43]. The consequence of this is that the barrier to choose an i-mode phone is low. If the user is changing mobile phones he or she might as well change to an i-mode phone since the costs are equivalent.

In addition to the insignificant price difference, the fact the most mobile phones available on the market are i-mode phones, has contributed to the fast adoption of i-mode. In the near future all phones that NTT DoCoMo sells will be i-mode phones.

Pricing of the Service

Reasonable prices are an important factor when it comes to whether users adopt the service or not. In i-mode's case the service has been perceived as good value for money due to the low pricing.

Charging 300 yen per month for the service was a well thought through decision according to NTT DoCoMo. This represents the cost of a monthly magazine, something that was considered to be a competing product. 300 yen is not a large amount of money in Japan, it is roughly the price of two apples, and most users would consider this cost as a minor one. The

[42] NTT DoCoMo, interview 2000-10-31

[43] Jonason, Ericsson / KTH, e-mail 2000-12-06

same line of thought applies to NTT DoCoMo's limit of 10 - 300 yen per month on the subscription fees that the content providers are allowed to charge the users. The users consider the cost small whereas it still gives the content providers a chance to earn money. As mentioned earlier, NTT DoCoMo do not earn large amounts of money (if any) on the service. Their main revenue is the traffic that i-mode generates on the network.

Another factor that has played a part in is that the data cost is charged per package and not for connected time. Therefore the users do not pay for the time when the network is idle. Without a packet switched network, which enables charging per package, the service would have been much more expensive for the users.

3.1.3 Clever Marketing

Successful marketing has been another key factor for i-mode's success. First of all NTT DoCoMo has been very careful to market i-mode not as "Internet on the mobile phone" but as a new and fun service on your mobile phone. It has been put forward as an understandable and easy to use complement to the voice function. Users have therefore not been envisioning flashy Internet sites but have had more moderate expectations. The focus has been the possibilities of the new medium rather than the limitations. As a consequence the users have not been disappointed, as many European users have in the case of WAP.

Secondly, the marketing has very cleverly focused on trend setting groups in the society. When first introduced the service was presented as a virtual private network application intended for business users. It did however not create much interest in the market. NTT DoCoMo took a fast decision to repackage the service for private use and direct marketing towards other target groups.[44] Young Japanese women play an important role in which trends become successful and long lived in Japan.[45] Making sure that this group adopted the product at an early stage helped to ensure and extend the success in other Japanese user groups.

3.1.4 Simple Technology

Simple technology, not technical revolutions but rather just solutions that are functional, has been the strategy of NTT DoCoMo. The company came to the conclusion that the market was ready for a mobile Internet service and thereafter launched the best technical solution that they could come up with at the time. It is not a technical wonder with regards to bandwidth or capabilities but the solution is perceived as good enough. The market was susceptible and the solution sufficient, which in turn resulted in a huge success.

As stated earlier, the markup language cHTML is an open standard and also similar to the markup language used on the Internet, HTML. Since many are familiar with coding HTML, creating websites in cHTML is easy. These factors have resulted in content providers freely and without much effort being able to create their own websites. The consequence is that a large number of sites are created and the positive spiral between users and content keeps its upward trend.

3.2 The Users' Fast Adoption

The users play an important part in the success of i-mode. Factors such as how susceptible the population is to new technology, the specific economic situation of Japan today and characteristics of the Japanese population have all influenced the situation.

3.2.1 Prerequisites

Fixed Internet has not become the success that it has been in the US and many European countries in recent years. The Japanese Internet penetration rate is estimated to 20 percent of

[44] Eliasson & Jonason, 2000

[45] Project Japan 1998, 1998

the total population, which can be compared to Sweden, where the penetration is 50 percent.[46] An explanation of Japan's low penetration is the combination of a low penetration of personal computers, high personal computer costs and the world's highest telecom and ISP fees ($3,36 per hour compared to, for example, the US at $1,50)[47]. The personal computer penetration rate is just under 40 percent[48] whereas it is 60 percent in Sweden[49]. The reasons for this are numerous, one simple one being that the Japanese homes simply do not have room enough for a stationary computer. Flats and houses are generally much smaller than by European standards.

Fixed line telephone prices are very high in Japan. A consequence of this is that the number of mobile phones in Japan actually outnumbers the fixed lines.[50] Even when people are at home they often tend to use their mobile phones rather than using the fixed line.

These factors, low fixed Internet penetration and high mobile penetration, have led to the Japanese market being ideal for mobile Internet applications.

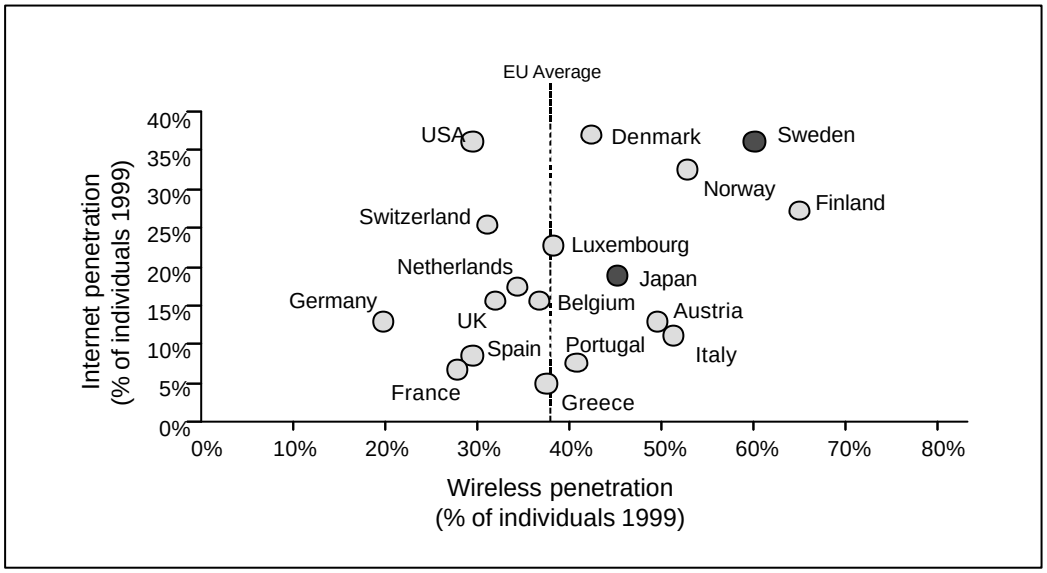

Figure 11. Internet penetration and wireless penetration [Forrester Research 1999, AC Nielsen]

3.2.2 Common Characteristics

Certain characteristics of the Japanese people have equally contributed to the fast adoption and wide spread use of mobile Internet in Japan.

One of the most important factors is that the Japanese are very trend sensitive. Trends have a tendency to become exceptionally large. An explanation for this is that the Japanese are a homogenous people. The middle class is large and regional differences between people are almost nonexistent.[51] This results in large parts of the population being susceptible to similar products and services, the mobile Internet being a successful example.

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[46] Nua Internet Survey's website, 2000-11-23

[47] Scuka, Japan Inc, June 2000

[48] Merrill Lynch Japan, July 2000

[49] Bohlin, Computer Sweden, 2000-10-02

[50] AsiaBizTech, April 2000

[51] Taylor, 1997

The first large i-mode user group was young girls, many of whom were students. Japanese High School girls are extremely trend sensitive and when a new trend hits the market they all tend to follow it. Moreover, they themselves exercise significant influence on the trend-setting process. Things that are accepted as trendy by this group easily spread to other groups.[52] This is partly what happened in the case of mobile Internet; the young girls acted as early adopters.

The Japanese people are also famous for being "gadget crazy". Many have a special interest in trying out new technical things. When taking a walk in Akihabara, the centre of electronic commerce in Tokyo, it is possible to view the most amazing products for sale, many of which would probably never have reached the stores in Europe. The mobile Internet no doubt appealed to this part of the Japanese personality.

3.3 Why i-mode and not WAP?

One question that the rest of the world is trying to figure out is why i-mode succeeded while WAP still has not. The answers are many and sometimes complicated.

- *NTT DoCoMo's quick action*. While the WAP standard was being debated backwards and forwards in the WAP forum, NTT DoCoMo got tired of waiting and took to action. They created and launched their own solution under the name i-mode, which was quickly adopted by the market. The phone manufactures, content providers as well as the users were ready for what NTT DoCoMo had to offer. As discussed earlier, contributing factors were among others the billing system, reasonable pricing, and clever marketing. While all this was happening, the WAP forum was still discussing how their protocol and technology should be designed.
- *Technical simplicity*. WAP is more technically advanced than the technology used for i-mode, i-mode is actually quite a simple and modest solution. Technical superiority is therefore not the reason for its success. Rather, keeping the technology simple has been one of the prerequisites for i-mode to be so quickly adopted by both content providers and users. This has consequently contributed to its growth and success.
- *The dominance of NTT DoCoMo*. NTT DoCoMo's monopolistic control of the customer is another factor that has contributed to the success. Possessing 55 percent of the Japanese customers, they can dictate many of the rules of the market. This gave NTT DoCoMo the opportunity to form the mobile Internet in Japan to what they wanted it to be. To our knowledge few operators in the world have such extensive power over the customers. The market is nevertheless one of competition, NTT DoCoMo's largest competitors, KDDI and J-Phone, quickly launched alternative services. These were in some cases even better and cheaper solutions than i-mode, something that however did not lure the customers away from what they generally regard as a superior alternative.
- *Susceptible market*. In all fairness it should also be pointed out that i-mode in its exact form would probably not have been such a success if it were to have been offered elsewhere in the world. The Japanese and their market were open for this kind of product at this particular time. In another country and at another time the concept would most likely have had to been changed and adapted to the circumstances of that particular market in order to be successful.

Taken together these factors have contributed to the success of i-mode and resulted in the lead that Japan has over the rest of the world's mobile Internet market. This lead will probably last for quite some time. Japan now has almost two years of knowledge and experience in an area that is fairly unexplored by the rest of the world. The success has also resulted in large profits

[52] Project Japan 1998, 1998

for NTT DoCoMo. With these profits the company is able to invest money in other actors around the world as well as in developing new and more advanced technologies.

4 Content

Content on the mobile Internet in Japan is described in this chapter, which starts with an explanation of some general characteristics of mobile Internet content. It continues with a description of the type of content that is available in Japan today. Then follows a section on what the future holds with regards to content. The chapter ends with some illustrating examples of how the characteristics of mobility are used successfully in Japan today.

The expression "Content is king" has been used by numerous writers of reports on the mobile Internet. Even though content might not be the primary reason why a mobile Internet service becomes successful, it is certainly important. The content is the one and only reason for why people want to access the mobile Internet.

4.1 Characteristics of Mobile Internet Content

Content on the mobile Internet should not be confused with that on the wired Internet. The wireless Internet is a totally different medium. For instance, there are some very important differences between the user interface, user behaviours and technical prerequisites that impose restrictions on, as well as give new opportunities for the content. Therefore, content that is suitable for the wired Internet might not work well on the mobile Internet, and vice versa.

Good content is content that takes advantage of the specific characteristics of the mobile Internet and provides the user with the information that he or she needs. These characteristics are very important to take into consideration when content is designed. How can the user obtain the greatest value when both restrictions and opportunities are taken into account? Why would the user want to access and use this specific content? What needs does it satisfy? There have to be incentives to encourage the user to use the mobile content at the specified time, instead of waiting twenty minutes until she gets home and can access the fixed Internet or some other media.

4.1.1 User Interface

First of all, content must be adapted to the characteristics of the terminals used, that is the mobile phones. The small screen imposes a limit to how much can be displayed to the user at any one time. One simply cannot expect to show content with the same richness as that offered on the personal computer. Moreover, it does not suffice to just summarize information from an Internet site or a newspaper, fit it on the smaller screen and suppose that this is what the user wants. The content should be simple but there is much more to it than just adapting to a smaller screen size.

Another limitation is the means of input from the user. Today, the most used input device is the key panel. This is small and somewhat difficult to handle, even though some people have developed impressive skills in typing with the keys. In a recent competition in Shibuya, a shopping and entertainment district in Tokyo, young girls were purported to have been able to type 70 words per minute on their mobile phones. However, for most people this type of input is slow and the risk of making errors is large. Therefore the interaction with the user through typing input is restricted.

Taking into account the limitations of the screen size and key panel the conclusion is that the content should be simple and straightforward. It is not suitable to present extensive information on the phone or to ask for extensive input from the user. Considering the needs for simplification is important and this is often the key to successful content.

4.1.2 Technical Prerequisites

There are several technical limitations of the mobile medium compared to that of fixed Internet. Bandwidth is perhaps the most obvious one. Today it is possible to view video transmitted over the Internet on your personal computer. Viewing video and other multimedia content on the mobile phone will have to wait for future network generations.

Processing power and memory capacity of the mobile phone are other factors that impose limits on the content that is possible today.

4.1.3 User Behaviour

The mobile Internet is not used in the same ways as the wired Internet. It is accessed at different times, in different situations and for different reasons. The user always carries the mobile phone on his or her person and can consequently access the Internet at anytime, anywhere.

Generally, mobile Internet services are used to utilize or kill short periods of time when the user is not occupied with anything else. These micro time slots are sometimes as short as a couple of minutes, and in that limited period of time the content has to satisfy the need of the user. If the issue is just to kill time the user quickly wants to find something worthwhile to do. Quick and easy navigation are key words; the user does not want to waste time just trying to find something that is fun. Browsing in the same way as on the Internet is therefore not appropriate. Browsing on the mobile Internet is seldom done for the simple purpose of just having a look around. Most often there is a specific need that the user wants to satisfy. A menu can navigate the user to a useful site in a few seconds.

4.1.4 Opportunities for Mobile Internet Content

Content on the mobile Internet can take advantage of opportunities that do not exist for the wired Internet. We have identified three factors that we consider important, namely *personalization*, *positioning* and *timeliness.*

Personalization refers to the fact that the mobile phone is a personal tool. Unlike the personal computer, a mobile phone is rarely shared between users but belongs to one specific individual. This opens great opportunities for customized content.

Positioning is supplying relevant information to the user depending on his or her location at any particular moment. Services can be dependent or independent of location. Value can be added to the service by taking advantage of knowing the users current location, e.g. at the library, cinema, at a shopping centre, etc. or even on a geographical basis, for example when visiting other towns or cities. This is the dependent aspect. The independent of position aspect are for services that the user can access at any location since the mobile phone is usually taken to wherever the user goes.

Timeliness refers to updated information appropriate or adapted to a specific time or occasion. Just as in the case of position, added value can be a result from two different aspects of time: independency or dependency. Independent of time refers to the ability of being able to use the service at any time. Dependent of time refers to the possibility of being able to utilize the right content at just the right time.

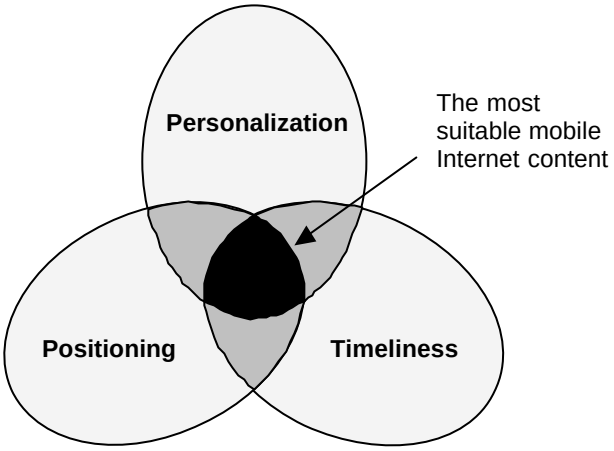

Figure 12. Opportunities for mobile Internet content [Devine, Holmqvist, 2000]

Content that is particularly suitable for the mobile Internet is content to which value is added by the utilization of at least one or two of these three key factors. There is a dependency between the factors and one should look at where to put the emphasis for a particular situation. If content is not enhanced by the opportunities of personalization, positioning or timeliness, then there is no particular reason to offer it on the mobile. Instead, users are likely to access it though other channels.

4.2 Japanese Content

During the two years that the mobile Internet services have been available in Japan the growth of content has been enormous. Today a wide range of content is accessible on the Japanese mobile Internet. Technical constraints still set limits for what content can be offered, but these limits are slowly being erased.

The majority of the content is in Japanese. The amount of content provided in English on i-mode is very limited although it is slowly increasing. It is mainly NTT DoCoMo who has started to supply some English content. However, there is also at least one independent unofficial portal that links to most of the English language sites.

