

## Abstract

**Title:** A comparative study of the Swedish and Japanese M-commerce markets: what are the obstacles towards the acceptance of m-commerce in Sweden?

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**Abstract:** Mobile commerce, or *m-commerce*, is an idea that involves different applications, new technologies and services which are accessible from Internet-enabled Mobile devices.

In our study we compare existing 3G mobile services in two countries: Sweden and Japan. Furthermore, we investigate why these services are at the different stages of the development. In addition, we examine what may be the obstacles towards the successful implementation of m-commerce in Sweden. A comparison is made with the reflection to our limitations.

By comparing these two countries through the mobile value chain we hope to gain a greater understanding of the obstacles that Sweden needs to address. Amongst the major obstacles that were observed during this research were pricing and amount of services provided.

**Methodology:** A qualitative research

### Empirical

**Foundations:** The sources are primary and secondary. Branch related articles, branch literature, public authority's publications, interviews with market actors and web-pages are used.

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Natalija Sirciacenko, Inés Ressaissi, Sohail Chaudhry, Saloumeh Zavar

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# 1. Introduction

*This chapter is meant to be a foundation for understanding the thesis. We are going to start by defining m-commerce. Thereafter we are going to discuss m-commerce usage in Sweden and Japan, leading up to the formulation of our research problem and the purpose of this study.*

## 1.1 Background

Mobile commerce, or *m-commerce*, is a concept that involves different applications, new technologies and services which are accessible from Internet-enabled Mobile devices<sup>1</sup>. The concept of m-commerce has emerged from the traditional e-commerce which according to the US census, any business transaction whose price or essential terms were negotiated over an online system such as an Internet, Extranet, Electronic Data Interchange network, or electronic mail system. The difference between m-commerce and e-commerce is that with m-commerce you eliminate the need of accessing a computer. There are two aspects to m-commerce that indicates that it is the new way of using a mobile device. One aspect of m-commerce offers the user a wide range of new services. The second aspect of m-commerce that need to be addressed is that it is a new distribution channel for existing products and service such as purchasing cinema tickets, buying stocks or making bank transactions<sup>2</sup>.

After we had decided to write our work about m-commerce, we tried to outline where in the world it is being used on a daily basis. The first country that came to mind was Japan, the land of modern technology. As some of our group members had visited Japan, it became obvious that we had to discuss different aspects of m-commerce in the everyday life situation. It was observed by some of our group members that almost everywhere, each and every person had a mobile phone in their hand. About 70 % of the Japanese population is using mobile phones which can handle m-commerce services such as internet access.<sup>3</sup>

In Sweden, m-commerce is not a concept that is frequently mentioned, and is a concept that is unfamiliar to many people, even though Swedes have always

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<sup>1</sup> Sadeh, 2002

<sup>2</sup> <http://www.northstream.se/download/mcommerce.pdf>

<sup>3</sup> Appendix 2

appreciated mobile phones. Sweden is at the forefront of the rapid development when it comes to mobile technology. The third generation mobile technology was developed in large part by Swedish companies, just like, GSM and GPRS and previous technologies.<sup>4</sup>

Sweden has the technological platform to facilitate m-commerce. With the current platforms that exists in Sweden, a potential user can do the same things the Japanese can, navigate labyrinthine city streets with built-in GPS systems, watch TV, download music, create and transmit home movies, check email, pay bills and play video games.<sup>5</sup>

Sweden's mobile market enables the users to access these well developed mobile technologies. Even though we can say that m-commerce is all around us, ask yourself this, how often do you access the internet through your mobile phone? The impression we first had was that the technology is available, but it seems like it is not being frequently used.

## **1.2 Problem discussion**

Sweden is a pioneer in mobile technology and has been at the frontline of developing new technologies. One of the foremost mobile phone companies Ericsson was established and currently resides in Sweden. Almost every person in Sweden has a mobile phone. At the moment it is primarily used as a voice communication tool and the other services being offered are not being used as frequently. In Japan the mobile phone is well integrated into everyday aspects of life. We wish to study the underlying reasons to why certain barriers occur when it comes to the acceptance of m-commerce services in the Swedish society, even though mobile phone technology is well developed.

The question that we want to answer, the problem we want to address is:

**What are the obstacles towards the acceptance of m-commerce in Sweden?**

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<sup>4</sup> [http://www.isa.se/upload/Filer/pdf/ISA\\_Wireless2004.pdf](http://www.isa.se/upload/Filer/pdf/ISA_Wireless2004.pdf)

<sup>5</sup> <http://msnbc.msn.com/id/4306834/>

### 1.3 Perspective

We are going to use the mobile value chain presented by Paavilainen as a guideline in describing those issues that we feel need to be presented.

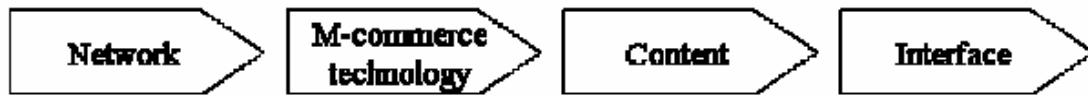


Figure 2 the mobile value chain<sup>6</sup>

The mobile value chain is to be used both as a mean for presenting our theoretical findings, and as guideline in understanding our empirical findings on the m-commerce market in Sweden and Japan. By doing so; a picture will merge that can help us understand the factors that need to be addressed in Sweden for understanding the obstacles that exist for the acceptance of m-commerce.

There are two other factors that are going to be mentioned in order to fully comprehend the m-commerce market and those are, culture and partnership and alliances.

### 1.4 Purpose

The purpose of this research is to find the obstacles that exist in order to implement m-commerce in Sweden, with the starting point in describing the empirical findings found on Japan through the mobile value chain. Thereafter a comparison will be made in order to understand the limitations on the m-commerce situation in Sweden. By comparing these two countries through the mobile value chain we hope to gain a greater understanding of the obstacles that Sweden needs to address.

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<sup>6</sup> Paavilainen, 2002



## **1.5 Thesis Outline**

Chapter one gives the reader a background of the problem that we wish to study as well as a short a definition of m-commerce, we also discuss the purpose of our research, our perspective and delimitations.

Chapter two explains how the research was conducted and what scientific approaches were chosen, different research methods that we used to complete our study, such as the literature research, empirical research and

Chapter three offers the reader an explanation of different concepts that we felt have a central meaning to our research. Among these are e- and m-commerce, also a short description of 3G and the security provided by it.

Chapter four explains our theoretical frameworks and the mobile value chain. We also discuss different parts of the value chain and the reason why the value chain is being used.

Chapter five gives a short introduction of the cultural aspects of the countries we have studied in our research. We also look at the mobile technologies that are available on the current market in both Japan and Sweden and the services offered by them.

In chapter six, we try to analyze our research and any results that our study might have given us.

Chapter seven contains a discussion about our research, our own reflections and ideas about our work and any kind of conclusions that we feel that we have come to.

Chapter eight suggests a further research within this subject.

## **1.6 Delimitations**

We have chosen to focus on NTT DoCoMo, Japanese Company, which has traditionally held a very dominant position as a m-commerce services provider in the Japanese market from the very beginning. Our focus in Sweden will be on

the company 3 since it is the only mobile service provider that mainly focuses on the 3G network on the Swedish market.

We have limited the research to Business to Consumer, B2C and Consumer to Consumer, C2C. In m-commerce B2C implies transactions between a company and consumers through a wireless network and mobile devices. C2C implies a relationship between two consumers.<sup>7</sup>

There are some aspects of the mobile value chain that we have chosen not to address. The reason being is that neither sub definition of content which is technological platform nor the definition of interface is relevant in order to solve our problem discussion. However we feel that these two aspects need to be described in our order to understand the mobile value chain. The reason being why we have described the people in these countries is that you need to understand the people in respective country in a social environment and their general attitudes in order to fully understand how they interact with various mobile services. Partnership and alliances is another aspect worth mentioning because the degree of relationship leads us to understand how well integrated the mobile services is on a daily basis.

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<sup>7</sup> Turban, 1999

## 2. Methodology

*This chapter will describe the different methodologies that exist which are relevant to our research. The purpose of this chapter is to explain for the reader how we have conducted our research, which will create an understanding for the work behind our bachelor thesis.*

### 2.1 Deductive and Inductive approach

Our research has followed a deductive pattern. Deductive research is the most common way of conducting research since it indicated viewing the connection between theory and the empirical research.<sup>8</sup>

We have, on the basis of what is known about these particular areas and of theoretical considerations in relation to Sweden and Japan, assumed a theory that has been subjected to our empirical study.<sup>9</sup>

In this study we began with thinking of a theory related to our topic of interest. Then we tried to narrow it down into more specific hypotheses that could be investigated. We then took it one step further, by addressing our collected data and our theories.

We also used an inductive approach, since we as researchers tried to draw conclusions from our empirical findings.<sup>10</sup>

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<sup>8</sup> Bryman et al, 2003

<sup>9</sup> ibid

<sup>10</sup> ibid

## 2.2 Qualitative research method

We chose to use a qualitative method in order to be able to create a deeper understanding of the subjects that was studied. The qualitative research objects that were studied are individuals and their world of living. This is necessary in order to be able to describe, analyse, and understand the behaviour of individuals in their environments.<sup>11</sup> We believe it is essential to understand human behaviour in order to find obstacles towards the acceptance of m-commerce in Sweden.

We accomplished the data gathering by using different research sources such as; literature research, interviews and surveys.<sup>12</sup>

The purpose with a qualitative method is primary to explain a situation,<sup>13</sup> and one of our goals is to reach an explanation to why certain m-commerce services are used more than others, in order to clarify possible obstacles towards the acceptance of m-commerce.

To be able to gather information about an individuals' world, it is necessary to interpret their behaviour, action and choice. Our work is seen through a hermeneutic point of view<sup>14</sup>, which indicates how the world is interpreted. As researchers, we dealt with question marks that focused on the understanding of how people experience difference situations, in this case, experience the need of different m-commerce services.

In order for us to understand a person's actions, we had to take it one step further, by first trying to understand the actions through the individual's point of view.<sup>15</sup>

## 2.3 Data collection

When conducting empirical research, we believe it is important to keep an open mind, i.e. not to have a preconceived idea, in order to obtain an accurate picture as possible of the reality.