4.2.1 Content of the Different Mobile Internet Services

The amount of content available on i-mode has grown tremendously since the launch of the service in February 1999. The number of official content providers' sites is almost tenfold having increased from 67 to more than 600 (September 2000)[53]. The number of unofficial sites has grown even more, from practically none to more than 20 000 (October 2000). The two other services J-Sky and EZweb have also seen a large growth. The number of content providers on EZweb today adds up to about 340 and roughly 400 are available through J-Sky. The growth of the unofficial sites on EZweb and J-Sky cannot be compared to the one of i-mode. Neither EZweb nor J-Sky has released any figures about the number of unofficial sites. This is most probably due to there being practically no unofficial sites. The reasons for this would be that people have been unaccustomed with the markup languages, combined with the fact that the customer bases are not as large and therefore not as attractive. However, the users of i-mode and J-Sky can both access most of each other's unofficial sites since the markup languages that these services use are similar. Official sites cannot be accessed by users from the other services since each respective operator controls them. Users of EZweb can access

[53] NTT DoCoMo PowerPoint presentation October 2000

any WAP enabled site in the world. On the other hand, since most Japanese do not speak English (less than 3-5 percent speak good English[54]) this content is not very interesting to them.

The rules regarding what kind of content is allowed on the three solutions vary. The rules of NTT DoCoMo are the strictest not allowing any chat or dating services on the official menu. The other two are less strict with regards to what is allowed on the official sites. This results in J-Sky and EZweb offering content that is not available on the official i-mode menu, for example dating and chat services.

All three services target slightly different user groups and they maintain that they adjust their content thereafter. Looking closely at the content available, however, reveals that the differences are not that obvious. Especially J-Sky and EZweb want to be able to offer the same width and depth in their menus as i-mode. That they would turn down any content due to the fact that it does not perfectly fit their target customers is unlikely.

Technical differences between the three solutions do not result in any substantial variation in how content is presented or functions from a user perspective. The content providers that we have spoken to maintain that there are only minimal differences between using the same content over i-mode, J-Sky or EZweb.

4.2.2 Available Content

As previously described in section 2.2.5 mobile Internet content in Japan is divided into two categories, official and unofficial. In this section we will use this definition when explaining about the content that is available today. The section will focus on the content available for i-mode since this is the most popular mobile Internet service and also the service with the most information accessible.

Subscribing to a mobile Internet service means being able to use data services on the phone as well as the voice function. Data services is a broad term and includes functions such as e-mail, messaging, access to content through the menu as well as on the mobile Internet.

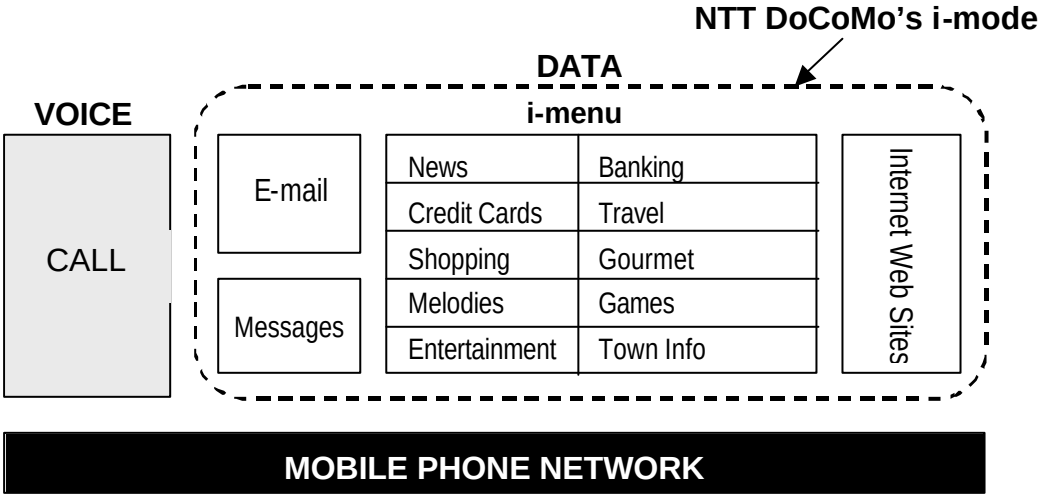

Figure 13. Available content and services on NTT DoCoMo's i-mode [NTT DoCoMo, 2000, modified]

[54] Eurotechnology's website, 2000-11-23

The break down of time spent using the mobile phone for the average i-mode user is the following. (August 2000)[55]

Item	Time spent
Voice	34 %
E-mail	42 %
Internet	24 %

Table 2. Breakdown of time spent on i-mode [InfoCom Research, 2000]

The figure shows that e-mail is one of the mobile Internet's killer applications, occupying 42 percent of the user's total time on the phone.

The traffic to unofficial sites has grown continuously since the launch of the service. In the beginning nearly all the traffic was to official sites, but as users become familiarized with the mobile Internet, the traffic to the unofficial sites continues to grow. The ratio between traffic to official and unofficial sites is currently about 50/50[56].

Official Content on i-mode

NTT DoCoMo classifies official content on the i-menu into categories. The purpose of this is to make the content easily accessible to the user. As the service has grown, so has the number of categories.

As previously explained, the service was first intended for businessmen. Therefore, the initial content was mainly in the category that was later called Transaction, for example remittances to banks, the purchase and sale of stocks and to reserve event tickets[57]. The first categories on i-mode were: Transaction, Entertainment, Database and Information. As the service continued to grow, these categories were split into further defined groups. Today NTT DoCoMo divides content into eleven categories. These are News/Weather/Information, Mobile Banking, Credit Card/Securities/Insurance, Travel/Traffic/Maps, Shopping/Living, Gourmet/Recipes, Melodies/Images, Games/Fortune-telling, Entertainment, Town Information/Administration and Dictionary/Convenient Tools.[58] This classification is subject to change continuously as content evolves.

[55] InfoCom Reasearch, September 2000

[56] NTT DoCoMo, interview 2000-10-31

[57] AsiaBizTech, February 1999

[58] NTT DoCoMo i-mode menu, November 2000

Category	Number of Sites (Sep 2000)	Percentage of Total Number of Sites (Sep 2000)	Percentage of Accesses[59] to NTT DoCoMo's official menu (August 2000)
News/Weather/Information	35	6 %	19 %
Mobile Banking	243	40 %	4 %
Credit Card/Securities/ Insurance	11	2 %	(Included in Mobile Banking)
Travel/Traffic/Maps	17	3 %	1 %
Shopping/Living	27	4 %	5 %
Gourmet /Recipes	9	1 %	1 %
Melodies/Images	54	9 %	(Included in Entertainment)
Games/Fortune-telling	33	5 %	(Included in Entertainment)
Entertainment	101	17 %	64 %
Town Information/ Administration	56	9 %	2 %
Dictionary/Convenient Tools	24	4 %	4 %
TOTAL	**610**	**100 %**	**100 %**

Table 3. i-mode categories: number of sites and accesses [NTT DoCoMo, 2000]

Entertainment is by far the most popular category, it accounts for 64 percent of all accesses on the i-mode menu (including Melodies and Games). This category is also the second largest group when it comes to number of sites. Outside of Japan a great deal of attention has been given to the fact that entertainment has been such a success. The question that arises is what NTT DoCoMo actually classifies as entertainment. Before games and melodies were included in the category but they have recently been extracted into their own two groups. Even so, the entertainment definition is very broad and includes information about for example sports, competitions, magazines as well as TV and movie guides.

As the entertainment category grew large Games and Melodies/Images were moved into groups of their own. Melody and image downloads have by far been the most successful content on i-mode so far. In the beginning of November, the company Bandai networks had more than 1.4 million fee-paying subscribers to their downloadable characters service, Charappa. Games have been equally successful.

News/Weather/Information is the second most popular content. In this category users can find news and weather from a number of domestic and foreign sources. There are sites with general, investment, regional and foreign news.

Mobile Banking is the group with the largest number of sites, 243 out of a total 610. However, these sites only account for less than 4 percent of the total number of accesses on the i-mode menu. The large number of sites is partly a remnant from the beginning when content was concentrated to the transaction category. NTT Data created a centre (ANSER) that acts as an intermediary between NTT DoCoMo and smaller banks. By utilizing the ANSER centre, smaller banks do not have to develop their own i-mode solution but can easily, with the assistance of the centre, launch their services on i-mode. Apart from this there are a large number, around 1000, regional banks and other savings and loan associations active in Japan.[60]

[59] An access is when a user enters a site

[60] Niitsuma, Bank of Tokyo Mitsubishi, e-mail 2000-12-08

There are a number of banking sites that allow the users to access full banking services, i.e. the user can check their account balance and transfer funds between accounts. However, for the majority of the banking sites the user can currently only check their account balance. There are also a number of sites that offer trading of stock and securities, some of which are said to be very successful. Daiwa Securities claim that 7 percent of their total transactions take place over the mobile Internet (November 2000).

Shopping/Living includes sites where the user can book and buy tickets for concerts and sports events. The category also contains sites for on-line shopping of games, CDs, DVDs, books and magazines. Other content that falls into the definition is job information and study. There are sites that help you improve your English with more or less dependable methods: *"Take one minute a day to improve your English by practising famous phrases from movies"*.[61]

Travel/Traffic/Maps helps the user with travel arrangements such as booking tickets and reserving hotels.

Gourmet/Recipes provide restaurant guides and recipes.

Town Information/Administration combines many contents such as restaurant guides and events and make these available to the user on a location basis. Today users have to enter the location manually, in the future the operators will be able to provide the content providers with information of the users' current locations.

Dictionaries/Convenient Tools give the users access to dictionaries and telephone directories.

Unofficial Content on i-mode

Unofficial content covers all the web pages that companies and individuals make available through the mobile Internet and that do not appear on NTT DoCoMo's i-mode menu. The spectrum of content is in this case much wider since NTT DoCoMo does not control it. As well as content that fit into the NTT DoCoMo categories, dating services, chat rooms and bulletin boards are very popular. There are also a large number of personal web sites, just like on the Internet. This number is estimated to account to almost 70 percent[62] of all unofficial sites.

Traffic to the unofficial sites has increased significantly since the launch, a growing number of users are finding their way outside the i-menu. After gaining access to the service it is natural that the user explores what is easily accessible, in this case the content on the official menu. After a while however they start looking around to see what else is available.

Several businesses that aim at helping the users to find their way to the unofficial sites have evolved. These are mainly search engines, which are unofficial sites themselves, and magazines. The search engines work in about the same way as their equivalent on the fixed Internet. The magazines list unofficial sites in numerous categories and by popularity rankings. There are different publications for different target groups; women, business people, teenagers, etc. By entering the magazine's site the user is helped to access the sites mentioned in the magazine. This can, for example, be done through the user entering a number stated in the magazine, which is specific for each site. The user is thereby able to avoid the process of having to enter URLs manually.

As solutions to facilitate the usage of unofficial content are developed, we believe that the access of this type of content will grow even more in comparison to that of official content.

[61] i-mode - English, NTT DoCoMo, July 2000

[62] Hosokawa, Valueclick, e-mail 2000-12-14

4.2.3 Typically Japanese

A large portion of the mobile Internet content that is available in Japan would probably also be appreciated by European users. There are however some characteristics and concepts of the content that strike one as being typically Japanese.

Cute little pictures and characters are frequently seen in different content presentations. Downloading of cute characters is immensely popular, attracting millions of subscribers. Why are so many willing to pay to have a cute character downloaded to their phone everyday?

Cartoon pictures and figures are popular in the Japanese society. They are visible almost everywhere. A majority of the advertisements on the subway contain a small cute figure of some kind. They are also present as prints on people's clothes, bags, on companies' websites and hanging in straps from the mobile phones. Even some aeroplanes have huge, pastel coloured figures on them. Japanese phenomena such as Hello Kitty, Pokemon and Tamagotchi, have all experienced some period of success in the West as well. In Japan these trends have been enormous.

Figure 14. Cute character: Hello Kitty [NTT DoCoMo, 2000]

Cute characters are apparently a part of everyday Japanese culture. This conclusion explains, at least partly, why the character downloading has become so popular. The idea of letting people download characters to their mobile phones and charging a fee for the content is, in Japan, brilliant.

Another content that is very popular on the mobile Internet is dating services. The Japanese people work very hard when it comes to the number of hours spent at work. Long hours at work and a full schedule does not leave much time for meeting and socializing with people. When the Japanese actually do get around to socializing it is often within a fairly closed circle of friends. This has resulted in many Japanese not having an easy time meeting their future partner. Arranged marriages, especially between busy business people are not uncommon.

The market for dating services is thus large and the services existed in various forms long before the existence of mobile Internet. It is therefore not surprising that services for the mobile medium have evolved. There are different ideas: one being that when you walk past someone that matches your requirements in a future partner, the mobile phones will start to beep. Another is to look up people who have said that they are available and that are in the same area as you. Perhaps chat for a while, see if you have the same interests and then go for a coffee with your new acquaintance.

Horoscopes and photo services are other contents that we would consider to be typically Japanese. The interest in horoscopes is more widespread than in Sweden. As for photos, most people have seen a Japanese tourist group, all carrying cameras around their necks, taking pictures of everything and everyone. Photo machines in town, where one can take miniature pictures with colourful framing, are also very popular. The Japanese people's interest for pictures and photos makes us believe that content that help the users to send pictures to each other would be more popular in Japan than in Sweden. Notice also the mobile phone with the built-in camera, which was mentioned in section 2.5.

4.2.4 Technical Possibilities and Constraints

The three Japanese mobile Internet services are all still fairly primitive in many aspects, far from any technical wonders. The existing technical limitations affect what content is possible to offer. Still, the Japanese mobile Internet services have some features that the European user cannot enjoy today.

The most eye-catching difference between European and Japanese mobile Internet is the graphics. Graphics is supported by all three mobile Internet services; i-mode's cHTML currently supports GIF pictures, EZweb's HDML bitmaps (BMP) and Portable Network

Graphics (PNG) and finally J-Sky's MML the formats JPEG and PNG. This can be compared to the WAP solution in for example Europe, which late in the year 2000 only supported monochrome wireless bitmaps (WBMP).

Graphics makes a huge difference for the user when it comes to enhancing the experience. The phrase "a picture says more than a thousand words" definitely applies, especially when space on the screen is so limited.

Animated pictures are also available but basically this just means rotating between five images. More movement than that is not possible today.

There is currently no possibility to offer advanced positioning based content. The operators can determine a phone's location by looking at what base stations a telephone is currently in range of, but this information is not exact. The most widely used way to offer positioning related content is to let the user input his or her position, usually by selecting an option from a menu.

4.3 The Future Content

Some of the technical constraints that limit today's content will be eliminated in a near future. Both networks and mobile phones are under continuous development. New features open opportunities for richer and more advanced content.

4.3.1 Next Generation Network

Access to a wide range of multimedia content, including video, voice, fax, data transmission, and universal Internet access, requires the implementation of a new and more advanced mobile communications system. The Japanese carriers all have far-reaching plans for the introduction of third generation networks.

The expanded bandwidth of the 3G networks will enable carriers to offer numerous features such as.[63]

- The operator will have the possibility to choose and adjust transmission speeds according to requirements of the content and for different user preferences. A wider range of needs will be satisfied in an optimal manner. The operator will be able to introduce a wide range of price categories matching various speed requirements. Theoretically speeds up to 2 Mbps will be possible.
- The transmission quality will be further improved (the distorting effects of noise, interference and reception level variation will be reduced). The operator will have the possibility to choose and adjust transmission quality according to the requirements of the content and for different user preferences. Quality classes will be charged differently.
- Universal access. Today the Japanese users are only able to use their phones in Japan. The PDC system only exists there and consequently access is limited to Japan. The standards of the 3G networks will be introduced in large parts of the world which gives the Japanese the possibility of using their phones when abroad as well.

With the intent of being the first to offer mobile multimedia services over a third generation network, NTT DoCoMo is leading the implementation of the next generation system. The company is currently conducting full-scale tests of the wideband code-division multiple access (WCDMA) system. WCDMA is one of the proposed standards for the next generation mobile communications system and it is supported by Europe, the leading American operator AT&T[64] as well as Japan. J-Phone has also chosen to adopt the WCDMA standard for its future 3G

[63] Mitsumori, Computing Japan, April 1999

[64] Steneberg, Dagens Industri, 2000-11-28

networks. The KDDI group has however decided to adopt the cdma2000 standard for its 3G network.[65] Just like WCDMA, cdma2000 is fully compliant with IMT-2000 requirements for 3G. Harmonization efforts are underway and one goal is to provide seamless global roaming between the different modes of CDMA 3G; cdma2000 and WCDMA.[66]

The launch of NTT DoCoMo's 3G networks is planned for May 2001. J-Phone plans to start 3G transmissions in December 2001. KDDI's launch is not estimated to get underway until September 2002.[67] It is important to realise that even though NTT DoCoMo plan to launch their network in May 2001 it will be quite some time before there is extensive coverage. At first coverage will be limited to urban areas. Furthermore, utilising the net requires a new mobile phone since the system is not backwards compatible with the PDC network. Therefore it will take a while before usage becomes widespread. Users do not want to have two phones – one for central Tokyo and one for the countryside.

Another issue that may prevent a quick adoption of the system is the cost for the user. With today's packet charges the cost of downloading a short video would be far too high for any user. The operators have admitted that packet charges will have to decrease, especially as packet intensive multimedia applications such as video are taken into use over the mobile Internet. The question is by how much. The operators have invested a huge amount of money into the new systems and of course they want returns on their investments. Somebody has to help bear the cost.

4.3.2 Next Generation Mobile Phones

The close relationship between the mobile phone manufacturers and the operators was described in section 2.2.4. The result of this cooperation has been that the mobile phones in Japan are in many ways the most advanced in the world. As third generation networks are about to be launched many new features will be possible and available on the phones themselves. So what will the next generation of mobile phones look like?

- Java phones will be introduced in early 2001. This opens the door for providing the mobile telephones as platforms for applications.
- By introducing MPEG4, an advanced standard for video and audio compression in the browser, the next generation phones will enable multimedia communication. Animations, video and functions such as television phones will be possible.
- High-quality sound reproduction will be incorporated. This will transform the mobile phones into players of deliverable music. The phones will for example be made to handle MP3 data. MP3 is a standard technology and format for compression of a sound sequence into a very small file while preserving the level of sound quality.
- Many phones will have a GPS sender built into the system, enabling exact location detection outdoors.
- A colour liquid-crystal display on will be standard on the all the mobile phones.
- Security will be improved further as SSL, Secure Socket Layer, is introduced on all the terminals.

4.3.3 Next Generation Content

A more advanced mobile communications system combined with more advanced mobile phones opens the door to a wide range of new possibilities with regards to content. The new prerequisites will enhance the user experience when it comes to current applications, it will diversify the mixture of content and also thrust the development of mobile content forward.

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[65] Olofson, Ericsson's News Center, 2000-11-21

[66] Ericsson's website, 2000-11-21

[67] Mitsumori, AnywhereYouGo.com, July 2000

Applications such as high-resolution video transmission over the mobile network will soon be possible in Japan. The killer applications of the next generation network will, however, hardly be downloading lengthy videos. This will be too expensive, as well as the fact that the users will not want to look at a whole video on the small screen of a mobile phone. Instead video will be used in the form of short movie trailers, music video clips or for advertisements.

Another future killer application that is often discussed is music. Making the mobile phone a personal player where users are able to download whatever music they want to listen to would be an ideal application from a user perspective. At any time and location, users can listen to the music that they prefer. Network gaming, enabled by Java, is also something frequently mentioned as a future killer application. Adding mobility will enable users to be even more involved in ongoing games and therefore enhance the experience. The gaming industry on the PC is huge and if screens and programs are improved further, mobile Internet gaming can be a tremendous success.

We believe that the best future content will not necessarily be the content that incorporates the most advanced features that the system provides. Instead it will be the content that best utilizes one or more of the three identified opportunities that the mobile Internet provides; personalization, positioning and timeliness, while at the same time, in an intelligent way advantage is taken of the system features such as animations and music.

It is easy to be absorbed by all the possibilities that future systems present. However, what should not be forgotten is the importance of the mobile phone as a simple means of communication. Voice communication will most definitely continue to be extensive and the same goes for e-mail, one of the most used services on the mobile Internet today.

4.4 Successful Content

It is evident that some content is more popular than others, with more subscribers or page views than their competitors. What characterizes this content? What makes people want to use it?

Entertainment has so far been one of the most successful categories on the mobile Internet. Looking closer at a category to find out what content has become popular reveals that these are often fairly simple and straightforward services. Downloading characters or small games are illustrating examples. One of the reasons why this type of content has become so successful is simply that it is good content for a beginner on the mobile Internet. Users with a new i-mode phone naturally want to try something out when they get the phone. So what do they do? Well, look around amongst the content on the menu and find something simple. Therefore the first service used is not trying to transfer money from a bank account but something like downloading a ringing tone. Cheap, easy to use, and it does not matter if you make a mistake.

As the users get more and more accustomed to content they also move on to more sophisticated content, a trend that can be seen on i-mode today.[68] Users are still using a great deal of entertainment content but the other categories are catching up. The future will no doubt introduce more and more complex services.

Today's users are young and many of them are students. These people will most probably keep on using the mobile Internet as they grow older and start working. The age distribution of the mobile Internet users will thus change over time, eventually to even out over all of the age groups. Other requirements will be demanded of the content in order to adapt to the changed or changing characteristics of the different user groups.

[68] Hasselström, Cybird, interview 2000-11-08

How Personalization, Positioning and Timeliness are Used in Japan

In the beginning of this chapter, (section 4.1.4), we identified three characteristics of the mobile Internet, which should be taken advantage of in order to create good mobile Internet content. How are these factors utilized by the Japanese content of today?

Personalization refers to when content takes advantage of the fact that the mobile phone is a personal tool. Content can be customized to different degrees. The simplest example is when the user enters a preference and gets content according to what he or she inputs. An example of personalized content that is used by many content providers is newsletters containing news on subjects that the user has registered an interest in. A more interesting aspect could be when the content automatically adapts to the user. There is not much of this in Japan yet, but great plans are being made. The company Tsutaya is a vendor of CDs, games and books and they are also in the video rental business. In the near future they will customize the marketing of their products with the help of already existing databases of their customers' previous purchases and rentals. When a new movie is released all the customers that have repeatedly bought or rented films in the same category will be notified. The notification can also be combined with a discount offer.

Positioning is when content is adapted or independent to where the user is located at the moment. As previously mentioned, there is currently only technical support only for imprecise position information. Instead the Japanese content available today lets the users input their position manually. With help of the unofficial site Imahina ("I'm free") users can find people in the same area who have time to kill and may be interested of getting in touch. What they do is to input a location, a time and an activity and see if it matches any other user inputs. They can also get information about users in a specific area at a certain time. The content has more than one million page views a day.[69] Going back to Tsutaya: When location information becomes available the company will be able to send advertisements to customers when they are passing by a Tsutaya store.

Timeliness is when content fulfils the needs of a user at a time when it best suits the user. A good example of this is a service called Ekitan, offered by Toshiba's i-Value Creation Company. It gives its users information about subway and train traffic. If the user enters what subway he or she intends to catch that night Ekitan will send a warning twenty minutes before the last train leaves. In November 2000 the service had more than 150 000 paying subscribers. Tsutaya also adjust their campaigns to what time of the day the mobile phone users are most likely to be thinking about, for example, renting a video. They send out e-mails with coupons during the peak hours.

Content should pay regard to each of the three factors above, although doing that is, of course, no guarantee for success. Content also has to meet the needs of the user group and adapt to the stage of development which the people using it are at.

[69] Jhanji, Imahina, interview 2000-10-30

5 Content Providers

Chapter 5 defines four main groups of content providers belonging to both established and new businesses. The chapter continues with a short explanation of the importance of being an official content provider and concludes with a description of the successful content providers of today.

5.1 The Initial Content Providers

When NTT DoCoMo launched their i-mode service they were already working with almost 70 different content providers. These were companies that owned or could produce content that NTT DoCoMo thought would be suitable for i-mode. The initiative for this came directly from the operator, who contacted the companies and presented them with the possibility of being an i-mode content provider. As for the development of the sites, NTT DoCoMo helped the content providers with systems integration, education, etc.[70]

The majority of the initial i-mode content providers were well established, top-brand companies. NTT DoCoMo wanted to show the users that i-mode was a high-quality service, while at the same time they wanted to feel secure about their own relationship with the content providers. They had to be convinced that the content providers would maintain a high standard for their content. Since a large degree of the first content was focused in the Transaction category, most initial content providers had business in this area. NTT DoCoMo had, for example, established connections with all the large banks.

5.2 The Content Providers Today

The Japanese mobile Internet content market is still very immature. Many companies are still in a phase where they are trying to find out how they can best profit from the new medium. It is no doubt an interesting market that attracts a great number of different businesses. Because it is so simple to create cHTML or MML sites, almost anyone can do it without having to invest a large amount of money or recourses. The result is a constantly increasing number of content providers.

The content providers existing on the Japanese mobile Internet today range from well established, old-economy companies to new start-ups, as well as organisations and private individuals. We have categorised the companies into two main groups; established businesses and new businesses. Within established business we have defined two groups of companies: *traditional businesses and fixed Internet businesses*. In the category new businesses we have also identified two major groups: *new content developers* and *content packagers*. These different categories will be discussed below.

5.2.1 Established Businesses that Offer Mobile Internet Content

Many established companies with businesses covering a wide range of areas offer content on the mobile Internet. The majority of these companies offer content that originate from within their own field of business. They are content owners as well as content providers. Already owning the content means that putting up a site is relatively easy and inexpensive. Often only a small group of people within the organisations need to work with the sites. Purely technical tasks are frequently left to contractors.

The reasons why established companies enter the mobile Internet market varies. Sometimes the aim is to create an additional channel to the customers. In these cases the companies usually already offer similar services on the fixed Internet. The mobile Internet site can save money by further eliminating the need for a direct channel with the customer, for example

[70] Richter, WestCyber, interview 2000-11-03

bank offices. Other companies have found the mobile Internet to be a potential source of extra revenues to the company, as discussed below. A common reason for offering content is the feeling that it is almost a requirement to be recognized as participating in the market development. Nokia for example offer town, wine and food guides, content that has no connection to their core business. Their returns are in marketing and gained experience. Contractors do the design and maintenance of the sites while Nokia just sponsor it with their name.

Below we will discuss the two identified categories of established businesses.

Traditional Businesses

"Traditional Businesses" are companies with an established business that frequently use the new medium to add value to their core business or as a small side business. These companies are active in a wide variety of fields and come in all different organisational forms.

The mobile Internet can be used as an additional channel for their customers. Using this channel means added customer value since the customers can access the company's services independent of time and location. Mobile Internet usage also reduces costs, as the resources required by direct channels to users can be reduced. Members of this group are banks, security companies, consumer product vendors and many more.

The mobile Internet can also be combined with traditional distribution stores. The traditional part of the business provides the Internet part with customers. The Internet in turn gives incentives for the customers to go to the actual stores (by use of coupons etc). The synergies between the two businesses are a key factor. Members of this group are for example consumer product vendors such as video stores.

Some of the companies started businesses on the mobile Internet because they actually realized the opportunities that the new medium provides. Other companies claim that the main reasons to establish a site was to be present on the new market, to show their customers that they have a modern approach, to expose their brand name, or simply because their competitors have sites. Only later have they realized the real potential of having a mobile Internet site.

One group of companies realized that they owned content that suited the mobile Internet exceptionally well, even though it might not have been suitable content for the fixed Internet. Users could be willing to pay for accessing this content through their mobile phones and because of the operators' billing systems the companies were easily able to charge the users. As an example, Karaoke song producers realized that their music could be used as ringing melodies. The melodies in their song database are thus translated into suitable ringing tones and they charge users for downloading these to their phones.

Fixed Internet Businesses

For companies whose main business is to offer content on the fixed Internet it has been a natural step to enter the mobile Internet market. In many cases they already own content that is suitable for Internet in general. Adapting the information to the mobile Internet is a easily done and therefore the effort of entering the market has been minimal. These companies have basically been able to construct a new user interface and reuse the content that they already have. Included in this group are for example Internet banks, price comparison sites as well as companies whose sales are only conducted over the Internet.

Being successful on the fixed Internet does not imply that the company automatically becomes successful on the mobile Internet. This is partly due to the fact that good content on the mobile phone differs from good content on a personal computer. Another reason is that the laws of existence on the mobile Internet varies from that on the fixed. On the Japanese mobile Internet the operators set the rules. For a company that is used to acting independently it might be difficult to suddenly work under someone else's fierce restrictions and control.

5.2.2 New Businesses that Offer Mobile Internet Content

As always in the case of a new market, many new businesses have arisen in the mobile Internet content provision field. The market is still largely unexplored and there is plenty of room for new actors. New businesses intend to grab at that opportunity. These companies have content provision for mobile Internet as their core business, with all their revenues based solely on this.

The fact that these companies are new does not necessarily mean that they have to be (or have been) ventures. On the contrary, many are part of established company groups. Japan does not have a tradition of entrepreneurship, instead large companies have dominated the market in the past and do so still in the present. Many people spend their whole life working within the same company, a tradition that does not wear off easily. The most popular companies to work for among graduated students are still these large established firms.[71] To be able to use ideas that arise within the company, businesses often spin off new departments instead of starting up new companies. As a result, large companies often have business covering a wide range of areas.

In the last couple of years Japan has experienced something of a venture capital boom.[72] Changing attitudes are resulting in start-ups becoming more and more common, even though they still are less numerous than on the European and US markets. A large amount of venture money is targeted at the Japanese on-line market, which gives opportunities for the content provider start-ups. Exactly how much is hard to estimate, but it was at least a couple of billion dollars over the last year. However, not all of this capital has actually been invested.[73] The venture capital market is still immature and both Japanese start-ups and Japanese venture capitalists have a lot to learn.[74]

New Content Developers

Some of the new companies in the content provision field have built their businesses around content that they themselves develop. No part of the content is bought or owned by external companies. This is the case of many content providers in the entertainment category, for example within games. Creating the content can be cheap at the same time as it can appeal to a large number of users. Therefore there is potential for content to become profitable within this category. The service of downloading characters is one example of this.

Start-up company I-Chara is a new content developer, working on an idea that will provide the mobile phone user with a cute animated personal assistant. This assistant will help the mobile user get in touch with other users and find interesting information on the mobile Internet. Information about the user's preferences and habits are stored in a database as time passes. This enables the character to learn how best to serve the user's daily needs.

Content Packagers

One group of content providers have specialized in taking information (content) owned by other companies and presenting it on the mobile Internet. Their business is based on adding value to the content in a way that the content owners cannot, or do not do themselves. These content packagers actively search for information that they believe would interest the mobile Internet user. In other cases the information (content) owner offers their content to the packager on their own initiative. Packaging is then done in such a way that is made attractive to the user. The content packagers add value by creating a good user interface and by

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[71] Fasol, Eurotechnology, interview 2000-11-03

[72] Yoshikawa, Computing Japan, November 1998

[73] Scuka, Japan Inc, August 2000

[74] Stenberg, Science and Technology Office in Tokyo, interview 2000-11-02

combining a range of contents in useful ways. On many occations content from a large number of content owners, or from the content aggregators themselves, are combined on the same site.

A Toshiba company called iValue Creation offer train and metro traffic information. Just offering access to the timetables would not add great value for the users, so further value has had to be added in order to get users to pay for the content. What iVC provide therefore is a user-friendly way of looking up the best way to travel between two destinations, and include estimates about such things as how long it takes to walk from one platform to another at a certain station. Furthermore iVC give the user information about "hot-spots" and interesting places close to the stations.

5.2.3 Other Content Providers

In addition to the content providers discussed above there are other actors who also offer content on the Japanese mobile Internet. A somewhat different grouping of content providers offers content on the unofficial mobile Internet sites as compared to the official ones. Only about 30 percent of the unofficial sites are offered by companies, the remaining 70 percent being offered by other actors such as individuals and organizations, according to estimations carried out by ValueClick.[75] Furthermore, since the unofficial sites constitute the majority of all sites, this means that the most mobile Internet sites are offered by these other actors. The phenomenon is the same here as it is on the fixed Internet.

Individuals and Organisations

For these content providers the reasons for having a site on the mobile Internet are roughly the same as on the fixed Internet, namely to spread information about themselves and because it is fun to try out a new medium. For example, GITS Matsumoto Lab, a laboratory at Waseda University in Tokyo, has a site that is connected to a web camera in their laboratory. Whenever anyone takes a photo with the camera it is immediately shown on their site.

5.3 Content Providers and the Mobile Internet Services

NTT DoCoMo currently has more than 600 official sites connected to its i-mode service, J-Sky has 400 and EZweb 340. As for unofficial content providers the numbers are hard to estimate. Many of the official content providers provide content on all three services. In the beginning NTT DoCoMo was, unofficially, not that pleased that content offered on i-mode would also be available on competing services. However, the content providers would not agree to be limited to only one service and therefore there are no such restrictions today.

The fact that the three services are based on three different technical platforms is described as a hassle for the content providers. New content is generally introduced on i-mode first since it has the largest and therefore most profitable market from the content providers' perspective. A few months after the service has been launched over i-mode it is often introduced on the other services. The introduction on J-Sky generally comes before the one on EZweb. This is because the markup language used for J-Sky is similar to the one used by i-mode and therefore does not require so many alterations. Converting a site to HDML, the markup language used for EZweb, is more complicated. Many content providers are also testing their content solely on i-mode at the moment. If the content turns out to be a success then they will later introduce it on J-Sky and EZweb.

5.3.1 The Importance of Being an Official Content Provider

As mentioned earlier there are numerous benefits connected with being an official content provider. The most important ones are given below.