The research material which we have gathered ourselves, our primary data<sup>16</sup>, consists of interviews and surveys. Since we wanted to gather data from the "real

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<sup>11</sup> Lundhal et al, 1999

<sup>12</sup> Andersen, 1998

<sup>13</sup> ibid

<sup>14</sup> Lundhal et al, 1999

<sup>15</sup> ibid

<sup>16</sup> ibid

world” we chose to interview people who are familiar with the concept m-commerce and its position in society. The gathered data from the surveys analysed with the help of different charts to be able to make a comparison of two diverse markets. The analysis helped us create our own understanding and made it possible for us to compare our theories and the results from our empirical research.

Our secondary data<sup>17</sup>, was collected through different articles found on the internet and in books related to our research.

### **2.3.1 Theoretical research: The mobile value chain**

The mobile value chain is going to be used as a mean to understand the different aspects of m-commerce and to structure our essay. The different aspects are going to be discussed in the theory chapter and the value chain itself is going to be used as a mean to organize our essay.

### **2.3.2 Literature research**

The literature research is one of our most important source of data to our bachelor thesis, since it supports the results of our collected data. Conducting this type of research will contribute to the valuable information on earlier researches and theories, so that we can prevent recurrence of earlier thoughts and statements<sup>18</sup>. The literature research should be done systematically according to three steps<sup>19</sup>:

- Ask experts within the subject
- Read articles related to the subject
- Seek literature

We have taken these three steps into consideration, and have therefore followed them during the whole research process. Experts that were asked are familiar with the concept of m-commerce in their daily process. We chose specialists from

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<sup>17</sup> Lundhal et al, 1999

<sup>18</sup> Andersen, 1998

<sup>19</sup> ibid

different areas; the University of Lund, Sony Ericsson in Sweden and Hi3G Access AB in Sweden.

Different articles related to m-commerce have been studied due to the concept of m-commerce is quite new and we were limited amounts of books regarding m-commerce.

Other literature we used for our work had to do with human behavior and culture.

We have viewed this material in a critical manner which is an important factor when doing literature research<sup>20</sup>

### **2.3.3 Survey**

The main focus of our surveys was about the usage of m-commerce services, how often a person uses the services, user habits and the amount of usage and different influences on usage of mobile services etc.

The questions asked in our survey are related to different aspects of our work. Through these questions we have tried to gain a better understanding about the issues addressed in our paper. They also give us a picture of what might be important to the users of these mobile devices and services that are offered to them in the countries we have studied.

We handed out surveys in two countries; Sweden and in Japan. In Sweden we passed out most surveys at Lund University premises. The majority of the people who answered our surveys were students. Other than this, we have asked people we know who use '3' mobile phones in Sweden, so therefore we could get different age groups.

Survey or "cross-sectional design" means that a researcher collects data from more than one situation at a certain time in order to come up with the quantitative or qualitative data which is connected to two or more variables which later could be analysed so researcher can notice a certain pattern which can be related to different bonds.<sup>21</sup>

We also wanted to pass out a survey about i-mode to people in Japan, which was a great challenge. Luckily we were able to pull some strings to reach people in

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<sup>20</sup> Jacobsen, 2002

<sup>21</sup> Bryman 2002

Japan. We made an online survey, which was sent out through e-mail to a Japanese exchange student we know. She was kind enough to send it to her friends in Japan who have access to i-mode's mobile phone services in Japan. ("Chain reaction"). We know for a fact that the majority of the people who answered the survey are between the age of 18 and 25 years old.

The questions we asked were about the offered "3's" services in Sweden and NTT DoComos i-mode offered services in Japan. For example, when for what reason and in what situation, they are being used.<sup>22</sup>

One of the goals of this part of our research (surveys) is to get an understanding about people's attitude towards the usage of the offered services through mobile phones.

Whether or not the findings can be generalized to the rest of the population is of importance when it comes to judging the quality of the investigation. We are well aware of that our resources are limited, and so is our time. We know that the results of our survey do not represent a countries usage of mobile phone services but can serve as an indication instead.

### **2.3.4 Interview**

We have chosen to make an unstructured interview, where the interviewees were allowed to respond freely to the questions asked.<sup>23</sup> As interviews were conducted, we would only respond to points worthy of being followed up. There is a comparable structure between unstructured interviewing and a conversation. We thought this method would make the interviewees feel more comfortable and relaxed when giving them time to tell us about different situations and opinions during the interview.

We have interviewed 3's concept store manager in Lund, an Associate Professor at the department of Informatics in Lund and also Mr Izumi Watanabe at Sony Ericsson in Lund. These interviews make up an indispensable part of our research, since they make our report more reliable, with data coming from the "real world".

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<sup>22</sup> Appendix 4

<sup>23</sup> Bryman et al, 2003

It is always better to carry out an interview in the respondent's primary language since it indicates the ability to communicate effectively during the interview process. By taking this into consideration, the feeling of speaking a language which the interviewee is less familiar with will not interfere with the interview itself.<sup>24</sup>

Two out of the three interviews were conducted in Swedish since the interviewees native language is not English. They were then translated into English. One of the interviews was conducted in English due to the person's native language being Japanese.

When doing qualitative research, the questions asked during an interview are highly variable.<sup>25</sup> We tried to ask as similar questions as possible to all our interviewees so that we could make a somewhat comparison of answers. We have displayed the conducted interviews as appendixes at the closing stages of our thesis.<sup>26</sup>

The questions we asked during all three interviews were connected to the topic of m- commerce usage in Sweden, for example how many users are there in Sweden that use '3' mobile phones, what are the most common services, the future of m- commerce in Sweden and etc.

### **2.3.5 Internet**

When parts of the data were gathered from the internet, we studied our findings from a critical point of view because most of our sources were different company websites, which are trying to promote themselves. We are well aware of this, so we decided to use our data in a more descriptive nature in order to understand different concepts.

When evaluating our internet sources, our main attention was drawn to check reliability and credibility by verifying the author, his or her association, date and the source of publication<sup>27</sup>. Resources from different Web search engines (for example Google, Yahoo, etc) were also reviewed and evaluated.

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<sup>24</sup> Bryman et al, 2003

<sup>25</sup> *ibid*

<sup>26</sup> Appendix 1, 2, 3

<sup>27</sup> <http://www.lib.purdue.edu/itd/techman/evaluate.html>



## 2.4 Validity & reliability

### 2.4.1 Validity

A research should more or less capture reality. There are many factors that have to correspond, like observations; question constructions, interviews, and respondent's openness is used to create a consistent entirety<sup>28</sup>.

Questions asked could be unclear stated, and the interviewer can affect interviewee with its own values, the interviewee may be embarrassed of revealing a certain intimate details about his/her life or keep the economic integrity unreleased. There are certain factors which can jeopardise a sociological research<sup>29</sup>.

We have taken into consideration that we, as interviewers could have affected the interviewees with our own evaluations and we were well aware of the possibility that the interviewees may hide some information which was of a private matter.

### 2.4.2 Reliability

Reliability indicates how reliable various sources are. High reliability will grant that our data is reliable and that it could illuminate our problem discussion<sup>30</sup>.

The reliability of a study can increase by asking simple and clear questions. We have tried to define the concepts that are used in our surveys well to avoid misunderstandings.

We have used the split-half method<sup>31</sup> which indicates that the interview questions were divided in to two almost equally halves and handed out so that two measurements could be conducted within the same study. We divided our research questions in two halves and changed them in order to make them more suitable to the people of the countries we studied. We are perfectly aware of the risks that come along using this method; the stability of the study can be questioned if using this method because the result may not be representative when a certain amount of time has passed.

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<sup>28</sup> Svenning, 1999

<sup>29</sup> *ibid*

<sup>30</sup> *ibid*

<sup>31</sup> *ibid*

## 3 Conceptual descriptions

*In this chapter we intend to explain different concepts which have a central meaning to our research. Among these concepts we will of course define m-commerce. By doing so the possibility of analyzing our results will in a way increase the understanding for our bachelors' thesis.*

### 3.1 e-commerce<sup>32</sup>

Electronic commerce includes the handling of transactions and different transfers over the net, it also includes the buying and selling of products, services and electronic information. From the beginning, e-commerce was used as a form of transaction between business enterprises, banks and other large financial institutions, but now the use of the internet is a part of the daily life of an individual consumer.

Different enterprises have replaced other networks by internet or, they are using the internet as a new communication standard, converting their business data to digital form, and incorporating it with their business practices. This has decreased the cost of the electronic commerce for different companies.

Electronic commerce brings opportunities for commercial activities on the internet. It makes it easier for different groups such as different departments or companies working together to cooperate with each other by using digital information available for commercial activities. These activities could involve designing and building new products or offering different services to their consumers.

### 3.2 m-commerce

According to Norman Sadeh, m-commerce is defined as; *“any transaction with a monetary value that is conducted via a mobile telecommunications network”*.<sup>33</sup>

The technology behind m-commerce is very similar to the one behind e-commerce.<sup>34</sup> The original idea with m-commerce was to make e-commerce easier, which is referred to as fixed internet application.<sup>35</sup>

M-commerce could also be considered as the rising set of functions and services people can access from their Internet-enabled mobile devices. These definitions suggest that there are many dimensions to mobile commerce. Instead of trying to

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<sup>32</sup> Kosiur, 1997

<sup>33</sup> Sadeh, 2002 s 5

<sup>34</sup> Paavilainen, ,2002

<sup>35</sup> ibid

come up with a cryptic one-size-fits-all definition, a more practical approach is to look at some of the many forms of mobile commerce found today.<sup>36</sup>

M-commerce is a concept which is hard to define since there are many different definitions for it, and there are constantly new definitions arising with time.<sup>37</sup>

The widest definition of m-commerce is when a mobile unit has been involved in some sort of decision process when making a purchase.<sup>38</sup>

Other definitions state that m-commerce only occurs when the whole purchase transaction of a service, delivery and payment is done through the mobile unit.<sup>39</sup>

### 3.3 3G

Universal Mobile Telecommunications System (UMTS) also known as a third-generation mobile phone (3G).<sup>40</sup> The 3G network consists of high-speed broadband mobile Internet access<sup>41</sup> with digitized voice, broadband, packet-based transmission of text, video, and multimedia speed up to and possibly higher than two megabits per second, offering a set of services to mobile phone users no matter where they are located in the world.<sup>42</sup> 3G networks trials first started in Japan in the year 2001<sup>43</sup>