[75] Hosokawa, ValueClick, e-mail 2000-12-14

- *The Billing System.* A very important advantage of being an official content provider is the possibility of using the operator's billing system for charging the users. The subscription fees are the main source of revenue for many content providers today. Without the ability to charge the subscribers in a simple way, they probably would not be able to offer their content at all. As discussed in section 6.1.3, there are other solutions for billing for the unofficial content providers. However, so far these have not been very successful.
- *A Place on the Menu*. Being placed on the menu of the mobile Internet service is the most effective way to reach the users since most people look for content through the menu. "Being an official content provider is like having an address on Broadway"[76] is the opinion of one expert in the business. For an unofficial site it can be very hard and costly to get the same amount of attention. The competition regarding position on the menu is tightening as further content is added, so being placed at one of the top positions on the menu is therefore becoming increasingly important.
- *A High Quality Stamp*. To become official content, a site has to pass the careful screening of the operator. For the users this implies that the official content is of a high quality. The official content providers can thus, through the fact that they are official, assure users that their content is most probably superior. For an unofficial content provider this presents a problem since users have to actually try the content to find out whether it possesses any degree of quality. Because of this there is always the risk that the users choose an official site that they know is good instead.
- *Free Marketing*. Official content providers also enjoy free marketing for their content through the operator. Information brochures about the mobile Internet service mention or list different services, which in this way get the users' attention.

These benefits, taken separately or added together, are so significant that the goal of the majority of the content providers is to become official. But this is not an easy thing to achieve. NTT DoCoMo, for example, receives thousands of applications for the acceptance of new official sites every month. Out of those only about 20 are selected.[77] A previously unknown company can apply and get accepted, but attracting the operator's attention can also be very difficult. Having personal contacts at NTT DoCoMo is almost essential for becoming an official i-mode content provider.[78] Another possibility is to cooperate with a well-known already established official content provider. With their help the smaller content provider can make their own content available as official. How this is done in practice depends on the agreement between the two companies.

However, being an official content provider is not without some major drawbacks. The main drawback is due to the strict control exercised by the operators.

- *Limited Flexibility.* Official content providers have to ask for the operator's permission to conduct more than minor changes to their sites. Consequently it takes longer to adjust to new trends or to introduce new ideas. This can be a great disadvantage for a company that is active in such a rapidly developing and changing market as the mobile Internet.
- *Limited User Fees.* Official i-mode content providers are not allowed to charge more for their content than 300 yen per month. Many content providers regard this amount as being too low. Even though J-Phone or KDDI do not impose an upper limit they strongly advise fees to be within a certain range. The content providers usually do not have any choice but to follow the advice.

[76] Richter, Westcyber, interview 2000-11-03

[77] Yamada, NTT DoCoMo, e-mail 2000-11-20

[78] Binstead, I-Chara,e-mail 2000-12-04

- *Prohibition Against Advertisement.* Official i-mode content providers have for a long time been prohibited from having advertisements on their sites. The possibilities of having ads on an official site are still limited, however, this restriction is slowly being lifted.

These drawbacks, together with a gradually more mature market, have made it a little less important to be an official content provider. New ways to charge for content together with various portals and magazines connecting users to unofficial sites, have helped towards this development. We think that this trend will grow stronger over time. There will be solutions to the problems that are currently related to being an unofficial content provider, and as a result of this more and more providers will choose to offer their content unofficially. Eventually this could lead to a weakened position of the operators as content aggregators. In time their menus might become just one portal among others.

5.4 Successful Content Providers

As mentioned earlier the mobile Internet content provision market in Japan is still immature. Many companies are unsure as to how they will profit from the new medium. Thus, it is difficult to draw any definite conclusions from the current situation of what kind of companies will be successful in the market.

We would like to stress the fact that the vast majority of content providers on the Japanese market are not making any profits from the mobile Internet business today. When discussing the success of content providers it is important to keep in mind that direct revenues are not always an adequate measure of success. Many content providers do not primarily aim at making money directly from their site. Instead the purpose of offering content can be marketing, customer service, increased efficiency of the core business, etc. A better measure of success could therefore, for example, be the number of users.

So far the most important factor for success in the terms of number of users, is that of being an official content provider. All the large and well-known content providers offer their content on the operators' menus and have a good relationship with the operators themselves. Since the operators know that these content providers are generally reliable and make high quality content, the chances increase that additional content from them is approved as official.

Most of the content providers that have succeeded in attracting a large customer group had an established business before the time of the mobile Internet. It is easier for an established business to become an official content provider since the operators already are familiar with their name and business and therefore find them easier to trust. However it also points out the importance of having a well-known brand name and an established relation to a customer group.

There are some examples of content providers whose mobile Internet business is profitable today. These companies have some characteristics in common. They charge users for their content through the operators' billing systems. They have a large number of users, which is a must if making a profit on user fees is to be achieved. Their content portfolio is both large and constantly updated with new content. Often their only business is the provision mobile Internet content.

6 The Content Providers' Business Models

In Chapter 6 we define and discuss six identified business models utilized by content providers on the Japanese market for mobile Internet. Mobile Internet content can be used as a source of income, to increase business, or to support other company functions. Content providers frequently combine several of the models to suit their needs.

We have identified six main business models that are applied by the content providers on the Japanese market for mobile Internet. These are the *User Fee Model*, the *Shopping Model*, the *Marketing Core Business Model*, the *Improved Efficiency Model*, the *Advertising Model* and the *Revenue Sharing Model*. Some of the models are used exactly as represented in the diagrams while as others are combined and/or modified versions.

The six business models are described below. Each section begins with an explanation of the main parts of each specific model. We then go on to stating which content providers are most likely to use and benefit from them. The content providers are classified according to the categories we described in Chapter 5. These are within established businesses: Traditional Businesses and Fixed Internet Businesses and within new businesses: New Content Developers and Content Packagers. This is followed by a description of some characteristics that we have found to be typical of the business model in question. The description of each business model ends with a discussion. The chapter is concluded with a short description about how the models can be combined.

6.1 The User Fee Model

Many companies who offer mobile Internet content charge their users for accessing the content. The payment is most often carried out through a third party, who collect the fees and forward them to the content provider. For this service the third party extracts a commission from the user fee.

The user either pays a fixed monthly subscription fee or a per-usage fee. The latter can be based on the amount of time connected, the number of times the connections take place or the amount of information sent to the users, or combinations of these methods. To subscribe to content it is quite usual that the user enters the site and registers online. Once the user has agreed to pay for the usage of content, he or she can be billed.

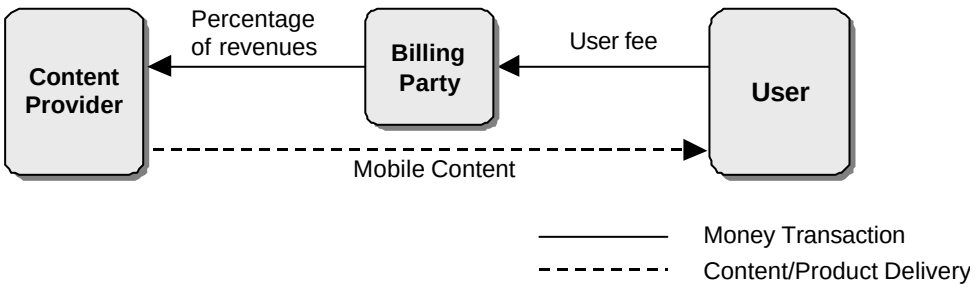

Figure 15. The user fee model [Devine, Holmqvist, 2000]

6.1.1 Content Providers Using the User Fee Model

The user fee business model is applied by both established and new businesses in all of the categories discussed in section 5.2. The model is successful as long as the companies offer

content that the users are willing to pay for. Sometimes the content providers themselves develop the content while at other times the companies present content from other content owners. User fees can be a company's only source of revenue, or just a side revenue and not the main purpose for offering content.

With the billing systems currently offered by the operators, being an official content provider is very advantageous. About 30 percent of the official i-mode content providers charge a monthly subscription fee for their content.[79] As an unofficial provider it is difficult at the present stage to charge the user in a convenient and reasonably inexpensive way, though methods for doing this are under development.

6.1.2 Available Content with User Fees

Content, which the user has to pay for, can be of various kinds. Content providers charge for content within all the content categories described in section 4.2.2. Examples of content that the users are willing to pay for can be anything from news, games, weather, to a surfing guide.

All the sites where the users are charged also have sections that are free. This is to attract customers and give them a taste of what is available if they pay the fee. For example, a newspaper can show the headlines of the latest articles, then if a user wants more detailed information he or she has to register and pay.

A site can also function the other way around, i.e. the main part of the site is free while at the same time there is some so called "premium content" that the user has to pay for in order to access. The purpose of this type of site is often not to collect user fees but to earn money in some other way. The site GolfOnline, for example, offers information about various golf courses. The content provider makes money in the form of a commission when a user reserves a time for playing. If in addition the user pays a monthly subscription fee then there are some extra services provided such as weather information for each golf course.[80]

Pricing

As mentioned earlier, content can be charged for either by per usage or by a fixed monthly subscription fee. For official content, charged through the mobile phone bill, the latter is the most commonly used method.

Subscription fees usually range between 100 and 300 yen. NTT DoCoMo has set their limits for i-mode content from 10 to 300 yen. The content providers want to be allowed to charge more, but NTT DoCoMo is of the opinion that prices have to be kept low in order for the mobile Internet service to be competitive.[81] Officially neither J-Phone nor KDDI set a limit for charges, but they do have opinions on what they think is a suitable amount. A content provider on J-Phone that provided real-time stock exchange information charged 2000 yen per month for this service. Apparently this was too expensive, the content did not attract enough subscribers and it was closed down. J-Phone and KDDI also offer to handle the billing of per usage charges[82]. As an example, downloading certain ringing melodies costs about 30 yen per song.

6.1.3 Billing

Since the amounts charged are often quite small and since customers often pay for more than one content, it would be very impractical for both parties to have the content providers taking care of the billing. The user would have to pay a number of separate micro bills and the

[79] NTT DoCoMo i-mode menu, November 2000

[80] Vichitkulwongsa, Arriya Solutions, interview 2000-10-29

[81] NTT DoCoMo, interview 2000-10-31

[82] Saunders, FlyingColor, e-mail 2000-12-05

content provider would have to establish and maintain a billing system. Instead a third party intermediate between the content provider and the users and handles the payments.

As mentioned earlier the Japanese operators take care of the billing for their official content providers. The system is called the clearinghouse model. Only official content providers are allowed to utilize the billing system offered by the operators. For all the others the problem of how to charge users still remains. To solve it, several different so-called third party billing models have been developed. Some of them build on the same idea as the operators' models and are offered by companies that have a large user base. Others try to find new solutions.

The Clearinghouse Model. This system is described in section 2.3.2. NTT DoCoMo only handles monthly subscription fees, whereas J-Phone and KDDI, manage per usage billing as well. This is a well functioning solution, much appreciated by the content providers.

The Quasi-clearinghouse Models. Some companies that already bill users for their own services or products offer content providers the possibility to bill the customers for their mobile Internet usage on the same bill. Since the infrastructure and the user base are already in place, arrangements for this are relatively easy to make.

NTT Communications, a provider of fixed telephone services, offer content providers the ability to charge users through their fix line phone bill. Users that subscribe can purchase content from a service menu set up by NTT Communications. For this service the company charges the content providers a 5 percent commission fee, in addition to initial and monthly fees. The ISP @nifty offers a similar solution, charging through the fixed Internet access service bill.[83] The main problem with these charging models is that many mobile Internet service users do not have their own personal fixed phone or Internet bill. While the mobile phone subscription is personal, the fixed phone or fixed Internet service is often shared within a household.

Pre-paid Cards. Another solution to the billing problem is pre-paid cards. The user buys a card with a unique 16-digit identification number for a sum ranging between 20 and 100 000 yen.[84] The identification number is entered when the user wants to pay for content. This model has the advantage that the customers have already paid for the content when using it, which offers security to the content providers. A drawback is the inconvenience for the users. They have to keep the card available and when it is empty they have to purchase a new one.

Credit Cards. An alternative solution to the billing problem is paying for content with a credit card. Users can pay both monthly and per usage fees with the bills being automatically added to the credit card bill. The content providers are usually charged a commission of approximately 20 percent[85] for this service.

The main problem regarding credit card payments is security. Since the mobile phones that exist today do not implement the SSL protocol, some people do not consider it safe to transfer credit card numbers over the network. One attempted solution, developed by the company Livin' on the Edge, is a method where the user clicks on a telephone link to place an order and then enters a credit card number. The number then passes through the voice line, which is presumed to be safer than the Internet.[86]

The Java enabled phones which are soon coming onto the market will have the SSL protocol implemented, which means that credit card numbers can be safely transmitted. The next generation of phones will also have the UIM (User Identity Module), similar to SIM cards in

[83] Shigeyuki, Embassy of Sweden, interview 2000-10-26

[84] Funk, Kobe University Graduate School of Business, interview 2000-11-08

[85] Saunders, FlyingColor, e-mail 2000-12-05

[86] Shigeyuki, Embassy of Sweden, interview 2000-10-26

GSM-based networks. Credit card numbers can then be safely encrypted, stored and transmitted by this module.[87]

6.1.4 Discussion

The user fee model is special in the way that there is no widely used counterpart in the fixed Internet content provision area. On the fixed Internet there is no functioning micro billing system, which makes it difficult to charge users regularly for small amounts of money. Almost all content on the Internet is free of charge for the user. Since users are used to content being free on the fixed Internet many analysts in the western world have come to the conclusion that they will not be willing to pay for content on the mobile Internet either. In Japan this assumption has proven to be wrong, users do pay for content. The explanation to this could partly lie in the fact that fixed Internet usage is less widespread in Japan than in Europe, the Japanese have therefore not been spoiled with free access to content. However, the Japanese's willingness to pay for content can also be explained by the low pricing and the easiness by which the fees are paid, especially when they are just added on the phone bill. This could be compared to paying one Swedish Crown extra for a cup of coffee; the amount is so small it is hardly worth noticing and the customer was in any case going to have to get out a wallet and pay. We believe that all of these reasons, the low fixed Internet penetration and the convenient payment system together with low prices, contribute to the Japanese's willingness to pay for content.

The relevant question is whether or not the possibility of charging the users will exist in the future. The market is currently very immature and the competition among content providers has not yet reached the levels that we expect that it will do. Moreover, since the medium is still new the customers are not yet very demanding. Soon the users will have more to choose from and the content providers will have to compete harder for their customers. This means that if the providers cannot offer a unique product then they will not be able to charge for it. We do think it is likely that there will be a possibility to charge for some content that is normally available free of charge through other media. Because of the opportunities of positioning and timeliness, the mobile Internet users will be willing to pay to be able to access that content at any time or place, or even at a certain time and place. However, increasing competition can very well result in a smaller segment of the content being imposed with fees.

One consequence of the low prices set on mobile Internet content today is that it is essential for a content provider who relies on the user fee model to have a large user base in order to make a profit from their content. This means that they have to offer one or more attractive contents on the mass market. Just offering a single content would be risky: at anytime a competitor can launch a competing or substituting product, which could be fatal to the business of the content provider. Therefore the majority of companies that rely mostly or entirely on user fees strive to develop a large portfolio of content aimed at the mass market. We believe that in the future there will be a few successful providers offering a large amount of content cheaply. For these providers it will be essential to continuously update their portfolio and to offer new interesting content, especially if ideas are copied by competitors or as users tire. There will also be more specialized content, targeting smaller user groups. Content providers will be able to charge more for this latter type of content since it will provide high value to a small group of users and also be harder for competitors to copy.

6.2 The Shopping Model

Companies utilizing the shopping model all sell products or services over the mobile Internet. The user orders a product or service on the mobile phone and the content provider sees to it that the buyer gets the goods delivered. The payment is either handled online or at the delivery.

[87] Saunders, FlyingColor, e-mail 2000-12-05

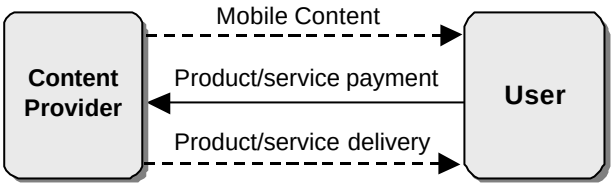

Figure 16. The shopping model [Devine, Holmqvist, 2000]

6.2.1 Content Providers Using the Shopping Model

The shopping model is used by content providers that belong either to the "Traditional Businesses" or to the "Fixed Internet Businesses" categories.

In the case of traditional businesses the content provider sells the same product or service through ordinary channels, such as regular stores and offices or by mail delivery, as well as on the mobile Internet. In most cases they also have a fixed Internet site where they sell their products or services.

Fixed Internet businesses have the Internet as their only sales channel. They often have the aim of being able to offer their customers lower prices for goods or services, enabled through lower overheads as compared to competitors with physical channels to their customers. For fixed Internet companies the mobile Internet is a sales channel that is very similar to the existing one and it usually fits well into their organisation. All the handling of payment and delivery is already organized and functioning.

To our knowledge, there are no Japanese companies at present that only sell products on the mobile Internet.

6.2.2 Payment and Delivery

For the companies that sell products over the mobile Internet it is essential that the systems for the payment and delivery of goods or services are reliable and well functioning. Customers need to trust the company's ability to handle their purchases correctly or they will buy the product elsewhere.