Based on the GSM communication standard, UMTS, approved by major standards bodies and manufacturers, is the planned standard for mobile users around the world by 2002. Users will have access through a combination of global wireless and satellite transmissions.<sup>44</sup>

There are three aspects of security that needs to be addressed:

- 1) 3G security is built on the security of second generation systems. Security basics that were used with GSM are adopted into 3G security.
- 2) 3G security corrected those weaknesses that existed with GSM and provide security for the new services that 3G is providing.
- 3) 3G security will offer new security features and will secure new services offered by 3G.<sup>45</sup>

There are several aspects of security that 3G is addressing and those are;

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<sup>36</sup> Sadeh,2002

<sup>37</sup> Ahonen,2002

<sup>38</sup> ibid

<sup>39</sup> ibid

<sup>40</sup> [http://www.3g-generation.com/what\\_is.htm](http://www.3g-generation.com/what_is.htm)

<sup>41</sup> <http://www.darwinmag.com/learn/curve/column.html?ArticleID=182>

<sup>42</sup> [http://www.3g-generation.com/what\\_is.htm](http://www.3g-generation.com/what_is.htm)

<sup>43</sup> [www.symbian.com/technology/glossary.html](http://www.symbian.com/technology/glossary.html)

<sup>44</sup> ibid

<sup>45</sup> [http://www.3gpp.org/ftp/tsg\\_sa/WG3\\_Security/\\_Specs/33120-300.pdf](http://www.3gpp.org/ftp/tsg_sa/WG3_Security/_Specs/33120-300.pdf)

- Network Authentication

The 3G user can identify the network that he/she is using at the moment

- Explicit Integrity

The Integrity of the data being transferred is secured by various algorithms and the confidentiality of the user is assured through confidentiality algorithms with longer keys

- Network Security

Mechanisms to support security within and between networks

- Fraud Detection

There are various mechanisms within the 3G platform that is combating fraud in roaming situations

- Flexibility

Current security features can be altered and modified as new threats are discovered,

- Visibility and Configurability

The user is notified if the security level of the platform changes and the security level can be modified according to the users needs.

- Compatibility

The security features are standardized in order to ensure that the phone can be used worldwide.

- Lawful Interception

There are several mechanisms to ensure the users privacy when they are subscribing to various services that the 3G network is providing. <sup>46</sup>

### **3.4 Mobile unit**

There are several different types of communication devices on the mobile commerce market today. Some of these devices are PDA/phones, PDAs and two way pagers.<sup>47</sup>

All these tools enable the user to connect to the World Wide Web, send and receive messages and e-mails among other services. The communication tools that we have chosen to focus on in our research are mobile phones because we believe that they are the most common communication tool used in our society right now.

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<sup>46</sup> [http://choices.cs.uiuc.edu/MobilSec/posted\\_docs/3G\\_Security\\_Overview.ppt#1](http://choices.cs.uiuc.edu/MobilSec/posted_docs/3G_Security_Overview.ppt#1)

<sup>47</sup> <http://www.pcmag.com/category2/0,1738,7,00.asp>

### 3.5 E-business Value

It is acknowledged that there are already a number of different types of e-business models which are quite similar to the phenomena m-commerce. The term e-business model is often used among e-businesses and within research on e-businesses.

There are numerous definitions of e-business model within the e-business literature. Among these are:

- A model for the flows of products, services and information.
- Description of the business activities and their roles.
- Description of the benefits.
- Source of revenue. And so forth

It is not well acknowledged that most of the business within the e- or m-commerce involves money. There are a lot of free products and services that are offered to the consumers.<sup>48</sup>

What is uncertain is how value emerges from these businesses, how the companies offering these services can benefit from it and continue doing so. The literature and the empirical observations within this subject do not give a clear picture of the emerging value of e- or m-commerce.

The term value takes on different meanings in the literature based on this subject. value is profit and profit can only be created when a company benefits from a certain product by selling it for a higher price than the cost of manufacturing it<sup>49</sup>. There are a number of important characters of value which are as follow by this quote;

*"Value is always perceived by the customer which suggests that value have components that are both contributing to the `real value` of the product such as the actual features and performance of the product and to impressions of value such as marketing, image and brands. Zeithaml also suggests that value consists of a benefit and a sacrifice component, thus value is the different between what is received and what is given."*<sup>50</sup>

What this means is that the consumer receives value when the benefits such as the quality of the product is increased or when the sacrifice for example the price of the services or the offerings is reduced.

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<sup>48</sup> Hedman et al, 2002

<sup>49</sup> ibid

<sup>50</sup> Gibe et al, 2003 s 5-6.

Cost reduction is one of the benefits among the businesses that rely on internet or wireless technology. Reduced cost of inventory and reduced buyers search costs are some of the benefits of businesses taking place on electronic marketplaces. Lock- in is another example that can facilitate value creation within e-business.<sup>51</sup>

This concept makes it more difficult or unattractive for the consumers to change supplier or subscription.

Improved services for the consumers, a better or closer relationship with the consumers, better business opportunities and improved competitiveness are also among benefits<sup>52</sup>.

In order to continue being successful in this business, a company must be able to compete with others. That is why the literature in this field adds the concept of competition. The price of the product offered to the customer is not only based on the value of it but also how similar the offer is to other offers available on the market.

There are two different types of value, use value and exchange value. The value that the consumer receives is recognized as the use value which is the same as the price the customer is prepared to pay. The amount of money that is actually paid when exchanging the product is the exchange value.

It is suggested that in order to survive, it is very important for a company to not only offer the consumer a product that is available on the market at a reasonable price but also a service or a product that is quite unique compared to other offers available.<sup>53</sup>

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<sup>51</sup> Hedman et al, 2002

<sup>52</sup> Gibe et al,2003

<sup>53</sup> ibid

## 4 Theory

We have chosen to compare two different m-commerce markets through the mobile value chain which we will use both as a theoretical framework and later on as guidelines for structuring our empirical findings. In this chapter we are going to present the different subjects which the mobile value chain consist of. We have added two factors that might help us understand why customers behave the way they do (people) and corporate alliances.



Figure 4.1 (Mobile business strategies s53)

The mobile value chain consists of different markets where different mobile companies are trying to establish themselves on.

The mobile value chain consists of four different components and those are as follows; network, m-commerce technology, content and interface. These components have different sub components as well.

Network	Mobile commerce technology	Content	interface
back end systems web and wap services internet mobile network	Software development  Payment solutions security solutions Software platforms Application development	content provision Content aggregation	Portals  device

The beginning of the value chain is characterized by business to business opportunities because the basic technologies are needed in all mobile commerce aspects. For example serves and security applications are some of the basic component of every mobile commerce solution.<sup>54</sup>

### 4.1 People

A big part of the world is in the process of technological change that is the way people gather, share, store and utilize information. For the most part the public discussions and political debate has focused on technical or mechanical issues,

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<sup>54</sup> Paavilainen, 2002

for example just several years ago a lot of people were impressed by World Wide Web, e-mail, and the improvements and mechanism of the Internet and Java programming language. But the big part of all the technology, like any technology, will be used by public. An important question is how societies, groups of people and individuals will cooperate with and be affected by this technology. Investigation of these questions can help recognize technology determined problems and new uses of technology.

Information technology becoming very advanced and has far exceeded our understanding about how these new technologies have reshaped, improved and reformed social organization, peoples work life, communication patterns and culture. Technology is no longer the same it was two or even one year ago, speed of the information devices has increased the same as communication and storage ability has improved as well. <sup>55</sup>

The way we communicate with each other is changing dramatically and very quickly. To fully understand the world we live in, we must understand the role that technology plays in our lives – from how we shop to how we form our identities. <sup>56</sup>

Information technology touches different part of our lives, how we communicate with each other, the way we read, learn, it transferred our homes, institutions and classrooms.

## **4.2 Network**

The network is how different services are being delivered to the end-users. (mobile business strategies). In our scenario those are the different technological platforms that exist in respective countries.

## **4.3 M-commerce technology**

M-commerce technology is how different security aspects are supposed to be handled as well as different payment solutions. This part of the value chain also consists of addressing the issue of what software is supposed to be used in order to program “solutions” (mobile business strategy). However the latter factor won’t be analyzed because we believe that it is not a deciding factor.

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<sup>55</sup> <http://www.cra.org/Policy/reports/aspects/aspects.pdf>

<sup>56</sup> <http://cct.georgetown.edu/>



### 4.3.1 Security<sup>57</sup>

Security is one of the most crucial aspects concerning m-commerce. If there is no trust, no one will be comfortable to use the mobile services that are provided to them. It is important for content or payment providers to be able to give their customers a sense of security or confidentiality. According to the author of the book m-commerce, consumers need to feel secure making purchases and payments using their mobile devices. He also mentions a number of different technological dimensions to network security. These dimensions are related to different classes of vulnerability. The essential security requirements are:

- Authentication: verifying the identities of people communicating with each other.
- Confidentiality: making sure that only the sender and the receiver of a message can read its content.
- Integrity: ensuring that what is send is exactly what is being received. The transaction of a message should not be changed.
- Non-repudiation: it guarantees that the participants of a curtain transaction can not later deny being a part of the transaction.

### 4.3.2 Payment solutions<sup>58</sup>

In order to generate revenue a mobile service provider requires that mobile portals assemble a critical mass of customers if they are to be profitable, with many players often combining multiple sources of revenue.

In order for a mobile content provider to generate revenue there are several business models available.

- User fee business model: A user gets charged for the content they access.
  - Subscription Fee A user gets charged a flat access fee a month
  - Usage Fee A user gets charged a flat access fee and then some according to what service is being used.

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<sup>57</sup> Gibe et al, 2003

<sup>58</sup> Sadeh, 2002

- Shopping business model: Players here sell goods and services over the mobile Internet, viewing the mobile internet as another distribution channel.