In Japan, the customer is often offered a number of possible ways to pay for the purchase. This includes cash on delivery, credit card or withdrawal from a bank account. The customer is able to choose the solution that suits him or her best.

Many Japanese are still reluctant to pay online with credit cards for security reasons. These safety concerns are thought to have limited the mobile phone-based online sales so far.[88] Finding a solution to the problem has therefore been the aim of several different companies, some solutions are discussed in section 6.l.3. NTT DoCoMo started the joint venture Payment First corp. in June 2000 together with a number of other companies. They claim to have developed a secure system that uses the SET specification. The partners expect the new system to promote i-mode based online sales and they target a turnover of 10 billion yen by the year 2003.[89]

As of November 2000 it was still not possible for customers to pay for goods through their mobile phone bills, even though such solutions have been discussed.[90] It is not certain that any solution like that will actually see the light of day; the operators do not want to handle the

[88] AsiaBizTech, November 2000

[89] AsiaBizTech, November 2000

[90] Saunders, FlyingColor, e-mail 2000-12-05

large sums of money that such transfers would involve. So far, the operators limit their charging service to the micro billing.

There are two major ways to have products delivered. These are home delivery and delivery to a nearby convenience store. Japan has several well functioning home delivery services. Companies such as Sagawa and Yamato offer inexpensive packet door-to-door delivery.[91] Upon delivery the customer can pay either in cash or with a credit card.

Convenience stores play an important role in the delivery of goods. For example, Lawson offer e-commerce companies the possibility of using their settlement and distribution system, a service called the "econtext". Customers can pay for and pick up products at close to 7400 outlets across Japan. When inputting a reservation number and a phone number into a multimedia station in the Lawson store, the customer gets an invoice for his order that he or she pays at the cashier desk. A couple of days later the product will be delivered to the store or the home. For utilizing the service the content provider pays one fixed initial charge of 50 000 yen and thereafter monthly charges of between 5 000 to 12 500 yen, depending on the total number of transactions. The surcharges range between 120 yen and 500 yen, depending on the volume of the transaction.[92] Other convenience store chains offer similar services.

6.2.3 Discussion

E-commerce has been a frequently debated topic over the last couple of years. It has not yet become the huge success that many predicted it would. Recently a large number of so-called dotcoms have gone bankrupt due to failing customer figures. The question is what the future of shopping over the mobile Internet is likely to be. Are there any new openings and opportunities that will make it more successful than on the fixed Internet, or are the restraints too many?

Shopping over the mobile Internet shares many of the limitations that the fixed Internet has battled with. A good illustration of this is the customers' needs to touch and see in real life what they are buying. Many of the products that are unsuitable to sell over the fixed Internet are therefore equally unsuitable for sale over the mobile Internet. Furthermore, the mobile Internet imposes additional restrictions when it comes to displaying the item to the user. The screen size and interaction functionalities such as typing are severely limited. Therefore the process of buying, for example, a whole basket of food can become very tedious.

In spite of the limitations there are some interesting possibilities. Successful shopping content will most likely be the content that utilizes one or more of the three previously defined characteristics of excellent mobile Internet content: personalization, positioning and timeliness.

Products such as hotel reservations can utilize the timeliness feature of the mobile Internet. Purchasers might not have the possibility of purchasing the product elsewhere or at a different time. As the evening passes and the hotel's rooms are still not let, the hotel has the opportunity of lowering the prices until all the rooms have been occupied. Auctions are another area in which the mobile Internet has a large potential. By constantly being updated with the most recent bids and being able to act at all times, users have the opportunity to actively participate in auctions.

Possibilities for personalization can be successfully utilized, for example, by building extensive databases containing previous user purchase patterns. When using a site the user could be offered the opportunity to receive suggestive information and offers related to previous purchases. Such systems as used by, for example, Amazon.com, are already in use on the fixed Internet.

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[91] Tsutaya, interview, 2000-11-01

[92] AsiaBizTech, May 2000

There are a number of ways of utilizing positioning in mobile Internet shopping. For example, a product could automatically be delivered to the convenience store closest to the users position when ordering. Large decisions such as buying a car are hardly likely to be taken on the subway platform or when the customer is out for a walk.

We believe that there are products that are especially suitable for sales over the mobile Internet. Examples of these are tickets, hotel reservations and other bookings. These are products that the user has no need of seeing before purchasing and they are in a more or less standardized format. In the future tickets can be sent to the user as an e-mail.

With the prevailing prerequisites we do not believe that the shopping of physical products over the mobile Internet will become a big success. Users that have access to other sales channels may not consider the incentives strong enough to actually use the mobile Internet or any of the other channels. Therefore companies should work hard at providing potential customers with incentives. These incentives can be in the form of coupons, other rebates, competitions, etc. By using some little means of finesse, the customer's attention can be attracted and hopefully this customer's behaviour will become recurrent.

6.3 The Marketing Core Business Model

Content providers can utilize the mobile Internet as a marketing medium to market their core business. The aim of offering marketing content is to attract customers to the company's core business in order to increase it. Potential customers will see the company's brand and offers on the mobile Internet, which can lead them to contact the company and buy their products or services. The core business is usually a traditional non-Internet business but it can also be online business.

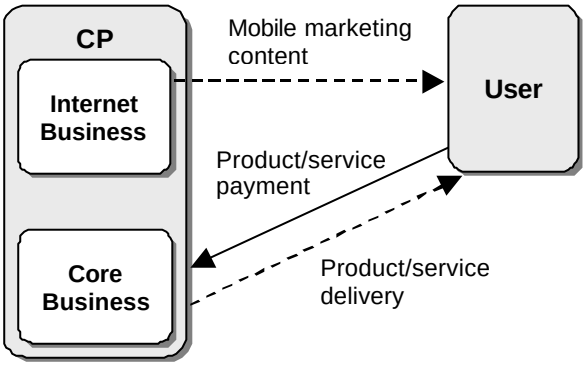

Figure 17. The marketing core business model [Devine, Holmqvist, 2000]

6.3.1 Content Providers Using the Marketing Core Business Model

Practically all companies can take advantage of the marketing business model. These companies are mainly established companies within the categories "Traditional Businesses" and "Fixed Internet Businesses" and can they be in the areas sales, newspapers, television, etc. Often they have a substantial budget and can afford larger campaigns to attract attention. Since the cost for offering content can be small, newer and smaller companies can also benefit from this model, however with less certainty of actually being seen. If the site is successful the attention can be huge, which in turn can lead, for example, to a substantial increase in current or even future sales. If it is a failure, hopefully just a small amount of money has been spent.

6.3.2 Marketing on the Mobile Internet

The purpose of marketing is to establishing a relationship with the customer that will lead him or her to purchase the company's products or services. By utilizing the new medium the core

business can be increased through attracting new customers as well as strengthening their relationship and thereby stimulating existing customers to buy more.

Mobile Internet brings together two extremes: mass-marketing and one-to-one marketing. While it can be used to reach a mass market, the mobile Internet's foremost feature it that it increases the possibilities within personalized marketing. In other words it provides companies with the opportunity to reach a mass market with personalized marketing content.

Tsutaya, a video rental store combined with CD, book and game sales, is an example of how a business can successfully market their core business on the mobile Internet. The main purpose behind starting a site on the Internet (fixed and mobile) has been to draw customers to the more than 1000 Tsutaya stores across Japan. The online site takes advantage of the existing relationship Tsutaya has with its 13 million customers that are already members of the regular Tsutaya membership club. Advertising is focused on these customers through already existing channels. The site has currently more than 650 000 online members (mobile Internet) and the i-mode site is accessed more than 2 million times a week.[93] About 80 percent of the online members are also members of the regular Tsutaya club.[94]

Establishing a Relationship

In order to carry out efficient marketing on the mobile Internet a company has to establish a relationship with the potential customer. Many companies with a core business outside the mobile Internet already have a relationship to an existing customer group. However, they also want to get the attention of new potential customers. The Japanese content providers do this in numerous ways:

Presence. One of the simplest ways to market a business on the mobile Internet is just by being present. It is common that companies already have a site on the Internet so what could be easier than having this site translated into cHTML, and all of a sudden being present on the mobile Internet.

Sample of content. Sometimes a site can be presented on the mobile Internet to give customers a sample of the company's core business. One example of this is a company called Recruit. Their main business is to publish information magazines. Obviously it is not possible to fit the content of a magazine on the small screen of a mobile phone, but it is possible to get the customers interested by presenting limited versions of the information. A customer looking for an apartment can see and read about several objects matching his preference list. Then by going on to buy the paper magazine he or she can see the fully detailed information about the flat, including sketches of the layout and other pictures.

Combining different media. The following example explains how it is possible to combine different media as a marketing strategy, using the mobile phone as the main tool. A site's URL can for example be mass marketed in a place where there is a large number of people with a few minutes to spare, in buses, on trains, or around a large square. Seeing an advertisement for a site that seems interesting and also having some time to kill, it is quite possible and even likely that the mobile Internet user will enter the URL while he or she is waiting. Thereby a direct contact with the user is established. The aim of the advertising company can be to try to get information from the user with the purpose of building a user database that can be used later for the purpose of one-to-one relationship marketing. Users can be tempted to give information about themselves, for example in return for participation in a lottery. Comparing advertisements for the mobile Internet with similar ones for the fixed Internet, in the latter case it is much less likely that the user actually goes home and remembers to look up the site. Thereby the possibility to establishing a one-to-one relationship is lost.

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[93] Miya, Tsutaya, e-mail 2000-12-13

[94] Tsutaya, interview 2000-11-01

Personalized Marketing

Once the relationship with the customer has been established the company can start marketing their business in more personalized and sophisticated ways. Below we discuss some of the methods used by Japanese content providers.

Improved information through direct communication is one way of getting customers to increase contact and therefore business with the company. Getting customers to sign up for newsletter e-mails is an example. Tsutaya offer a service where the user can select a number of music artists that he or she wants to receive the latest information about. As soon as there is something new concerning any of the artists, the user receives an e-mail with information about the concert or CD release. Having an established relationship makes the customer more likely to shop in a Tsutaya store when he or she wants to actually by the new CD, especially if the information is combined with a coupon, as evidenced below.

Discount coupons is another way of trying to attract members to a company's main business. By sending personalized and hopefully well timed offers to online members or other customers there is a greater likelihood of them increasing their purchases. The user saves an online coupon by saving a screen shot on the phone. When the user later enters a store, he or she only has to show this picture on the phone. The hit rate of using online coupons on the mobile phone has been considerably higher than the hit rate for Internet coupons. One reason for this is most likely that the mobile phone is more personal than the computer and always carried around on the user. In the case of Tsutaya, their research has shown that coupon users visit stores 70 percent more often and spent 59 percent more on videos than regular Tsutaya members.[95]

6.3.3 Discussion

The focus of the marketing model is the company's core business. The marketing model attempts to entice customers to purchase from the company rather than elsewhere. However, the mobile Internet channel is only one of the many marketing channels that the company can utilize. There can be several other channels as well, all of which supplement each other in various ways.

For the marketing company it is of the utmost importance that the customer is willing to accept advertisements in the form of information or coupons. If this is not the case then the effect can be quite the opposite from the intended; customers can get irritated, which means badwill for the company. In some cases we believe that the customer will be prepared to give companies information about themselves in order to receive marketing information that is of interest for him or her. By giving the user the opportunity to state exactly what they are interested in and some control over the frequency with which they receive information, direct marketing can be a successful means of attracting customers.

There are a number of possible ways to motivate the customer to receive direct marketing. One method can be to disguise the marketing as coupons. Receiving a moderate amount of appropriate coupons can be perceived as something positive, as long as the user does not feel that he or she is being overloaded with information. Personalization is absolutely necessary when it comes to this type of information. Too much and impersonal information will result in the user feeling spammed.

In the attempts of attracting customers to the site and then onto the core business itself, the companies should also try to utilize the factors of positioning and timeliness. The time or location at which a coupon or message is sent can be critical to whether or not the customer actually buys something from the core business. These two factors can be used together to motivate why the customer receives the information. If he or she is just walking past a shop, a coupon will be much more meaningful than if the user just arrived at work.

[95] Nakashima, The Japan Times, 2000-08-31

The time it takes before the effects of marketing on the mobile Internet show can vary between a couple of minutes and several years. The outcome of being present on the web can result in goodwill that in turn results in increased business much later. Some companies such as Nikkei, a business newspaper, are attracting a much younger clientele to their mobile Internet site than the age of the average newspaper subscriber. Thus by being present on the mobile Internet, they are able to broaden their customer base. Nikkei's hopes are that this user group, when a little older, will start to subscribe to the paper version of the newspaper as well.

6.4 The Improved Efficiency Model

The mobile Internet is in some cases utilized to improve the efficiency of the content provider's business. The medium is used as an extra channel to reach the users, a channel that is less expensive to operate than most of the alternatives. When users access the company's service through the mobile Internet instead of through another channel, the content provider's operating costs are decreased.

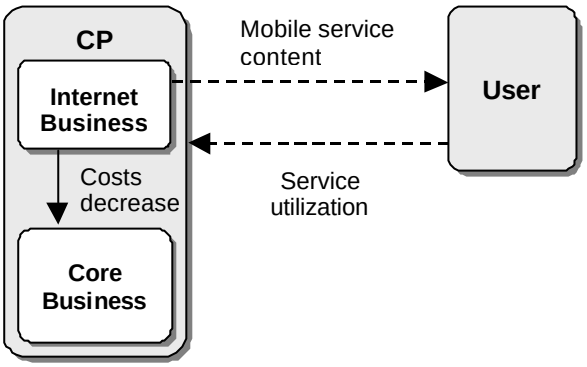

Figure 18. The improved efficiency model [Devine, Holmqvist, 2000]

6.4.1 Content Providers Using the Improved Efficiency Model

Companies that have other core businesses than the Internet can often benefit from the Improved Efficiency model. These can be companies such as banks, trading companies and retailers in the category "Traditional Businesses". Companies that have a mobile Internet site for the purpose of improving their own efficiency (as well as giving an improved service to the customers) usually also have a fixed Internet site for the same purpose.

6.4.2 Possible Cost Reductions

Introducing the mobile Internet as an extra channel to the customer can eliminate a number of different structures within or outside of the content provider's domain. In the case of banks and trading companies large amounts of money can be saved by moving customers from expensive customer interfaces, such as the bank offices, to handling their economy without much assistance on the Internet. The need of more expensive channels such as bank offices and manned telephone services decreases. Both these latter services require human assistance, which means that the company, apart from having more employees, also has extra expenses such as the need of office space etc. The alternative where the customers together with a well functioning system manage the services by themselves is of course much cheaper.

Daiwa Securities is a security company that offer i-mode content where customers can buy and sell stock. Today about 35 percent of Daiwa's transactions are managed online (fixed and mobile Internet) and out of these 20 percent are transactions over i-mode. This means that 6-7 percent of the company's total transactions take place on the mobile Internet. For the customer the fee is lower for the online trading as compared to going to a counter to do the sales or

purchasing. Doing business online costs 50 percent less. For Daiwa the costs reduction is even larger.[96]

Some companies use a middleman to reach the customer, for example airline companies that sell tickets through agencies. For this service the agency takes a percentage of the ticket price. Eliminating this step to the customer means that this percentage instead goes to the airline company, which thereby increases its profits. Naturally the airline companies are interested in bypassing the intermediary and serving the customer directly through cheaper channels, such as the Internet. The strategy is however a balance act. Although money can be saved, airline companies nevertheless depend on the business that the ticket agencies generate. At the moment they cannot survive completely without them. Therefore airline companies have to maintain a good relationship with the agencies and they cannot yet openly strive to eliminate these middlemen.

6.4.3 Discussion

The improved efficiency business model results in a win-win situation for both the content provider and the end user. The content provider reduces costs, which in turn hopefully also results in lower costs for the customers. Furthermore the users gain access to an additional channel that is always open and available from wherever they are any specific moment. Lower prices and constant access is a good incentive to encourage customers to choose this channel.

Fixed Internet has drastically shortened the customer delivery chain and the mobile Internet has the just the same effect. However, there are applications where the specific features of mobility can add further value for the mobile user as compared to similar applications on the fixed Internet. In cases such as buying tickets, the independence of position and time can be important and enhance the user experience. Buying and selling stock at any time, not being confined to a fixed computer is another example. For content providers themselves that have business on both the fixed and mobile Internet, the efficiency is not drastically improved by moving customers between the two. However, added value through the mobile medium can result in a more satisfied customer or that even more customers are attracted to the service.

There are also limitations to the medium, the most apparent today being the size of the screen and the input possibilities. Activities that require a large amount of input are therefore not optimal. As an example, many banks only offer the service of opening new accounts via the fixed Internet, as it is easy to make typing mistakes on a small mobile phone screen. By combining media such as fixed and mobile Internet, many of the current limitations can be overcome. The disadvantage with this is that the customer has to have access to several different channels.

For any third party acting as an intermediary between the content provider and the user the situation is the not an advantageous one, that is they are at risk of becoming obsolete. The situation is the same as on the Internet, the new medium has opened new channels of communication between the producing company and the end users. As a result many intermediaries are going to experience decreased business or even that their business is no longer needed. It is not likely that the third parties will give up without at least some resistance and content providers should be cautious not to totally run them over. As long as the third parties have some power in regards to customer contacts and influence, caution should be taken.

B2B and B2E applications open a whole new world of possibilities to improve the efficiency within a company, but that is another story.

[96] Daiwa, interview 2000-11-09

6.5 The Advertisement Model

Some content providers make money through their site by letting other companies expose their name or more detailed information about their products. For this service the advertising company pays a fee to the content provider. By having advertisements on appropriate mobile Internet sites, the advertising company hopes to attract customers to their business, and thereby regain the money spent on the advertisements.

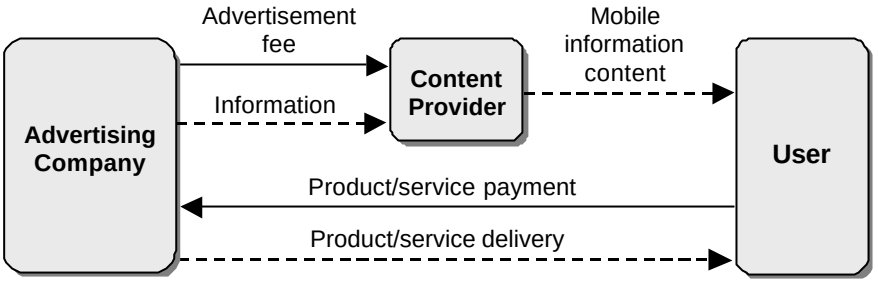

Figure 19. The advertisement model [Devine, Holmqvist, 2000]

6.5.1 Content Providers Using the Advertisement Model

All content providers can utilize simple forms of advertising on their site. For most companies the advertising is a side business and the main source of income is from elsewhere. However, for some unofficial sites advertising can be the only revenue stream.

There are content providers whose main business is in advertising. They make all their money from offering content, which has the duplicate role of being information for the users and a way of presenting themselves for the advertising company. The content providers can be both established businesses as well as new businesses.

6.5.2 Ways to Advertise

The mobile Internet brings a range of new possibilities in the way of advertising. Companies are beginning to see the possibilities and how they can benefit from other companies' needs to advertise. New methods and business model are arising on the Japanese market and the advertising is becoming more and more creative.

The restriction for advertisement that NTT DoCoMo put on official i-mode content has been a limiting factor for advertisement (see section 2.2.5). Now that the restriction is lifted one can expect to see even more innovative ways of advertising evolving.

Banners. Banners are one of the most basic forms of advertisement that a content provider can have on their site. So far banners have been more successful on the mobile Internet than on the fixed Internet. Click-through-rates (CTR) measure how many people actually click on a banner that they are exposed to and present the result as a percentage. When the advertising company ValueClick started to test their banner provision system in February 2000 the CTR was more than 6 percent, compared to the Internet figure of less than 0.5 percent. The high rate at the launch can easily be explained as people's initial curiosity and since then the rate on the mobile Internet has stabilized at 1-1.5 percent. This is still higher than on the fixed Internet and as a consequence the advertising companies are prepared to pay more for advertisements on the mobile Internet.[97]

[97] ValueClick, interview 2000-11-04

A site called Keitai Net together with the Japanese Postal Savings Account System, have created an innovative service with regards to banners and CTR. After users have registered on the site they get paid to view advertisements. Currently the users receive 15 yen for each advertisement that they click on, money that is deposited in a postal account. The user can use the money to purchase products featured on the site, or they can download the cash from the account.[98]

Apart from NTT DoCoMo's restriction for advertisements, another obstacle that has prevented banners from becoming widely used is the fact that the users themselves have to pay to have data downloaded to their phones. So far the user has been paying the traffic cost for both downloading the banner advertisements as well as the cost of clicking on them. This is however due to change. NTT DoCoMo has now introduced a system for charging the advertising company instead of the user for the traffic that is generated when a banner is clicked. Content providers will thereby be more open to having advertisements on their site since it does not imply any additional costs for the user.

Charge for loading content. There are a number of content providers who offer sites with the main purpose of informing users about other companies' products and/or services. The latter pay the content provider for making this service available to them. Examples of this are town guides, where restaurants and shops pay the content provider a fee to be listed on the site. As an example, restaurants pay a fixed cost of 100 000 yen per year to be listed on a guide by the ticket company PIA. For the users the service is free of charge.[99]

A variation on this theme is so called promotional sites, in Japan called Kenshou (=prize). Companies that want to promote themselves and attract traffic to their own mobile Internet site can have it listed on a Kenshou site. The content provider of the Kenshou site charges a fee for this. Users are drawn to the site with promises of prizes and of being entered in various lotteries if they register and enter their e-mail address. They can then choose to receive, for example, targeted e-mails about categories of products that they have registered beforehand as interesting. They can also enter an advertising company's site, and perform certain actions such as finding specific information etc. As a result the user is entered in another lottery and the company has exposed its brand to a potential buyer.

Sponsorship. Another form of advertisement is when companies sponsor different parts of the content. The advertising company's name or products would be exposed in some way when the user accesses the content. An example of a sponsorship model could be that a soft drink manufacturer sponsors an activity on a content providers site. If the user buys a drink of the manufacturer's brand, he or she gets a number, which is printed on the can. When entering the number at the content site the user gets access to, for example, a game. The advertising company pays a fee or commission to the content provider for this service.[100]

6.5.3 Discussion

Compared to the fixed Internet, the mobile Internet imposes additional restrictions but also offers new possibilities for advertising. The restrictions are mainly due to the screen's limited size, which only can show a limited amount of data at any one time, and the fact that today the user has to pay for all the data that is downloaded to his or her mobile phone. Limitations in screen size makes it is impossible to show advertisements that attract the eye of those interested but at the same time can be easily disregarded by others. Instead each advertisement occupies a large part of the screen and is irritating for persons who are not interested. The result of these two constraints is that the users have to find advertisements value-adding in order to accept them. They will not agree to pay for content that they are not at all interested in and they will be irritated by that content occupying their screen. Content providers that want

[98] Scuka, Japan Inc, November 2000

[99] PIA, interview 2000-11-07

[100] Hasselström, Cybird, interview 2000-11-08

to have advertising as a revenue stream have to make sure that the advertising content is satisfying for the users.

We believe that banners as a form of advertisement do not live up to this requirement. Banners on the mobile Internet have initially proven to be successful, but this is most likely because of the users' curiosity about the new phenomenon. The only way of adapting banners to the interests of the users is to put a banner about a specific subject onto a site where the content is related to that subject. However, we do not find this personalized enough to satisfy the users. A cautious scepticism about mobile Internet banners can be seen among the Japanese companies. ValueClick state that they have plenty of content providers that want to have banners on their site, but only a few companies that want to pay for this type of advertising.[101]

We believe that the form of advertisement that will be most successful on the mobile Internet is the kind that is asked for by the users. Charge for loading content, a model mentioned above (section 6.5.2), is an example of this. In this case the users view the content as information, while it at the same time is an advertisement for the advertising companies. To compensate users for receiving an advertisement is another method to make them want it. One way could be to give them credit points or cash, as mentioned in the example of Keitai Net above. Sponsorships also belong to this category: users accept marketing in order to get free access to content they otherwise would have to pay for. As mentioned earlier, the mobile Internet advertising business is still rather immature and many new solutions will most likely see the light of day before long.

In order for content providers to be able to obtain revenues of a significant size, it is essential for them to have a large user base. If not, no company will be willing to pay for having their advertisements on the site, or if they are they will surely not expect to pay much.

6.6 The Revenue Sharing Model

There are content providers that mainly use content from other parties (so called content owners) on their sites. Depending on the specific content, the content provider can either pay the content owners for access to their content or alternatively get paid to expose the content. In either case, the revenues that are generated by the mobile Internet content are shared between the two by using a certain agreed percentage or a fixed cost.

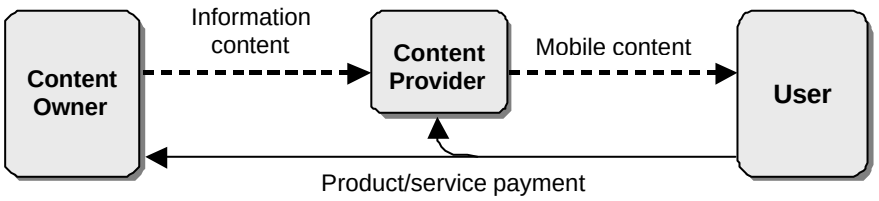

Figure 20. The revenue sharing model [Devine, Holmqvist, 2000]

6.6.1 Content Providers Using the Revenue Sharing Model

Content providers that obtain their content from a source outside of their own company apply this model. Companies that belong to this category are primarily "Content Packagers". Their businesses are built upon taking content owned by other companies and providing it to the mobile Internet.

[101] ValueClick, interview 2000-11-04

Other companies that additionally benefit from this model are “Traditional Businesses” and “Fixed Internet Businesses”. They buy various degrees of their content from content owners and then share the revenues with them.

6.6.2 Ways to Share Revenues

Revenue sharing can be carried out in two ways. Either the content owner takes a commission fee from the content provider’s revenues, or vice versa; the content provider takes a commission from the content owner’s revenues. What method is used depends on whose revenues that derive from the mobile Internet site.

With the growth of the mobile Internet, buying content has become a big industry. Owners of content are realizing that they own something that other parties are willing to pay for so as to be able to present it on the web. This can be subway timetables, weather forecasts, maps etc. The information is usually not enough to constitute a whole site in itself, it needs to be combined with other content to provide the user with real value. Instead of the content owner offering it on the mobile Internet they sell it to content packagers, who can produce a valuable site by combining several different contents and adding extra information themselves. The content owner can charge for the information by shared revenues, for example by taking a commission on the revenues that the content provider gets from the site. They can however also sell the information for a fixed monthly or annual charge.

Revenue sharing between content providers and content owners can also be applied when a site increases business for the content owner, that is, the site is an advertisement tool. For the content owners the exposure of brand name and/or products is positive, as it attracts more customers to the company’s business. The aim of the content provider is to provide a complete and comprehensive site, otherwise the user will not see enough value in using it. The content provider takes a commission on the revenues that the content owner gains from the mobile Internet customers. The provider often acts as an intermediary between the content owner and the customers by handling the business between the two.

One example of a site like this is a golf site called GolfOnline. This site provides information about areas connected to golf; golf courses, golf products, weather, special golf trips, etc. Golf interested users can use the site to make a reservation to play at a specific golf course. The user enters his or her preferences on the site. In the background, the content provider arranges the booking, by fax or e-mail and as soon as the reservation is completed the user receives verification of the booking. When the user later gets to the golf course to play, her or she pays the regular fee to the golf course owner. The course owner then pays the content provider a certain percentage of the generated revenues. See figure 24 for an illustration of how the transactions flow.

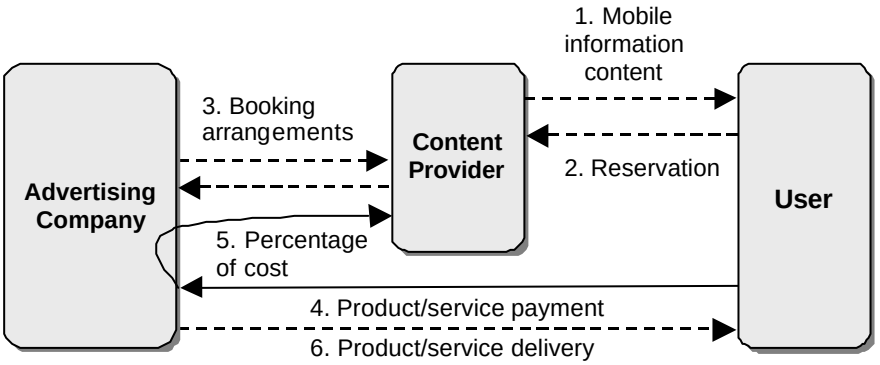

Figure 21. The revenue sharing model, special case [Devine, Holmqvist, 2000]

6.6.3 Discussion

The revenue sharing model can greatly benefit both the content provider and the content owners. Without the information that the content owners supply, there would be no site. The content provider contributes with development and maintenance of the site. If the cooperation is successful they will both benefit by increased revenues. The risk is to some extent shared, although a main part is taken by the content provider since they have the most money invested in the site.

An agreement that is not based on a preset advertisement fee should in many cases be very attractive to the advertising company. The actual fee is instead a percentage of the site's generated revenues. Therefore the advertising company does not have much to loose. If the site is a failure, there are no revenues to share with the content provider. Only the time and money invested in the deal will be lost. On the other hand, if the site is a success, the advertising company will be more than satisfied. When using this model, the content providers do not have the same pressure of having to show that they have a large user base, therefore it should be easier for them to attract advertising companies to do business with them. If the situation had been such that the advertising company was to invest money with a fixed advertisement fee, they would have much higher demands on the number of users of the site.

In some cases where the revenue of the content goes to the content provider, for example user fees, the content provided by the content owners is not an advertisement. Instead it could be for example a map, or traffic information. The content owners might then be better off by taking a fixed fee for the content instead of sharing revenues with the content provider. By doing that they would be certain to collect money, regardless of whether the site is successful or not. On the other hand they might earn a lot more with shared revenues if the site does become popular.

6.7 Relationships Between the Different Models

In many cases the content providers do not base their business on only one of the models discussed above. Instead they combine them in different constellations to reach a solution that suits their specific situation. Below we describe some different combinations that are used by the Japanese mobile Internet content providers.

The User Fee Model

The User Fee Model can be successfully combined with the Revenue Sharing and some Advertisement Models. It is not suitable for content where the provider wants to be visible and used by as many as possible. The fact that content is charged for makes the users question whether the content is worth it or not. Some of them will come to the conclusion that it is not and will not access the site. Therefore the User Fee Model does not combine well with the Shopping, the Improved Efficiency, the Marketing and part of the Advertisement Models.

The Shopping Model

This model combines especially well with the Marketing Core Business Model. Marketing can attract more new customers and increase the sales to the existing ones. The Shopping Model can also be used as a means of increasing efficiency, in other words, the Improved Efficiency Model. Selling more over the Internet can help cut costs by allowing a decrease of the resources necessary to maintain the physical sales channels.

The Marketing Core Business Model

The Marketing Core Business Model combines with all of the other models. Marketing the main business is practically always something positive for a company.

The Improved Efficiency Model

The Improved Efficiency Model can be a part of the Shopping Model. A company whose main business is selling products in stores can use the mobile Internet as an extra sales channel. This could eventually mean that fewer customers will visit the physical stores and that the resources for the operation of these stores can be reduced.

The Advertisement Model

All content providers on the mobile Internet can use the Advertisement Model in one way or another, therefore it combines with most other models.

The Revenue Sharing Model

The Revenue Sharing Model often combines with the User Fee Model. If the service adds enough value, users are willing to pay for the content. In addition the Shopping Model can be used in combination with Revenue Sharing as many related kinds of content can be gathered to one site. For example, it is quite possible to sell wine on a wine information site. Revenues can also be shared between the content provider and the advertising company in the Advertisement Model.

7 Applying the Japanese Content Providers' Experiences in Sweden

Chapter 7 relates the Japanese content providers' experiences to the Swedish market. Firstly the differences between the two markets are discussed. We then describe characteristics of the content providers as well as their relations with other actors in the market. The defined business models' usability on the Swedish market is considered. The chapter finishes with a short discussion about content in general and some concluding comments.

The following sections discuss issues that Swedish content providers should have in mind when conducting business in the mobile Internet market. The recommendations are based on our own experience and observations from primarily the Japanese, but also the Swedish markets. When reading this chapter it is important to keep in mind that we have limited our work to the content providers that offer B2C content.

7.1 Differences Between the Swedish and the Japanese Markets

The Swedish mobile Internet market differs from the Japanese market in ways that affect the prerequisites for the content providers. Some major differences suggest that it will be more difficult for Swedish content providers to be successful and profitable than it has been for their Japanese counterparts.

- *Market size*. One of the most significant differences is the fact that the Japanese market is a great deal larger than the Swedish one, the Japanese population amounts to 126 million in comparison to Sweden's 9 million inhabitants. More than five times as many people use a mobile phone in Japan compared to Sweden, the numbers are 58 million (45 percent of the population) and 5.5 million (61 percent) respectively. Naturally, because of the different market sizes the prerequisites for content providers are not the same. Swedish content providers have to attract a much larger portion of the market in order to reach a sufficiently large number of users. Hence it is easier for a Japanese content provider to reach economies of scale on the mobile Internet business. Since the success of much content depends on economies of scale this implies that it will be more difficult for Swedish content providers to be successful regarding the number of users than it has been for the Japanese.
- *User preferences*. Another factor that distinguishes the Swedish market from the Japanese is the high fixed Internet penetration in Sweden. Many Japanese are unfamiliar with or do not have access to fixed Internet content, which can result in that they are more willing to use mobile content than many Swedes will be. Some mobile content that is appreciated by the Japanese, will probably continue to be accessed on the fixed Internet instead of on the mobile one by many Swedes. Attracting users to certain content can therefore be difficult for Swedish content providers.
- *The dominance of the operators*. The actors' roles within the two markets are somewhat different. The operators have a very dominant role on the Japanese market. The Swedish operators will also be powerful, but it is unlikely that they will be able to dictate the rules to the same extent as their Japanese counterparts. We therefore believe that the Swedish content providers will not be as dependent on the operators as the Japanese content providers have been.