## 4.4 Content

According to Paavilinin content is the most important factor in the mobile value chain and it consist of two parts

- What services are offered
- Who provides these services

### 4.4.1 Services

Mobile units broaden the accomplishment of fixed internet applications and services, from trading stock or purchasing movie tickets, to sending e-mails and accessing enterprise databases.<sup>59</sup> Besides this, there is also the opportunity to access new services and usage circumstances which would be unimaginable or less appealing if accessed from PCs.<sup>60</sup>

When using the internet through a mobile unit, the experience is very dissimilar to the usage of internet offered by a fixed counterpart since the screen is much smaller, smaller keypads and a possibly low bandwidth.<sup>61</sup>

### 4.4.2 Needs & Convenience

According to Normans book, the reasons why for example banks support m-commerce is because their customers could access their services while on the move and also be provided with new modes of payment. Not only in favour of the user, by using online services it reduces the operating costs by allowing their, a banks, users to access banking services that entails little human involvement.<sup>62</sup>

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<sup>59</sup> Sadeh, 2002

<sup>60</sup> ibid

<sup>61</sup> ibid

<sup>62</sup> ibid

### 4.4.3 The company information

A brief description is going to be made on the different companies that provide the mobile services.

## 4.5 Interface

Interface is how the information is going to be presented to the end-users.

### 4.5.1 Usability

Usability can be defined as how easy a product is to use. It has been defined as: "the effectiveness, efficiency and satisfaction with which a specified set of users can achieve a specified set of tasks in a particular environment".<sup>63</sup>

Effectiveness can be defined as the extent to which a program or service is meeting its stated goals and objectives (ISO 9242-11, 1998).<sup>64</sup>

Efficiency is how effective the task can be achieved. Satisfaction reflects how happy the user is with the product or service.<sup>65</sup> The level of satisfaction can be affected by the:

- The users - who is using the product? e.g. are they highly trained and experienced users, or novices?
- Their goals - what are the users trying to do with the product - does it support what they want to do with it?
- The usage situation (or 'context of use') - where and how is the product being used?<sup>66</sup>

Usability should not be confused with 'functionality', however, as this is purely concerned with the functions and features of the product and has no bearing on whether users are able to use them or not. Increased functionality does not mean improved usability!<sup>67</sup>

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<sup>63</sup> <http://www.nomensa.com/resources/glossary.html#u>

<sup>64</sup> Gulliksen et al, 2002

<sup>65</sup> ibid

<sup>66</sup> [http://www.usabilitynet.org/management/b\\_what.htm](http://www.usabilitynet.org/management/b_what.htm)

<sup>67</sup> ibid

## 4.5.2 The mobile technology

The whole idea behind m-commerce is to influence on the fact that most customers today carry mobile phones anywhere anytime. The main problem is how much added value the users will distinguish from using the mobile phone for commercial transactions.<sup>68</sup>

A standardisation of mobile devices is a condition that new services will be offered for the bigger group of customers. Downloading of mobile tones is one of such services, which first worked only on Nokia mobile devices but nowadays it is working on any mobile phone (eg. SonyEricsson, Motorola).

## 4.6 Partnerships, alliances and relations<sup>69</sup>

Amongst the most common strategies that a company has is forming partnerships. The reason for entering an agreement is that it's less capital-intensive way to gain access to products, customers, and business capabilities.

There are several versions of agreements. Most commonly recognized are joint ventures and strategic alliances:

A joint venture is a partnership agreement in which two or more businesses join together to carry out a single business project.

A strategic alliance is essentially a partnership in which companies combine efforts in anything from getting a better price for goods by buying in bulk together, to seeking business jointly. The basic idea behind alliances is to minimize risk, while maximizing leverage.

The use of Internet technology has made partnerships more widespread, and occurs, according to Porter, in two main ways: The first involves complements, where products are used in tandem with another company's portfolio. In the m-commerce industry complements have proliferated as players seek to widen their product array of products, services and information to the market.

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<sup>68</sup> <http://www.northstream.se/download/mcommerce.pdf>

<sup>69</sup> Porter, 2001

## 5 Empirical research

*In this chapter our empirical findings, which consist of both primary and secondary data, will be presented. With the appearance of our empirical findings through surveys, interviews, articles, books and internet sources, we want to present the reader with a conception of m-commerce's situation in both Japan and Sweden. Subsequently, this chapter will serve as base on which we will conduct our analysis and perform a conclusion.*

### 5.1 Japan

Japan has a strong cultural foundations and sometimes seemingly peculiar business practices. Macro factors, such as economy, demographics and culture play an important influencing role for companies acting in Japan. We believe that readers of this thesis will need a context in which to interpret the findings and conclusions. In this section we therefore give a brief introduction to Japan regarding relevant variables for the research.

#### 5.1.1 NTT DoCoMo

Japan's leading company in mobile communications, NTT DoCoMo, provides wireless voice and data communications to tens of millions of subscribers in Japan<sup>70</sup>. NTT DoCoMo is a creator of i-mode mobile service, which is one of the main areas of study in this research.

NTT DoCoMo corporation provides a broad diversity of leading-edge mobile multimedia services. In addition to entirely owned subsidiaries in Europe and North America, the company is growing through strategic alliances with mobile and multimedia service providers in Asia-Pacific and Europe.<sup>71</sup>

I-mode was produced by a woman in around 1998- 99. In the beginning it was a small project, but once they launched their services, people started to use i-mode more than expected.<sup>72</sup>

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<sup>70</sup> [www.nttdocomo.com](http://www.nttdocomo.com)

<sup>71</sup> *ibid*

<sup>72</sup> Appendix 2

The success of i-mode attributable to users not needing to remember long winded web addresses to access the information or having to worry about setting up an e-mail address as phones are pre programmed.<sup>73</sup> With i-mode services people would get access to more than 80,000 Internet sites, as well as e-mail, online shopping, banking, ticket reservations and restaurant advice.

### 5.1.2 People in Japan

Among the users of mobile services, kids and young adults can be distinguished. Similar to the Europeans, Japanese kids and teenagers are fascinated users of the wireless Web. We can not avoid the fact that they are growing up in the wireless environment and in the world of internet and technology. It is very common that their parents are the ones subscribing to the mobile services, while the kids are the actual users of the phone devices. They are also heavy users of video games<sup>74</sup>. Socializing has an important value to kids, as they have a lot of free time. Thus they will be among the most dedicated users of mobile entertainment.<sup>75</sup>

The Japanese people expectations and attitude towards time and technology is quite different comparing to other countries. While they will give the new technology a fare chance in spite of additional difficulties, people from other countries might prefer to wait for more established services. Japan is a society, where saving time is an important part of the daily life, the mobile phone plays a critical roll but it is also important to be able to use the mobile entertainment services to “kill time”.<sup>76</sup>

The use of public transportation is very common in Japan. People with different professions travel every day and spend a number of hours commuting with e.g. subway, bus and train. While commuting, mobile phones are frequently used for accessing different services such as e-mailing as shown figure 11<sup>77</sup>. Voice calls are not conducted while commuting since it is forbidden when using public transportation.<sup>78</sup>

One of the Japans leading mobile phone operators NTT Mobile Communications Network and its competitors, are already offering mobile services ranging from

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<sup>73</sup> <http://www.pocket-lint.co.uk/news.php?newsId=695>

<sup>74</sup> Appendix 3, question 6

<sup>75</sup> <http://unpan1.un.org/intradoc/groups/public/documents/APCITY/UNPAN007354.pdf>

<sup>76</sup> *ibid*

<sup>77</sup> *ibid*

<sup>78</sup> *ibid*

home banking and news headlines to restaurant guides and weather reports. They can send and receive emails and develop their own home pages on their mobile phones. The phone also represents a fun means of spending time on the way to work or school.<sup>79</sup>

The “keitai”(mobile phone) is becoming an important part of the Japanese society, and peoples life-style. It is of course used primary as a communication device. Mobile phones are becoming fashion accessories in Japan, e.g. users buy different handsets to suit different occasions. As a result the phones are often personalized, being regarded as fashion accessories and the mobile device itself depicts a form of entertainment.<sup>80</sup>

The Japanese written language may also be more compatible with tiny mobile phone screens than Western scripts. This system of writing characters borrowed from China in the fifth century A. D. consists of 50,000 characters in Japanese, some involving 40 different brushstrokes. Most of these 50,000 characters are rarely used, but the Japanese are required to master 1,850 of them. A Japanese person reads the Japanese language from right column to next column; the eye picks it up right away.<sup>81</sup>

In Sweden we read from the left to the right. The Japanese read one screen on one full swoop. It is not required for the Japanese user to read line by line, word by word, and letter by letter. When reading Japanese comics (manga), the Japanese can just look at a page and get the sense of what’s going on. This is different from what we in the Western side of the world do.<sup>82</sup>

70 % of the Japanese population is using mobile phones with similar functions such as i-mode. Approximately 50 % out of the 70 % are NTT DoCoMo subscribers.<sup>83</sup>

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<sup>79</sup> <http://unpan1.un.org/intradoc/groups/public/documents/APCITY/UNPAN007354.pdf>

<sup>80</sup> *ibid*

<sup>81</sup> library of nations Japan,1985

<sup>82</sup> [www.brandchannel.com](http://www.brandchannel.com)

<sup>83</sup> Appendix 2

### 5.1.3 M-commerce technology

#### 5.1.3.1 The i-mode security

Security is an important factor for i-mode because of the services being offered such as banking and security trading. These security issues are divided into different sectors<sup>84</sup>:

- The security of the radio link between i-mode handset and the mobile base station. This link uses proprietary protocols and NTT DoCoMo controls the encoding
- The security of the public internet connection that exists between i-mode sites and the handset in the chtml layer.
- The security of all private networks used on i-mode.
- The security of all private network links that exist between the i-mode center and service providers such as banks and etc.
- The password security.

The security measures that are implemented includes the i-mode network and i-mode handsets are equipped with SSL which means secure socket layer encrypted transmission, also the i-mode handsets have unique identifiers that allows the same kind of security to be implemented as on the internet. All mobile banking that are done on i-mode and corporate networks use also secure socket layer<sup>85</sup>.

These service recognizes the importance of personal information and to ensure that such information is fully protected, DoCoMo complies with the Telecommunications Business Law, other regulations, and publicly discloses.

#### 5.1.3.2 Payment Solutions

I-mode customers pay a monthly fee of 315 (pic 5.1) yen (tax included; 2.719 \$US) — which comprises a 157.5 yen (tax included; 1.359 \$US) packet transmission charge, and a 157.5 yen (tax included; 1.359 \$US) fee for i-mode service. In addition, users pay low variable packet fees. These usage charges are based on the volume of data sent / received rather than on time spent connected. One packet, or 128 bytes, costs just 0.315 yen (tax included; 0.003 \$US), and an i-mode email costs only 1.05 yen (tax included; 0.009 \$US) per 20 Japanese characters (or

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<sup>84</sup> [www.nttdocomo.com](http://www.nttdocomo.com)

<sup>85</sup> *ibid*



40 Roman letters). Other services range from 7.35 yen (tax included; 0.063 \$US) for downloading still images, to 27.3 yen (tax included; 0.236 \$US) for checking share prices, to 63 yen (tax included; 0.544 \$US) for transferring funds. Customers also pay i-mode information charges — flat monthly fees ranging from 105 yen (tax included; 0.906 \$US) to 315 yen (tax included; 2.719 \$US) for each content provider site to which they subscribe.<sup>86</sup>

	Yen	\$US	Kr
Monthly fee	315	2.719	19.169
Packet transmission	157.7	1.359	9.580
Monthly information fee	105-315	0.906-2.719	6.387-19.169
Fee for services	157.5	1.359	9.580
i-mode email	1.05	0.009	0.0634
Other services	7.35-63	0.063-0.544	0.444-3.835

figure 5.1<sup>87</sup>

## 5.1.4 Content, Services

### 5.1.4.1 Mobile manga

The wireless market in Japan has a number of services to offer the ordinary commuter. Japan's 3G networks enable new types of high-bandwidth mobile content that were not possible under 2G, because of both economic and technical reasons. One of the most popular services on the Japanese market is mobile manga, delivering full-color comic book magazines to mobile phones. The idea is to combine a pocket book together with a mobile phone since it is very common for the Japanese to read manga. From an environmental point of view, this would save a lot of trees.<sup>88</sup>

<sup>86</sup> <http://www.nttdocomo.com/corebiz/imode/why/strategy.html>

<sup>87</sup> own figure with numbers selected from nttdocomo.com

<sup>88</sup> <http://www.wirelesswatchjapan.com/>

#### **5.1.4.2 Mobile TV**

The new service that is about to be launched which is supposed to revolutionize the mobile services is Direct-to-mobile TV broadcasts on the Japanese wireless market.<sup>89</sup>

The satellite will have the capacity to transmit more than 100 digital television channels to mobile viewers at a speed and quality unreachable by current broadcasts. The satellite had broadcast trials in April and commercial services started in July.<sup>90</sup>

#### **5.1.4.3 E- mail**

E-mailing is the most accepted and commonly use service used in Japan<sup>91</sup>. In Japan with 2.5 G it is possible to send e-mails since the 2.5 G network used in Japan is not based on GSM, it is based on Japanese standards. NTT DoCoMo has developed their own standard so it can become possible to use e-mail or the other services with i-mode<sup>92</sup>.

With i-mode email service, users can exchange email with other i-mode subscribers, and also with anyone who has an Internet email address (pic4.6). The email address is the phone number itself, and users can also change the username before “@” at their own preference. They can also insert up to 160 interesting graphics into their i-mode emails to make their emails more appealing.

#### **5.1.4.4. Web browsing**

Besides, i-mode also provides the feature of “web browsing”, only by keying in the appointed URL. User can view the webpage which are created with HTML subset for i-mode. In the mean time, for those who can create a website with HTML subset for i-mode, they can just pass the associated URL to their friends or relatives to share personal messages.<sup>93</sup>

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<sup>89</sup> <http://www.wirelesswatchjapan.com/>

<sup>90</sup> <http://www.mobiletechnews.com/info/2004/03/16/060839.html>

<sup>91</sup> Appendix 2

<sup>92</sup> ibid

<sup>93</sup> <http://www.kgt.com.tw/english/20020620.html>

In order to further provide internationalized service, KGT's i-mode subscribers are able to enjoy i-mode service over Hong Kong, Singapore and Mainland China via its GPRS roaming service. When subscribers of i-mode are on business trip or travel overseas, through the Internet roaming across the region, they can receive the most updated information and service of i-mode anytime, anywhere without loss any important messages. <sup>94</sup>

#### 5.1.4.5 i-navi link

i-navi link connects i-mode terminals with car navigation systems (figure 5.4), enabling subscribers to display information such as weather forecasts and town information on the display of a navigation system. The service also allows the screen to be used for email communications (figure 5.5). The i-navi link offers simpler destination settings, and supports the exchange of location information with other subscribers.<sup>95</sup>



figure 5.4<sup>96</sup>

<sup>94</sup> <http://www.kgt.com.tw/english/20020620.html>

<sup>95</sup> <http://www.nttdocomo.com/corebiz/i-mode/alliances/inavi.html>

<sup>96</sup> ibid

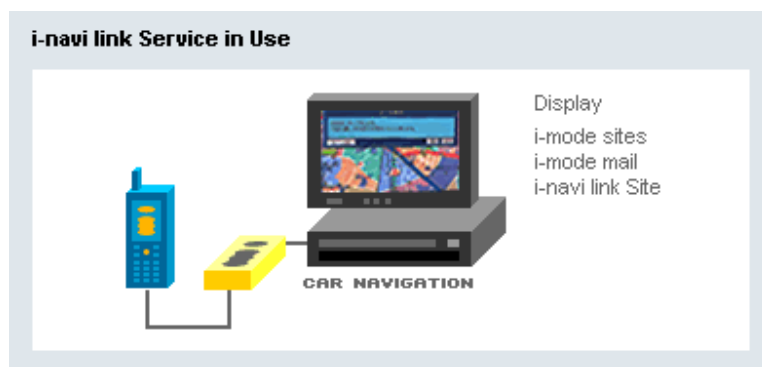


figure 5.5

#### 5.1.4.6 Phone wallets

Phone wallets were created in Japan by NTT-DoCoMo, who merged multi-application smart cards with i-mode phones.

A wallet phone can hold all credit cards, train tickets, air tickets, entrance tickets, employee ID cards, over all most instruments that people currently carry in their purses<sup>97</sup>. The Wallet phone functions as a prepaid electronic cash device, tickets, access control cards, authorization to access corporate networks, membership cards for clubs and loyalty programs. There is also the possibility to check the remaining electronic cash balance, or some transaction records, which can be directly, read offline through the mobile phone.<sup>98</sup>

I-mode new Phone wallet function called Felica, allows the user to pay with their mobile phone. The Phone Wallet function is based on Sony's Edy technology. It is not so common to use it yet, since shops and sellers need to have some equipment, in other words, you need to build up an infrastructure for people to be able to use Felica at their shops.

People are able to buy for example train tickets, cinema tickets with i-mode's Felica functions. Felica technology also implies that, for example, a persons ID, drivers licence can be stored in a mobile phone. Felica is telecommunication technology at very close range, developed by Sony. It includes Edy technology which makes the e-wallet possible.<sup>99</sup>

<sup>97</sup> <http://www.nttdocomo.com/corebiz/i-mode/alliances/inavi.html>

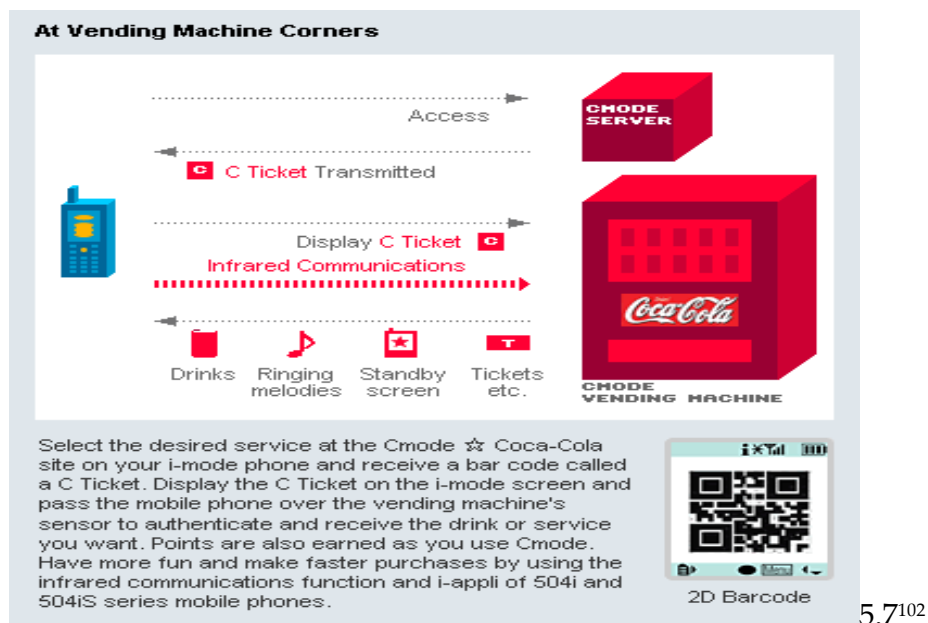
<sup>98</sup> ibid

<sup>99</sup> Appendix 3

### 5.1.5 Partnerships, alliances and relations

NTT DoCoMo and its platform i-mode are forming business partnerships with a wide area of companies ranging from coca cola to playstation. The common theme amongst these companies is that they exist outside the field of mobile communication. However these companies are cooperating with DoCoMo in order to give the end users innovative i-mode services.<sup>100</sup>

Currently i-mode subscribers can reserve, order, and purchase products and services with ease, using mobile phones and information terminals at Lawson convenience stores, and make cashless purchases of drinks and event tickets using mobile phones at special Coca-Cola vending machines (figure 5.7).<sup>101</sup>



#### 5.1.5.1 Playstation collaboration with i-mode

NTT DoCoMo and Sony Playstation have connected i-mode phones (figure 5.8) to the PlayStation game system. This feature gives i-mode phone users the choice

<sup>100</sup> <http://www.nttdocomo.com/corebiz/i-mode/alliances/cmode.html>

<sup>101</sup> <http://www.nttdocomo.com/corebiz/i-mode/alliances/cmode.html>

<sup>102</sup> ibid

of playing i-mode games separately on their i-mode handset (figure 5.9) or at home via a TV. It also allows networks of players to compete with each other.<sup>103</sup>