7.2 An Immature Market

The mobile Internet market is still very immature, both in Sweden and Japan. The content providers must be aware of this and act according to the specific conditions that exist and to

what the situation requires. Being a first mover can have its advantages while it at the same time is important not to enter the market too early as this might backlash. It would be advisable to enter the market early, but to begin on a small scale.

WAP has been available in Sweden for less than two years. The market has not yet taken off and the actors are still waiting for all the previous predictions to become a reality. The general view is that before this will happen, techniques such as GPRS networks, the next generation WAP protocol, etc. need to be available.

The Japanese market is far more developed, even if it too is still in its infancy. The evolution of content has been progressing there for almost two years. One of the reasons why the Swedish market is a couple of years behind the Japanese market is the contrasting roles and power of the market's actors between the two countries. The Swedish operators have, for example, a lot less power than the Japanese operators. This power factor has implications for the whole market. In comparison to Sweden, the Japanese market is much more coordinated; a result of the strong uniting role so successfully born by the operators there. In Sweden there is no such uniting actor and as a consequence the actors in the market have not been as synchronized and it has taken longer for many of them to define and understand their role.

The majority of the content providers in the Swedish market are, therefore, still trying to find their new role in the market. Many companies are not quite sure what benefits mobile Internet will bring to them. So far there is no concept that has turned out to be a great success, or for that matter a failure, since the market has not yet experienced any extensive growth. As a result many do not know how the new medium should be tackled. Some have entered the market with full strength while others are waiting to see how it progresses.

Experiences from Japan show that entering the market at an early stage can be important. Many of the content providers that have succeeded in Japan were early movers. Attracting customers will be one of the most essential initial factors for a successful content provider. As time passes and the competition hardens, attracting customers will require more effort. Some people will already have become customers of other content providers and will remain loyal to these. Therefore, being among the first can be an advantage.

There is always a balance between being as early as possible yet not too late. Before the technology is sufficiently developed and the prerequisites fully understood, there are risks involved in entering the market. If the intended service does not live up to the customer's expectations, the content provider will most probably be blamed, even if the source of the problem is elsewhere. Early problems can derive from immature technology, exaggerated user expectations, undeveloped business models, and so on. There is little previous experience to build the business and content provision on. Therefore users will to some extent undoubtedly have to play the role of test pilots. Entering the market as the second actor can mean having access to the results of this, which can be an advantage. However, being second can also mean being too late.

We believe that the best advice is to enter the market early anyway. Testing the way forward, getting to know the characteristics of the medium and its users, results in useful experience that can be taken advantage of later. However, it can be wise to start on a small scale if the concept is not fully tested and as soon as there is evidence of something becoming successful, launch it on a larger scale.

7.3 Company Characteristics

Being a content provider on the mobile Internet will require certain characteristics of the company. In some ways the large, established company have an advantage while it from other aspects can be more suitable to be a smaller and younger organisation. The most beneficial characteristics for content providers differ somewhat depending on the content offered and the business model used, but below we draw some general conclusion that we believe are valid for most content providers.

- *Quick decision process.* To be able to keep up with the market's twists and turns it is important to have a quick decision process within the organisation. Just like the fixed Internet market, the mobile Internet market is one of rapid movement and fierce competition. Competition in Sweden will harden as the market develops. So as not to be left behind by the competitors it is essential to be able to decide and act quickly. This is usually more of a problem for large companies, while it can be an advantage within a small organisation. In many large Japanese companies the Internet department is operated as an organisation of it own, more or less detached from the rest of the company. In this way the advantages of the large firm can be combined with those of the smaller one. We recommend large Swedish companies to consider this way of organising the mobile Internet business within the company.
- *Brand name and customer base.* An established company will always have some advantages due to the fact that they have been in business for a long time. A well-known brand name and an existing customer base are worth gold. For a start-up company, more effort and resources will be required for the product to reach the market and for establishing a customer relationship.
- *Financial support.* Content providers will be in need of reliable financial support. Very few Japanese content providers actually make profit from their mobile Internet business today. We suspect that the Swedish content providers will have the same problem, at least during the initial years. They will therefore need capital to carry them through this period, until they either start being profitable, or go bankrupt. The mobile Internet department of a large company is under less pressure to be profitable from the start, it has financial support from the company and can develop under the protection of the whole organisation. A newly established firm will in most cases be dependent on venture capital instead. For these latter kinds of content providers it would be beneficial to establish a long-term relationship with a committed investor.

  In some cases the financial and resource support that a large company provides for its mobile Internet business can, paradoxically, be a major drawback. It can result in a lack of incentive to be efficient and profitable. An independent content provider cannot hide bad results in a larger organisation and consequently experiences more pressure to produce good results. Hence, it is essential that a large company provide the content provision department with the incentive and motivation for realizing good results.
- *Fear of cannibalism.* The fact that established companies offer other products as well as the mobile Internet content can also become a disadvantage for them. There is often a fear of this new product cannibalizing the existing products or channels to the customer, which can result in a slowing down in the development of the content. It is very important that the content providers are aware of, and deal with such problems, whereas for companies whose only business is the mobile Internet, such concerns are irrelevant.
- *Preconceived notions about the market.* Another paradoxical disadvantage that large established firms may have is the knowledge of the consumer market that has accumulated over the years. There is a risk that employees assume that the mobile Internet users have the same preferences and habits as their other customers. This will far from always be the case and such assumptions can lead to wrong decisions regarding the mobile Internet content provision. Content providers need to keep in mind that the mobile Internet is a new medium with new characteristics, and they must adapt their content to the customers' needs.

Our conclusion is that even though newly established companies may have some advantageous characteristics, it is the established businesses that most easily will become successful content providers.

7.4 Relationships to Other Actors

As we have seen, for the Japanese content providers, cooperation with other actors in the market is essential for success. This will most likely be the case for Swedish content providers as well. Establishing relationships with strategically important partners is, we believe, one of the main factors that contributes to a content provider's success.

The User Relationship

As is the case in any business, the relationship to the customers is of the utmost importance. Content is worth absolutely nothing if no one accesses it. Furthermore, the success of many content providers depends on having a large customer group. Economies of scale are often significant in this connection. It can cost roughly the same amount to maintain a site for a million users as it does for a thousand users. The content provider should therefore work very hard to establish a strong and long-lasting relationship to the customers. From the customer's point of view a new product, i.e. the content, has first to be discovered and then tried out. From the content provider's view this new and potentially permanent customer must be encouraged to return repeatedly to the content site.

The content provider's first user related task is to market the content in such a way as to catch the customers' attention. Many content providers already have a customer base for their business outside of the mobile Internet so it is natural and practical to market the new service in the first instance to these older customers. There usually exist marketing channels within the business, which can advantageously be utilized for this purpose. For new companies that have to build their customer base from the beginning, it will be more costly and it may be harder to attract a large number of customers since they are in the process of establishing their brand name and in competition with all the others that are just doing the same.

When the customer tries content for the first time it is essential that he or she experiences the content as value-adding. Curiosity can attract users to a site once or twice, but it will not make them return repeatedly. Therefore it is important that the content from the very start is of a very high quality, otherwise or the content provider's brand name is at risk of getting out of favour and the customer lost. Relationships are based on trust and trust is won from the customers by the company providing a first-rate reliable performance and by acting professionally in all contacts with the customers.

The mobile Internet offers the content provider a golden opportunity to have a one-to-one relationship with in individuals in a mass market. If such a relationship can be established and maintained, then customers are likely to be loyal to the content provider.

The Operator Relationship

Having a good, well functioning relationship with the operators will be essential for certain content providers.

In Japan most content reaches the users through the operators' menus. The operators have complete power with regards to what content is directly accessible on their menus. They also handle the billing of users in a very convenient, and by users trusted, manner.

The operators on the Swedish mobile Internet market are adopting a similar model. They are currently developing portals through which they plan to offer content to their customers. For content providers to want to make their content available on a portal the operator needs to supply some incentives. Telia, for example, plan to purchase content from the content providers and then give them a part of the fees that the users are charged for accessing it.[102] Just like in Japan, the users will pay for accessing the content on their regular mobile phone

[102] Sjöstrand, Telia, interview 2001-01-04

bill. At present Telia have no plans for letting the content providers share the revenues from the network traffic.

The operators possess specific information that can greatly add to the value of the content. For example, they are the only ones who have the information about a mobile phone's location; information required for making position dependent content. They can also detect the type of phone that is requesting certain content and therefore adapt the content accordingly. To gain access to this information the content providers need to work closely together with the operators.

In order to reach as large a number of users as possible, as well as improving their chances of getting content accepted on various portals, content providers should cooperate with as many operators as possible.

However, just like in Japan, only a small proportion of the content providers will be fortunate enough to be accepted as "official" content providers. Telia receive a large number of applications but only a fraction of them lead to an agreement. In the process of establishing a relationship with the operators a well known brand name is an advantage. It functions as a quality guarantee for both operator and users.

The Content Aggregator Relationship

Content aggregators will most likely play an important role on the mobile Internet. Users will not want to browse the net in the same manner as the fixed Internet, but will want to find the content that they are looking for quickly and easily through a menu. It is therefore essential for a content provider to be listed on the most important portals, whether these belong to the operators or to other actors.

In Japan the operators are the most important content aggregators, aggregating content on the menu of their service. For the Japanese content providers it is a great advantage if their content is accessible from these menus. We think that it will be equally important for the Swedish content providers to be placed on the most popular portals, horizontal or vertical. One difference between Japan and Sweden is that the competition between portals will be fiercer in Sweden. There will not be room enough for more than a handful of portals to become profitable and it will probably take some time before it is apparent who the most dominant portal owner is. Therefore a good relationship with several potentially successful portals can be a good initial strategy.

By having a close relationship with the content aggregator, the content provider can get advanced access to the specifications regarding what content the aggregators are interested in. If the content providers can show the aggregator that their content is relevant, reliable and of good quality, they have a greater chance of getting it accepted on the portal.

Being placed on a top or dominant position on the menu can be just as essential as being present at all. Since the rules for how placement on the menu are still not fully developed or defined, early relationships with the portal producers become even more important.

The Content Owner Relationship

Some content providers will rely on information bought from content holders. To provide a unique and differentiated content, it can be worthwhile, if possible, to prevent other content providers from accessing the same information. Content providers that opt for this strategy should quickly establish relationships with the content owners that possess attractive content. The content providers that get exclusive rights to interesting and useful information content will have a greater chance to offer mobile Internet content that will become popular.

Relationships with Other Actors

In addition to the actors discussed above there are other actors that will also be of importance to the content providers. An example of this is the technology enablers. Cooperation with these in the development and implementation of technical systems can result in great competitive advantages for the content providers.

7.5 The Business Models

Considering the prerequisites of the Swedish market, this section discusses which of the business models that will be likely to suit Swedish content providers the best. The discussion is based on the business models described in Chapter 6. Detailed explanations and discussions of the models can be can be found there.

The User Fee Model

Analysts of the Swedish mobile Internet market have questioned whether it will be possible or not to charge users for content. Amongst other things they claim that the users have been spoiled by the free content on the fixed Internet and will therefore be reluctant to pay on the mobile Internet. We do however believe that users would be willing to pay, if certain fundamental requirements were fulfilled. The most important of these is having a convenient micro payment system.

We believe that if the users were supplied with a well functioning micro payment system that they would be willing to pay small amounts for mobile Internet content. As in Japan, the charges for content are so small that the users generally do not hesitate to pay. We are of the opinion that the Swedish consumers would react in a similar way. If the users perceive the payment as a hassle, they will not bother to go through the procedure of buying the content. On the other hand, if it is quick and convenient they will pay without thinking twice.

The Swedish operators are currently in the process of developing a system for charging users for content through the mobile phone bill. This is a model that has functioned extremely well in Japan and we believe that the solution will also be well received on the Swedish market.

Charging user fees through the operators' phone bill is a solution that is exclusively reserved for content providers offering content on the operators' portals. As mentioned before, this will be only a fraction of the total number of content providers. All the others will have to find alternative solutions. Currently there are no real alternatives, but we believe that convenient micro payment systems will be developed over time. Thereafter, content providers will not be so dependent on the operators regarding the collection of user fees.

We believe that the possibilities of charging user fees will be more limited on the Swedish market than it has been initially in Japan. Future users will be more particular about what they are willing to pay for. They will only pay for high quality and truly value-adding content. Another reason why the opportunity for a business to survive on user charges will be more limited in Sweden than in Japan is the considerably smaller market.

The Shopping Model

We do not believe that the mobile Internet will become widely used for shopping within the near future. The limitations currently exceed the advantages. For example, there are only a few products that are actually suited for sale over the mobile Internet. This was previously discussed in section 6.2.3. There are also obvious limitations regarding presenting a product on the small screen of the phone. Generally mobile Internet shopping suffers from the same constraints as the fixed Internet shopping but in addition there are a few mobile specific limitations.

Products that are suitable for mobile shopping are the ones that users will want to buy at anytime and anywhere, for example tickets. When systems for easy and secure payment are

developed and tickets can be sent to and saved in the mobile phone itself, it will be convenient for the user not to have to go to the travel agency or cinema to get them.

For Swedish companies at the present time, shopping over the mobile Internet can be most beneficially utilized for providing the customer with an extra channel. This channel should be combined with more traditional channels such as the fixed Internet, the voice telephone and stores. Mobile Internet shopping itself is at present very unlikely to be of sufficient volume to support a company's business. However, by combining the medium with shopping over the fixed Internet, the user is provided with the ability to access products at any time or place. As many companies already offer products on the fixed Internet, adding services on the mobile Internet will not require a significant increase of resources. The Shopping Model can be successfully combined with the "Improved Efficiency Model", as Internet shopping provides ways to save money.

Offering the possibility to shop over the mobile Internet is definitely positive from a marketing perspective. The expression "mobile Internet" will probably be hyped in the beginning and even though the business is unlikely to be profitable, just being present can be enough for the company to be perceived as modern and up-to-date.

The Marketing Core Business Model

The mobile Internet provides companies with enormous opportunities to market their core business. It has some advantageous characteristics that can be employed successfully, as can be seen in Japan. For example the reach function, possibilities of positioning and timeliness, and that content can be adapted to each individual user. We have already seen that for many content providers, the marketing process will be the strategy and reason for their presence on the mobile Internet. This will also be the case for many Swedish companies. If these features are used creatively and with care, the "Marketing Core Business Model" can be very successful.

The Improved Efficiency Model

Content providers have, through the mobile Internet, been supplied with an inexpensive and potentially efficient new channel to the customer. We believe that many Swedish companies can utilize it successfully. Offering content on the mobile Internet can be considered not only as a cost saving investment, but also a service to the customers. For some types of organisations such as banks, providing a mobile Internet channel will not even be a free choice but something demanded by the customers.

Most companies that will use the new medium to cut operating costs already offer fixed Internet content for the same purpose. The mobile Internet will therefore not revolutionize their businesses, but it will improve their efficiency to various degrees. However, for some companies, the addition of the mobile Internet channel will bring extensive positive effects. These are the companies that sell products and services that are more suited to the mobile Internet than to other media, i.e. those that can take advantage of the personalizing, positioning and timeliness features.

The Advertisement Model

From the perspective of the content providers, the advertisement model can be very effective. It gives content providers the possibility to create revenues. However, the forms of advertisement that we have discussed: banners, charge for loading content and sponsorships, have different potentialities. Generally users have to perceive a value in the advertisement for them to be willing to accept it.

Banners are a form of advertisement that we do not believe will be profitable for the majority of the content providers in Sweden. As we have already mentioned, banners on the mobile

Internet in Japan have proven to be more successful than on the fixed Internet. However, we believe that this phenomenon is temporary. As soon as people get more familiarized with the mobile medium, banners will be disregarded. They are annoying and take up an important part of an already small screen.

Charge for loading content, is a model that we expect can be used fruitfully. An important reason for this is that users will not necessarily perceive the content as being an advertisement. Instead, the content is value-adding for them and something that they actively seek.

Sponsorships can also be utilized as a way to make advertisements value-adding to the users. We believe that they can be successfully utilized by Swedish mobile Internet content providers.

The Revenue Sharing Model

Revenue sharing is an efficient form of cooperation between content providers and content owners. We believe that it can be useful for Swedish content providers who depend on content from others sources, just as it has been for Japanese companies with the same strategy.