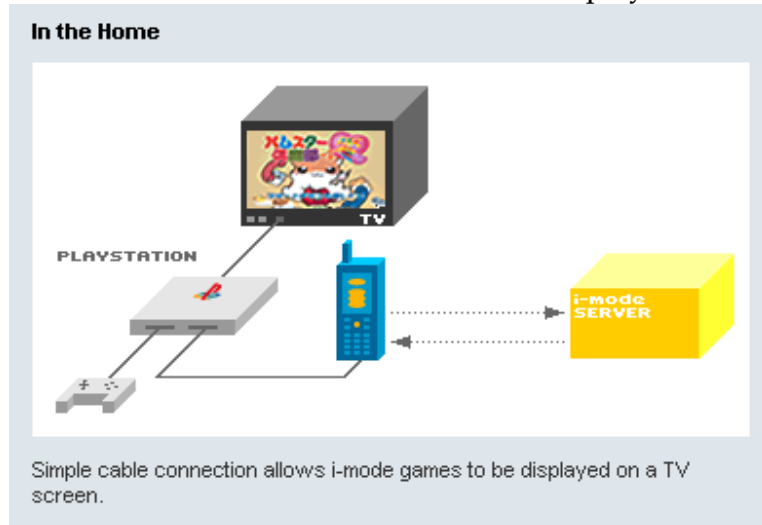


figure 5.8<sup>104</sup>

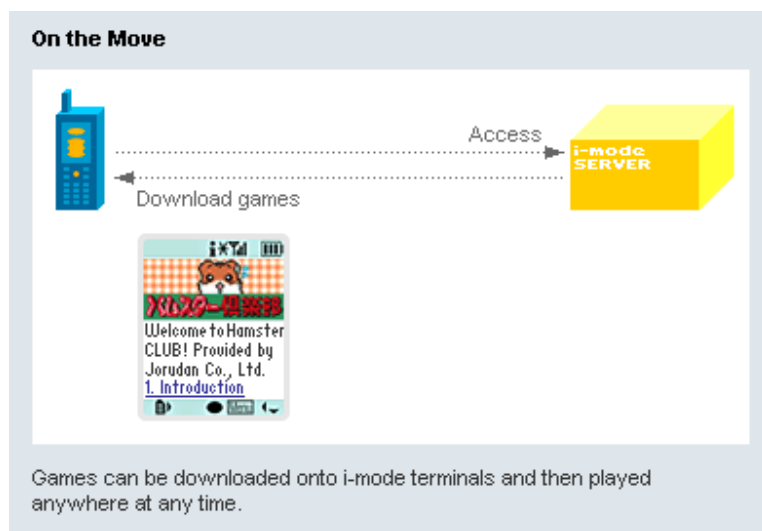


figure 5.9<sup>105</sup>

<sup>103</sup> <http://www.nttdocomo.com/corebiz/i-mode/alliances/cmode.html>

<sup>104</sup> <http://www.nttdocomo.com/corebiz/i-mode/alliances/playstation.html>

<sup>105</sup> *ibid*

## 5.2 Sweden

At the present time Sweden is a leading country in science and technology. This is placing Sweden well ahead of any other nation. Swedish universities and research institutes are undertaking a large number of ICT-related research efforts and are at the forefront in the areas of wireless systems, signal processing and microelectronics. Mobile services and understanding the consumer are quickly taking on a prominent role at universities and research institutes. In this section we give a brief introduction of Sweden and to the factors, which may play crucial role in the acceptance of mobile commerce.

### 5.2.1 People in Sweden

Being active as a person is rewarded and encouraged between Swedes. Children are drilled in this cultural trait as early as pre-school. If you look at a daily schedule at a care centre you will realize that activities are planned throughout the day. This schedule illuminates many Swedish cultural characteristics: orderliness, careful planning and structuring, attention to the timetable. It also exemplifies cultural traits that characterize every Swedish work place.<sup>106</sup>

Ever since the end of 19<sup>th</sup> century the Swedish tradition has clearly distinguished between work and free time<sup>107</sup>

Swedes see time as a limited resource and they are generally speaking carefully when it comes to time management in all its various aspects. It is important to be on time, planning in advance, in terms of carefully structured meetings, etc in quite common.<sup>108</sup>

Those who use public transportation often use their mobile phones for both personal communication and entertainment.<sup>109</sup>

The variety of customers is big, for example in Lund there are a lot of students from different parts of Sweden and in Stockholm it is more about prestige, what kind of mobile they are using.<sup>110</sup>

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<sup>106</sup> Herlitz, 2003

<sup>107</sup> ibid

<sup>108</sup> ibid

<sup>109</sup> ibid

<sup>110</sup> Appendix 1

Swedish people see the mobile phone merely as a communication tool.<sup>111</sup>

Data representing from KOM (kommunikationsvaneundersökningarna) surveys on the usage of the internet and mobile phones 1999/2000 shows that the people of Sweden spend approximately 17 minutes per day using online services, emailing from their mobile phones. These results below shows that mobile phones are the most frequent used communication toll. The number of participants in this research is approximately 1000 persons.

The younger people use mobile phones and the internet more often compared to the other age groups (see figure 5.1).<sup>112</sup>

Age	Mobile phones	e-mail	internet
15-24	1,1	0,3	0,5
25-34	0,8	0,3	0,2
35-44	0,7	0,3	0,3
45-54	0,6	0,3	0,2
55-64	0,3	0,1	0,2
65-74	0,1	0,0	0,1

Figure 5.1; how many percent of the day are used on different communication tools.

### 5.2.2 Hi3G Access AB<sup>113</sup>

The company Hi3G Access AB, also known as '3', is referred to as a mobile video communications company which focuses uniquely on mobile services. The company's idea is to advance people's lives through mobile video communication.

3 is owned by the Japanese company Hutchison Whampoa and Investor. In Sweden, 60% is owned by Hutchison Whampoa and 40 % is owned by Investor AB, who has solid network and industry track records worldwide.

3s goal is to steer the Scandinavian mobile video communications market. The company has built a high quality mobile network in Sweden providing fast, reliable, affordable and personalized connection for individual and business. 3 offer its customers:

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<sup>111</sup> Herlitz, 2003

<sup>112</sup>Thulin, 2004

<sup>113</sup> www.tre.se



- Mobile video communications.
- Immediate, broadband connectivity independent of time and space.
- Immediate access to information and the Internet.
- The rich experience of TV and video media.

The idea is to offer mobiles that are full-packed with mobile multimedia services, designed for the customer's eyes and finger rather than for the customer's ears and mouth. The company's business idea is to encourage the customers not only to use the mobile phone to talk and listen with, but rather more to view moving images such as clips from a football game or perform bank services through their mobile devices<sup>114</sup>.

3s technological platform is based on UMTS, Universal Mobile Telecommunication System, which is the next generation mobile telephone system. This system provides their users with access to computer communication and mobile multimedia, as well as ordinary voice calls.

## **5.2.3 M-commerce technology**

### **5.2.3.1 3s Security**

The security of UMTS (W-CDMA) access is based on the GSM access security model. However, several improvements have been made to enable higher level of security. Security solutions in 3s network are based on several technologies and are using different components. They may also vary with the implementation of services, type of connection to your network and the specific applications at hand.<sup>115</sup>

All access to 3s platforms is protected by firewalls and gateways. Each part of every platform is separated by firewalls, regulating what is allowed and not. In general, all applications that include sensitive information are using standard encryption mechanisms to provide end-to-end privacy. The access between a customer's application and 3s application can only be made through a select protected tunnel.<sup>116</sup>

In all types of 3s subscriptions internet access is included. The access is open to provide the carrier with service for different applications and security protocols.

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<sup>114</sup> Appendix 3, question 6

<sup>115</sup> [http://www.tre.se/upload/foretag/document/wp\\_security\\_radio.pdf](http://www.tre.se/upload/foretag/document/wp_security_radio.pdf)

<sup>116</sup> *ibid*

All terminals attached to the network are assigned internal IP addresses within 3s network. This address is never shown outside the network since it is always translated to an external IP address. Access to services in 3s network is based on UMTS confirmation. Access rights and services can be distinguished for each individual user. Using the corporate connection from 3, secure traffic between a company's network and 3s user can be set up over the Internet.<sup>117</sup>

When handling a purchase through a mobile phone, the customer's card number is encrypted. The purchase is sent encrypted to a secure connection to a bank. The 3G network is in a whole encrypted, which means that it is not possible to reveal a persons card number when it's being sent 3s payment system. The customers' details are treated confidential. When a customer saves card details on the mobile phone, only the last four digits are shown.<sup>118</sup>

### 5.2.3.2 Payment solutions

In Sweden there are two different mobile platforms GSM and 3G. GSM is still popular to the simple factor that it's cheaper and got more coverage area than 3G but the latter service is on the upward swing with several different deals such as free video conferencing within the service provider.

There are three major players within the Swedish mobile service and they are Tele2/Comviq, Vodafone and Telia. These are the service providers who offer both GSM and 3G services. However there is one that only offers 3G and that is 3.

It is rather cheap to conduct a video conference within 3s subscribers but it is expensive to make a video call with other companies 3G users. It also worth mentioning that accessing the web is quite expensive and price for 1 mb is 10 crones<sup>119</sup>.

All these mobile service providers want the customer to be loyal to them. In order to do so the service providers are offering very lucrative deals such as unlimited video calls within their own service by doing so hopefully a user will recruit amongst their friend so that he can use this particular service for free. When you wish to access different online services you are charged at a rate depending on the amount of Mb you download.

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<sup>117</sup> [http://www.tre.se/upload/foretag/document/wp\\_security\\_radio](http://www.tre.se/upload/foretag/document/wp_security_radio).

<sup>118</sup> <http://www.tre.se/templates/FAQ.aspx?id=772>

<sup>119</sup> Appendix 1

## **5.2.4 Content, Services**

### **5.2.4.1 Video communication**

Video Communication is the most common services used by 3s costumers. 50 % the customers buy their mobile phone plans due to the possibility of video communication. In the beginning of 3s campaigns they offered their costumers free video communications, this is one of the reason why video communication is so popular.<sup>120</sup>

### **5.2.4.2 View your favorite soccer team**

Sport events are very popular, e.g. to follow your favourite soccer team. Almost 80% of male users do used this kind of service<sup>121</sup>. 3 offers its user to see through video feed goals made by a soccer team in Allsvenskan only a few minutes after the team has scored. , The user can access tables, statistics and pictures on the mobile phone of any particular team.<sup>122</sup>

### **5.2.4.3 Music and Videos clips**

On the Swedish market there are a lot of offers that allows a user to download music and video clips. You can often see commercials on TV, with the possibility of doing so and of course how to do it. <sup>123</sup>

### **5.2.4.4 Banking services**

Other then having fun on your mobile phone, there is also the option to check your bank account balance and perform other banking services through SEB, access financial information through Dagens Industri or read news papers.<sup>124</sup>

### **5.2.4.5 E-mail**

There is a possibility to get an e-mail address to your phone; you can send an e-mail from a PC to a mobile phone. This service is not so popular due to it is a bit expensive to "surf the web", and in order to read your mail you need to go online. The price is 10 crones/ 1 MB, and normal webpage is about 2 MB, so it

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<sup>120</sup> Appendix 1

<sup>121</sup> ibid

<sup>122</sup> <http://www.tre.se/templates/Page.aspx?id=605>

<sup>123</sup> ibid

<sup>124</sup> ibid

will cost the user 20 crowns to open one webpage. In the end, everything is about the price, the cheaper the more popular.<sup>125</sup>

#### **5.2.4.6 Video dating**

The mobile company "3" had announced a different kind of service to their customers. It's a dating game, where the customer has the chance to date a girl called Emma by using video communication. Emma gives the guys some assignments to solve, and there are some tests to take. If the customer wins the whole dating game, the person in question can go to Thailand with her.<sup>126</sup>

#### **5.2.5 Partnerships, alliances and relations**

The collaboration that existed between NTT DoCoMo and different companies such as "Coca-Cola" and "Playstation" does not exist in the Swedish market. The only collaboration that we could find was the 3G provider "3" and the only thing that they did were handing out X-box videogames when you signed up for a certain amount of months.<sup>127</sup>

### **5.3 Survey<sup>128</sup>**

The total amount of responses that we have got from Swedes were 29, and from the Japanese only six.

The most common service is to send e-mails, since six out of six people send e-mail through their mobile phones in Japan this is due to the reason that sms services do not exist due to limitations on the technological platform<sup>129</sup>. The most commonly used service is e-mailing<sup>130</sup>, figures in question nr 6 clearly show the differences.

Accessing the internet is also a frequently used service. Downloading music and the usage of GPS navigation is also very common among the Japanese<sup>131</sup>.

Out of the 29 Swedes that answered our survey, five uses GPS navigation, two uses e-mailing and non checks weather reports<sup>132</sup>. Video communication, where 25 out of 29 users use it. Video conversations in Japan, it is almost the same thing as regular voice calls.

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<sup>125</sup> Appendix 1

<sup>126</sup> <http://www.tre.se/templates/FullSizePageEmma.aspx?id=3749>

<sup>127</sup> <http://www.tre.se/templates/PressRelease.aspx?id=1948>

<sup>128</sup> Appendix 3

<sup>129</sup> Appendix 2

<sup>130</sup> ibid

<sup>131</sup> ibid

<sup>132</sup> ibid

Three out of six Japanese uses other services, besides text messaging, every day, compare to the Swedes, where the results were four out of 28 who uses the services everyday<sup>133</sup>.

The reasons why they don't use certain services<sup>134</sup> is that it's too expensive. The Japanese figure shows the result from one Japanese person, who answered that he/she didn't need the other services.

According to question nr 7 "when the services are used", 66.67% use mobile services for fun, 22% for work and 11.11% for school. Whereas in Sweden only 28 out of 29 users who answered our survey use mobile services for fun<sup>135</sup>, even though 30% were older then the Japanese<sup>136</sup>.

Four out of six Japanese are well aware of the existing services<sup>137</sup>. Only 10 out of 29 Swedes are aware of the existing services<sup>138</sup>.

All the Japanese believe the services are easy to use<sup>139</sup>. 69% (20 out of 29) of the Swedes answered no to that question.

Our survey also shows that the majority of both Swedes and Japanese believe that the price of the offered services does affect their usage<sup>140</sup>.

The performance time for the overall services is more efficient compared to the Swedish respondents<sup>141</sup>.

The size and resolution of the screen does not affect the usage of the services provided to the customers<sup>142</sup>. Most of the Japanese respondents answered no to this question, but the Swedes on the other hand, 13 out of 29, answered no to this question.

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<sup>133</sup> Appendix 2, question 3

<sup>134</sup> ibid, question 4

<sup>135</sup> ibid, question 7

<sup>136</sup> ibid, question 1

<sup>137</sup> ibid, question 5

<sup>138</sup> ibid, question 6

<sup>139</sup> ibid, question 8

<sup>140</sup> ibid, question 9

<sup>141</sup> ibid, question 11

<sup>142</sup> ibid, question 14

## 6 Analysis

### 6.1 People

One important question arises while talking about people and technology. How societies, groups of people and individuals will collaborate with and be affected by the technology. Examination of these questions helps us recognize technology determined problems and new utilization of technology<sup>143</sup>. The use of public transportation to travel is very common in Japan. Because making voice calls is forbidden in subways mobile communication devices such as mobile phones and pagers are very popular. While commuting, mobile phones are frequently used for accessing different services.

The Japanese written language may also be well-matched with tiny mobile phone screens than Western scripts. Most of the 50,000 Japanese characters are rarely used, but the Japanese are required to master 1,850 of them. A Japanese person reads the Japanese language from right column to next column. 70 % of the Japanese population is using mobile phones with similar functions such as i-mode. Approximately 50 % out of the 70 % are NTT DoCoMo subscribers.<sup>144</sup>

There are currently 450 000 “3” users in Sweden<sup>145</sup>, the number of users is constantly increasing because of 3s business idea, inexpensive, technologically advanced and interesting. But it’s not increasing as much as it should, because of “word of mouth” if one person is unsatisfied, the person tells it to other people, a chain reaction<sup>146</sup>.

Swedes use public transportation and use their mobile phones for both personal communication and entertainment. However, it’s still more common to use the mobile phone as a communication tool, but entertainment such as downloading games, video communication and sport events are very popular, e.g. to follow your favourite soccer team. Almost 80% are male users who use the service “view your soccer team”<sup>147</sup>.

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<sup>143</sup> Culture, society and advanced information technology, 1995

<sup>144</sup> Appendix 2

<sup>145</sup> Appendix 1

<sup>146</sup> ibid

<sup>147</sup> ibid

There is a wide variety of customers, for example in Lund there are a lot of students who use 3 and in Stockholm a mobile phone is more about prestige<sup>148</sup>. The way we communicate with each other is changing dramatically and very quickly. To fully understand the world we live in, we must understand the role that technology plays in our lives – from how we shop to how we form our identities<sup>149</sup>.

## 6.2 Partnership, Alliances and Relations

Amongst the most frequent strategies that a company has is forming partnerships.<sup>150</sup> Japanese Company NTT DoCoMo is forming business partnerships with wide area of companies, ranging from “Coca-Cola” to “Playstation”. At the present time these companies are working together with NTT DoCoMo in order to give the end users innovative and fully developed i-mode services<sup>151</sup>.

The collaboration we could find was the 3G provider “3” made a campaign, “3” was hanging an X- box and x-box videogames if the user signs up for a certain amount of months<sup>152</sup>. The reason for entering an agreement is that it’s less capital-intensive way to gain access to products, customers, and business capabilities. A joint venture is a partnership agreement in which two or more businesses join together to carry out a single business project<sup>153</sup>.

From the beginning of “3’s” campaigns they offered the customers free video communications<sup>154</sup>.

## 6.3 Services

According to Paavilainen content is the most important factor in the mobile value chain and it consist of two parts

- What services are offered
- Who provides these services<sup>155</sup>

Mobile units widen the achievement of fixed internet applications and services<sup>156</sup>.

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<sup>148</sup> Appendix 1

<sup>149</sup> <http://cct.georgetown.edu/>

<sup>150</sup> Porter, 2001

<sup>151</sup> <http://www.nttdocomo.com/corebiz/i-mode/alliances/cmode.html>

<sup>152</sup> <http://www.tre.se/templates/PressRelease.aspx?id=1948>

<sup>153</sup> Porter, 2001

<sup>154</sup> Appendix 1

<sup>155</sup> Paavilainen, 2002

<sup>156</sup> Sadeh, 2002

Services that are used frequently by the Japanese people are the e-mail service, enabling them to access over 70,000 mobile websites without needing to remember long website addresses. E-mailing is the most popular service used in Japan<sup>157</sup>. One of the reasons to why e-mailing is a very common used service because the mobile phones are based on 2.5 G. The 2.5 G in Japan is not based on GSM as in Sweden, instead it is based on Japanese standards.<sup>158</sup> In Sweden the mobile phones that are based on 2.5 G do not have the same capabilities to utilise e-mail services since the GSM standard have limited storage memory.

One of the most popular services on the Japanese market is mobile manga, delivering full-color comic book magazines to mobile phones<sup>159</sup>. Other commonly used services are music and picture download<sup>160</sup>. To mention a few other services that are being used are banking errands, access news and receive restaurant guides.

Web browsing is another service offered by i-mode. The subscribers can connect their phones to their home or office computers. The direct- to-mobile TV broadcasts that enables you to watch TV with the help of a new communication satellite on your mobile phone is on its way to the Japanese wireless market.

The i-navi link provides a car driver with weather reports and town information depending on their location by connecting the i-mode terminals to the navigation system on the car<sup>161</sup>.

Most of the m-commerce services offered in Sweden are through the company 3. These services are not limited to the usual communication (for example SMS, usuall phone calls) purposes but it is possible to have a mobile video communication, broadband connectivity that is not dependent on time, access the information through the Internet.

Examples of the most popular services that are used on the Swedish market are video communication<sup>162</sup>, downloading music and video clips, you can even view the goals made by your favourite soccer team or access tables, statistics and pictures related to them.

Other offerings are banking services that enable you to check your bank account or perform other banking services and video dating. The most recent service offered by the company 3, is a video dating computation through MMS or video presentations that promises the winner a trip to Thailand. When using the

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<sup>157</sup> Appendix 2

<sup>158</sup> ibid

<sup>159</sup> <http://www.wirelesswatchjapan.com/>

<sup>160</sup> ibid

<sup>161</sup> [www.nttdocomo.com/corebiz/i-mode/alliances/inavi.html](http://www.nttdocomo.com/corebiz/i-mode/alliances/inavi.html)

<sup>162</sup> Appendix 1



internet through a mobile unit, the experience is very dissimilar to the usage of internet offered by a fixed counterpart since the screen is much smaller, smaller keypads and a possibly low bandwidth<sup>163</sup>.