The model where content providers charge content owners to have information on the site works as an advertisement model. We believe that this way of financing content will be well received in the market, since it does not involve any costs at all for the users.

If the content providers pay the content owners for information by sharing revenues, they need revenue streams, for example through user fees or advertisement fees. As discussed earlier we believe that the User Fee Model will be less widely utilized in Sweden than in Japan. Swedish content providers will therefore find the Revenue Sharing Model in this form less useful than many Japanese companies have done.

7.6 Content

When creating content for the mobile Internet, it is essential to be observant about the characteristics of the market. The prerequisites set by different actors will give the boundaries for what content can be successfully offered. Naturally, content and the content providers' business models are closely related. What content will be fruitful for content providers to offer depends on what business models will actually work in the market.

Providing Successful Content

One of the most central keys to successful content is to assure that it is truly suitable for the mobile medium. There has to be a purpose for providing the content on the mobile phone that goes further than just making it available on the mobile Internet. Thinking in terms of personalization, positioning and timeliness is a start. There should be attracting features motivating the users to access the content when out and about, or there is a risk that they will wait until they get home or to work and can access alternative media instead.

Once the content is available on the mobile Internet, the content provider needs to be aware of what is happening in the market and to update the content continuously. Likewise users and potential users should also be made aware of what is happening and that the market is dynamic and updates are frequent. The competition is likely to be fierce and customers can easily be lured to a competing site if that site has more exciting content to offer. Therefore, it is essential to keep the current customers satisfied and eager by adding new information and finesses regularly.

Successful Content Categories

Many actors are trying to predict what content will be the most successful on the future Swedish market. General predictions are that banking services will become the most wanted

category after e-mail. According to a survey conducted by Jupiter Communications, they are wanted by almost 40 percent of European mobile phone users.[103] Banking will undoubtedly be a sought-for content, and we believe that it will be more successful than it has been so far in Japan. However, we find it hard to see it as the top category.

Entertainment content, on the other hand, is wanted by less than 5 percent of the European mobile phone users.[104] Looking at Japan the figures for banking and entertainment are almost exactly the opposite. Contrary to other predictions in the market today, we believe that entertainment, which includes games, betting, entertaining information, pictures, etc. will be one of the successful and, for content providers, most profitable categories. One reason for this is that there already is a tradition to pay for this content on other channels. Therefore, users will be willing to pay for accessing it on the mobile medium as well.

For users, entertainment content can function as the gateway to other mobile Internet content. Over time, as users grow more used to the medium, their preferences will change to demanding other, more complex content. Also, over time the profile of the user group of mobile Internet will develop from consisting of only specific groups like youngsters and businessmen to including a large part of the population. When the homogeneity of the users decreases so will the homogeneity of the content demanded.

7.7 Concluding Comments

The mobile Internet content provision will be an area of fierce competition in the future. Many see the medium as a possibility for making a profitable business. However, mobile Internet content providers should not expect to have easy times ahead. Being profitable will most probably be difficult.

Content providers that will most easily benefit from content provision are established companies that already have a business and a customer group. By using the mobile Internet as an extra channel to the customers, there will arise new possibilities for marketing, added services and there will be opportunities to decrease costs.

We believe that new companies with business only within the mobile Internet content provision area will face larger difficulties. Their main problem is where the revenues will be found and whether these will be sufficiently large to support the business. In order for it to be easy and inexpensive to collect users fees, a well functioning micro billing system is needed. Even if such a system is implemented only a few companies are likely to be profitable enough to finance their business by user fees only. Revenues from shopping will additionally just support a minority of businesses. The possibilities of revenues from advertisement will be equally limited. We believe therefore, that the majority of new content providers will have to rely on a number of different revenue streams in order to be profitable.

Nevertheless, in the future there will be a big demand for mobile Internet content. We are sure that content providers will find ways to offer the content that is demanded for without content there will be no mobile Internet, something that would be of benefit to no one.

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Appendix 1: Glossary

B2B	Business-to-Business, is the exchange of products, services, or information between businesses rather than between businesses and consumers.
B2C	Business-to-Consumer, is the retailing part of commerce on the Internet. It is often contrasted to business-to-business.
B2E	Business-to-Employee, is an approach in which the focus of business is the employee, rather than the consumer (as it is in business-to-consumer) or other businesses (as it is in business-to-business). In a broad sense, B2E encompasses everything that businesses do to attract and retain well-qualified staff in a competitive market, such as aggressive recruiting tactics, benefits, education opportunities, flexible hours, bonuses, and employee empowerment strategies.
CDMA	Code Division Multiple Access. The term CDMA refers to any of several protocols used in 2G and 3G wireless communications. As the term implies, CDMA is a form of multiplexing, which allows numerous signals to occupy a single transmission channel, optimizing the use of available bandwidth.
cdma2000	cdma2000 is a version of the IMT-2000 standard developed by the International Telecommunication Union. It is a third generation mobile wireless technology which supports mobile data communications at speeds ranging from 144 Kbps to 2 Mbps.
cdmaOne	cdmaOne, is a wireless interface protocol that was first standardized in 1993. It is considered a second generation mobile wireless technology.
cHTML	Compact HTML, a subset to HTML.
GIF	Graphics Interchange Format, is one of the two most common file formats for graphic images on the world wide web. (The other is the JPEG.)
GPRS	General Packet Radio Service, is a packet-based wireless communication service that provider data rates from 56 up to 114 Kbps. It also offers continuous connection to the Internet for mobile phone and computer users.
GPS	Global Positioning System, is a constellation of 24 well-spaced satellites that orbit the Earth and make it possible for people with ground receivers to pinpoint their geographic location. The location accuracy is anywhere from 100 to 10 meters for most equipment.
GSM	Global System for Mobile communications, is a digital mobile telephone system that is widely used in Europe and other parts of the world. GSM uses a variation of time division multiple access and is the most widely used of the three digital wireless telephone technologies (TDMA, GSM, and CDMA)
HDML	Handheld Device Markup Language, is a language that allows the text portions of web pages to be presented on mobile telephones and personal digital assistants (PDA) via wireless access.
HTML	Hyper Text Markup Language, is the set of markup symbols or codes inserted in a file intended for display on a world wide web browser page. The markup tells the web browser how to display a web page's words and images for the user. The current version of HTML is HTML 4.0.

ISP	Internet Service Provider, is a company that provides individuals and other companies with access to the Internet and other related services such as web site building and virtual hosting.
JPEG	Joint Photographic Experts Group. JPEG is a graphic image created by choosing from a range of compression qualities. It is one of the image file formats supported on the world wide web
MISP	Mobile Internet Service Provider, is a company that provides individuals and other companies with access to the mobile Internet.
MML	Mobile Markup Language, is a language that can allows the text portions of web pages to be presented on mobile telephones and personal digital assistants (PDA) via wireless access. MML is based on HTML.
MP3	MPEG-1 Audio Layer-3, is a standard technology and format for compression of a sound sequence into a very small file (about one-twelfth the size of the original file) while preserving the original level of sound quality when it is played.
OEM	Original Equipment Manufacturer is a company that uses product components from one or more other companies to build a product that it sells under its own company name and brand.
PDA	Personal Digital Assistant, is a term for any small mobile hand-held device that provides computing and information storage and retrieval capabilities for personal or business use, often for keeping schedule calendars and address book information handy.
PDC	Personal Digital Cellular system, is a mobile system that uses both full and half-rate speech codec (5.6 kbps) and allows high-speed transmission at 9.6 kbps to ensure efficient spectrum utilization.
PHS	Personal Handyphone System, a system developed by the Nippon Telegraph and Telephone Corporation (NTT). The personal handyphone is a lightweight portable wireless telephone that functions as a cordless phone in the home and as a mobile phone elsewhere.
PNG	Portable Network Graphics, is a file format for image compression that, in time, is expected to replace the GIF format that is widely used on today's Internet.
SET	Secure Electronic Transaction, is a system for ensuring the security of financial transactions on the Internet. SET uses some but not all aspects of a public key infrastructure.
SMS	Short Message Service, is a service for sending messages of up to 160 characters to mobile phones that use GSM communication.
SSL	Secure Socket Layer, is a commonly used protocol for managing the security of a message transmission on the Internet.
UIM	User Identity Module. Next generation mobile phones will become equipped with IC cards called UIM, similar to the SIM cards used in GSM-based mobile system in Europe. Credit card numbers can be safely encrypted, stored, and transmitted by the IC cards.
UMTS	Universal Mobile Telecommunication, is a third generation, broadband, packet-based transmission of text, digitized voice, video, and multimedia at data rates up to and possibly higher than 2 Mbps.

URL	Uniform Resource Locator, is the address of a file accessible on the Internet.
WAP	Wireless Application Protocol, is a specification for a set of communication protocol to standardize the way that wireless devices, such as mobile telephones and radio transceivers, can be used for Internet access.
WCDMA	Wideband Code Division Multiple Access, is an ITU standard derived from CDMA that is officially known as IMT-2000 direct spread. WCDMA is a 3G mobile wireless technology offering data speeds up to 2 Mbps (local area access) or 384 Kbps (wide area access).
XHTML	Extensible Hypertext Markup Language, can be called a particular application of XML for "expressing" Web pages. XHTML is, in fact, the follow-on version of HTML 4.
XML	Extensible Markup Language, is a flexible way to create common information formats and share both the format and the data on the world wide web, intranets, and elsewhere. XML is a formal recommendation from the World Wide Web Consortium (W3C) and is similar to the language of today's web pages, HTML.

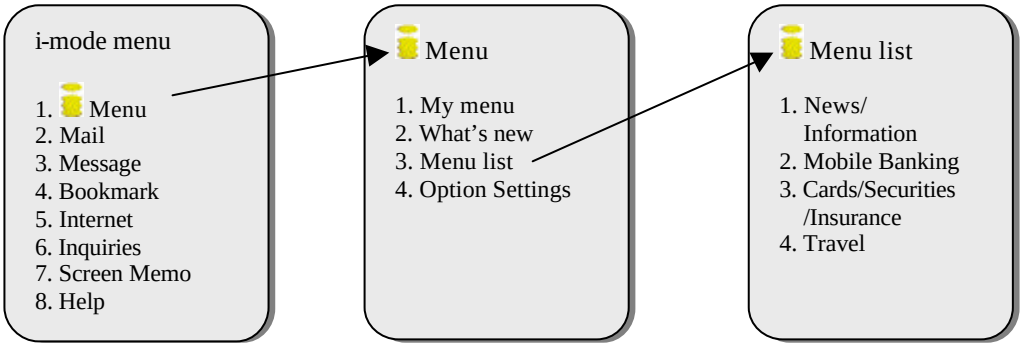
Appendix 2: How to Use a Mobile Internet Service

The following explanation about how a mobile Internet service actually works from a user perspective will focus on i-mode. The other services are similar to that of i-mode.

The Menu

Although there are differences between the services themselves and phone models one generally enters the mobile Internet service's menu by pressing a specific button. On some i-mode telephones there is a special "i" key. Pressing this button puts the user in a mode where Internet services can be accessed. The menu items are as follows: iMenu, Mail, Message, Bookmark, Internet, Inquiries, Screen memo list and Help. Se Figure 12, The menu system. Some phones have a specific e-mail button. Pressing this button enables the user to immediately access e-mail functions.

The i-mode menu in Japanese [Mobile Media Japan, 2000]



The menu system [NTT DoCoMo, 2000, modified]

Choosing the first item "iMenu" connects the users to the i-mode centre and displays the following menu: My menu, What's new, Menu list and Option Settings. Returning to the i-mode menu the second item is "Mail". Here the user is able to compose, send and receive e-mail. The third item "Message" provides similar services although these messages can only be sent and received within the same operator network. An i-mode user can for example send a message to another i-mode user but not to a EZweb user. Messages between operators have to be e-mails. The next item "Bookmark" displays a list of sites that the user can link directly to. These sites can be either official or unofficial (compare to "My menu" under the iMenu, which only allows links to official sites) and the user can freely edit the list. Choosing the fifth item "Internet" from the menu enables the user to access any site he wants to by manually typing the site URL. In i-mode there are three ways of accessing sites on the mobile Internet. Going through the official menu is one, entering a URL manually is another and the last method is to click on a link for a site in an e-mail message or on the bookmarks list.

"Inquiries" enable the user to check messages at the i-mode centre. "Screen Memo" contains a function for saving the screen of the site being displayed. Up to twenty items can be saved depending on the phone model. The final item on the menu, "Help", assists the user in changing settings regarding the i-mode functions on the phone.

Let us return to the first item on the menu again: the i-menu. This menu is dynamic and constantly updated as new services are added and other changes occur. Under "My menu" the

user is able to add bookmarks to favourite sites from NTT DoCoMo's official menu. The user himself can freely edit this list. The item "What's new" gives the user information on all the latest happenings on the official i-mode menu. This site is updated once a week and is very popular among users. Being mentioned under "What's new" significantly increases the number of times that a site is viewed and is therefore important to the content providers. The third item, "Menu list", is where all of NTT DoCoMo's official sites are listed. NTT DoCoMo themselves define and control the categories and sites under the iMenu list. They are currently categorised into the following groups: News/Weather/Information, Mobile Banking, Cards/Securities/Insurance, Travel/Traffic/Maps, Shopping/Living, Gourmet/Recipes, Melodies/Images, Games/Fortune-telling, Entertainment, Town Information/Administration and Dictionary/Convenient Tools.

If one of the items on the list is selected a list of names is displayed. These are links to sites that various content providers have set up. The list under News/Information could be as follows: CNN, Nikkei, Bloombergs, Dow Jones, etc. The first two or three items on the list are the sites with the largest number of page views, that is the most popular services at the moment. The subsequent list is created according to the time that the service has been available on i-mode; the oldest sites being listed first and then on downwards with the most recent entry coming last.

If the user clicks on CNN he will automatically be linked to the site of CNN. In this case the site displays a list of further links, the first one being "Top Stories". Entering this link and just looking at the headlines of the top stories is free of charge. However, if the user wants to read the full articles he has to register and thereby agrees to pay the subscription fee that CNN charges.

CNN's i-mode site
[NTT DoCoMo, 2000]

Appendix 3: i-mode Statistics

The table below presents the number of sites available on i-mode in mid September 2000. The total number of sites adds up to 618. The table also shows the number of sites that were fee-based, in total 217, and in what category these belong.

Category	Sub-Category	Number of Sites	Number of fee-based sites
News/Weather/Information	General Newspapers	12	8
	Investment Newspapers	1	0
	Regional Newspapers	17	16
	Foreign Newspapers	5	0
		35	**24**
Mobile Banking	National Banks	10	
	Regional Banks	66	
	Other Savings & Loan Associations	167	
		243	
Credit Card/Securities/ Insurance	Credit Cards	4	
	Securities	7	
	Insurance		
		11	
Travel/Traffic/Maps	Airlines	5	0
	Trains	2	2
	Hotels	5	0
	Rental Cars	1	1
	Traffic Information	2	2
	Maps	2	2
		17	**7**
Shopping/Living	Tickets	3	2
	CDs, Games & Books	9	0
	Rentals	4	0
	Employment	4	4
	Cars	4	0
	Education	3	0
		27	**6**
Gourmet /Recipes	Restaurant Information	7	3
	Recipes	2	0
		9	**3**
Melodies/Images	Melody Downloading	19	18
	Character Downloading	35	33
		54	**51**
Games/Fortune-telling	Games	16	16
	Horoscopes	17	17
		33	**33**

Entertainment	Music Information	8	4
	Prizes	18	8
	Sports	18	13
	FM	6	0
	TV	34	4
	Actors, Magazines and Pets	17	15
		101	**44**
Town Information/ Administration	National	1	0
	Regional Information	55	3
		56	**3**
Dictionary/Convenient Tools	General	15	5
	Delivery Services	9	0
		24	**5**

Appendix 4: Interview Guide

In order to obtain the information needed we conducted interviews with Japanese content providers, operators and people with general knowledge of the mobile Internet, such as journalists, researchers and consultants. Below is a summery of the topics discussed during the interviews. Each interview was adapted to the company or person interviewed, therefore only the main subjects are listed.

Content Providers

- The content providers' organisation and business
- The mobile Internet content that the content provider offers and how it fits the rest of the business
- The business model used and its most critical success factors
- Marketing of the mobile Internet content
- The users of the mobile Internet content
- The competition that the content provider is facing in the mobile Internet area
- A more detailed description of one or a few of the mobile Internet content that the content provider offers
- What the future will bring, from the perspective of the content provider

Operators

- The operator's business model
- The operator's relationship with the content providers
- The users of the operator's mobile Internet service
- The technology used by the operator and its implication on the mobile Internet service
- The competition that the operator faces from other mobile Internet service providers
- What the future will bring, from the perspective of the operator

Others

- A comparison of the mobile Internet services, as for technology, image, success etc.
- The content providers, their business models and potential success
- Existing and upcoming content
- The future of mobile Internet in Japan