## 6.6 Pricing

In order to generate revenue a mobile service provider requires that mobile portals assemble a critical mass of customers if they are to be profitable, with many players often combining multiple sources of revenue<sup>164</sup>. With i-mode you get charged for the actual packages being sent and received instead of the amount you download which you do with the different 3G providers in Sweden. In Sweden E-mailing is not so popular because it is expensive to “surf the web”, and in order to read your mail you need to go online. The price is 10 crones/ 1 MB, and normal webpage is about 2 MB, so it will cost you 20 crones to open one page. In the end, everything is about the price, the cheaper the more popular<sup>165</sup>. The reason why, for example, banks support m-commerce is because their customers could access their services while on the move and also be provided with new modes of payment. Not only in favour of the user, by using online services it reduces the operating costs by allowing their, a banks, users to access banking services that entails little human involvement.<sup>166</sup>

The i-mode strategy itself promotes cooperation between the content providers when they can get a small amount of “profit” if the users access their site.

## 6.7 Security

Security is one of the most crucial aspects concerning m-commerce. If there is no trust, no one will be comfortable to use the mobile services that are provided to them<sup>167</sup>.

The 3G security is build on the 2G generation system, which means that Security basics for the 2G system that have proved to be required and powerful shall be adopted for 3G security as well. The security of UMTS (W-CDMA) access is based on the GSM access security model.

A very important factor is that consumers need to feel secure making purchases and payments using their mobile devices<sup>168</sup>. The 3G network is in a whole

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<sup>163</sup> Sadeh, 2002

<sup>164</sup> ibid

<sup>165</sup> Appendix 1

<sup>166</sup> Sadeh, 2002

<sup>167</sup> Gibe et al, 2003

encrypted, which means that it is not possible to reveal a persons card number when it's being sent 3s payment system. The customers' details are treated confidential. When a customer saves card details on the mobile phone, only the last four digits are shown<sup>169</sup>.

3G securities will address and correct real and supposed weaknesses in second generation systems, and suggestions for new security features will be made to secure innovative services offered by 3G.

The security measures that are implemented in i-mode services, includes the i-mode network and i-mode handsets are equipped with SSL (secure socket layer encrypted transmission), also the i-mode handsets have unique identifiers that allows the same kind of security to be implemented as on the internet. All mobile banking that are done on i-mode and corporate networks use also secure socket layer.

These services recognize the importance of personal information and to ensure that such information is fully protected, DoCoMo complies with the Telecommunications Business Law, other regulations, and publicly discloses.

## 7 Discussion

Our findings show that the price has an affect on the amount of service used. We believe that as long as Swedish users are being charged approximately 10kr/mb for using various web based services, there won't be any extensive usage. 10kr/mb is considered to be expensive to access different services that are being offered since most of m-commerce services are depended on the internet.

As stated by Peter Johansson, our source at '3', price is one of the reasons to the amount of usage of a certain service. We believe that if it was more affordable to use the internet through a mobile phone device, more people would utilize the offered services. If the mobile phones in Sweden were constantly connected to the internet as in Japan, the Swedish user wouldn't get charged for the amount of internet access used. Since the price of sending a SMS in Sweden costs roughly 1kr, it is more likely that people would do that rather then to browse the internet and pay at least 10kr for opening a webpage in order to send an e-mail. As long as Swedish mobile service providers generate revenue through various services

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<sup>168</sup> Paavilainen, 2002

<sup>169</sup> <http://www.tre.se/templates/FAQ.aspx?id=772>

it will not be used as frequently as in Japan and it depends on the amount they download. The reason being that the NTT DoMo has a scheme that allows everyone to profit from the i-mode platform. Just to give an example it only costs the Japanese user a flat fee of approximately 2.7 dollars a month in order to access i-mode services, and it does not depend on the amount being downloaded.

When we compared the services available on the wireless phone market in Japan to the Swedish market, we were able to see what elements distinguished these two markets. As our findings have shown, the use of services is not as common in Sweden as it is in Japan

We believe that one of the reasons to why m-commerce services are so frequently used is due to the amount of services available for the Japanese mobile phone users. Ranging from services which are used in personal matters to entertainment, making their everyday life a lot easier are available for the Japanese mobile phone user. In Sweden on the other hand, the range of services are limited, and does not apply to more or less everyone. Therefore we believe this to be a reason for limited usage of m-commerce services.

As said by Izumi Watanabe, our source at Sony Ericsson, it is not possible to send SMS in Japan. We believe this to be a reason to why E-mailing is frequently used in Japan<sup>170</sup> since SMS is the most equivalent service to E-mailing. Due to that Swedish mobile technology is still based on a GSM system; the SMS function is still very popular.

If the 2.5 G network wouldn't have been built on Japanese standards, but rather on a GSM system, e-mailing wouldn't have been popular to the same extent.

We believe that the age of the company '3' could affect the amount of usage of m-commerce services. Since '3' is a young company, and they were the first to offer the mobile phone market m-commerce services in Sweden, people associate m-commerce with '3'. A young company's survival is in most cases dependent on its reputation. If a customer for some reason would be unsatisfied with the company's services or with his/her purchase there is a high probability that this customer would influence potential customers. The "Word of mouth" as Peter Johansson, our source at '3' explained to us, is something that is very sensitive to a company such as '3'. Consequently, if people associate m-commerce services

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<sup>170</sup> Appendix 2

with setbacks, it would slow down the acceptance and the embracement of m-commerce.

In Japan this is not a problem, since m-commerce services are available through 2.5 G and the majority of people have 2.5 G mobile phones. As a result m-commerce services in Japan are not associated to one certain company in the same way as in Sweden.

Since suppliers such as NTT DoCoMo has a lot more services to offer its customers; like buying a soda, book online tickets, reserve tickets and even purchase them, it is not unbelievable that people in Sweden don't use mobile phone to this extent that the Japanese are doing at the moment.

From our research it has become clear that there are differences between behaviour in a social context between people in Sweden and people in Japan. The time perspective is different, for example Japanese people commute more on a daily bases then Swedes do.

We believe that the more time you have it is more likely that you would use technical devices as mobile phones. Children and teenagers in Japan have lot of free time, especially when commuting. They would "kill time" by playing videogames with their friends through devices like wireless phones.

Another important factor that we took into consideration is the fact that it is not allowed to make voice calls in public transportation in Japan, which means that the usage of other mobile phone services increases, not only among kids and teenagers, but also among adults.

It's more likely for a person in Japan to handle bank errands or send e-mails in order to save time, and keep them selves busy when commuting, since they can not make voice calls. There are no regulations regarding voice calls in public transportation in Sweden, and consequently we believe that voice calls are still more commonly used than other mobile services in Sweden.

The way people read is an interesting aspect to look at. The Japanese read from the right column and to the next column. We read from left to right and according to our information the Japanese read one screen in one full swoop because of this. In Sweden we read line by line, word by word, which is a different concept. We believe that the easier and quicker it is to receive information, the more time people save using such services like e.g. mobile "manga". Another example, when reading news through the Japanese mobile

phone a person just looks at the page and knows what is going on. When handling a language that is more compatible with a mobile screen, we believe that it affects the usage of mobile phone services, the easier the more likely to be used and the faster the more time efficient. The Japanese language is adaptable to the way they read on a mobile device.

The security aspect is an important factor for the majority of Japanese people<sup>171</sup>. We believe that since they use a lot of other services than voice communication e.g. web surfing and online bank services the factor of security is quite significant for them.

In Sweden, on the other hand, web surfing and bank services through mobile phones are not as commonly used as in Japan. We think this could be a reason to why people don't take security aspect into consideration.

To summarize our conclusion, the most significant obstacles toward the usage of m-commerce services in Sweden are;

- Price - M-commerce services in Sweden are expensive and therefore limited amount of usage exists. To download 1 Mb from a webpage costs 10kr, one webpage is approximately 2 Mb. In Japan on the other hand, you can surf the web for 19.40 kr (2.7 dollars) a month, which is a huge difference. If it was cheaper to reach m-commerce services in Sweden, we believe that the usage would increase.
- "Word of mouth" – since 3s company in Sweden is rather young and thus not flawless, people could easily associate m-commerce services with company performance and therefore we believe this affects the acceptance of m-commerce services.
- Range of Services- the amount of Services is limited in Sweden and therefore these Services do not apply to more or less everyone. In Japan, m-commerce services apply to people of different age groups, backgrounds, e.g. videogames for kids and bank errands for business people.

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<sup>171</sup> Appendix 3, question 13

## **7.9 Method discussion**

Our research was conducted in Lund, a University city; it could have affected the results of our empirical findings. The majority of the people who answered our surveys were students between the ages of 18-25. We want to clarify that this was not intentionally. We tried to get a variety of age groups and people to answer our survey. We also believe that the amount of surveys that were handed out had an impact on our results. If our emphases were on a quantitative research, we would have put a lot more effort in to collecting a great variety of volunteers. If the work had been conducted elsewhere, then the result might not have been the same. When we made our empirical findings on Japan, we expected a much larger number of responses. We wish we had found a more effective way of collect data.

Our online survey was passed on from one person to another in Japan, so this indicated that we had no control over the results from the six Japanese people who answered our survey. If we had the resources we would go to Japan and conduct part of our research there. This would indicate that we would have better control over the empirical findings.

One of the problems was that the amount of literature about m-commerce was very limited, and this made our research harder to conduct. Even though m-commerce is quite a new topic, we took the risk to make this study. Our goal was to study a unique subject, in order to make our research as exciting as possible.

## **8 Further research**

We chose to compare the Swedish market from a different point of view, with a market where m-commerce is not in its infancy, Japan.

The same study can be done by conducting a quantitative research, where the focus would be on the consumer rather than on the provider of m-commerce services. Afterwards, the empirical finding would be connected to the mobile value chain and in order to examine which one of these factors is relevant for the research.

Thereafter a researcher could conduct the survey and hopefully he/she might realize why the m-commerce market has not been fully recognized in Sweden. It's up to the researcher the limitations of the research, is it supposed to be performed on one market or several different markets.

Do you wish to conduct the survey on people who only use 3G or do you wish to include people who use mobile phones in general? It is up to you.

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### **9.3 Verbal references**

Peter Johansson, 3s Concept store manager, Lund

Izumi Watanabe, Sony Ericsson, Lund

## **Appendix 1 - Interview with Peter Johansson**

Peter Johansson, '3's Concept store manager in Lund

### **1. Tell us about the Company 3s background. For example, who is behind the idea of 3 in Sweden?**

3 is considered a big company, since it is a rather a young corporation. It has been operational on the Swedish market for approximately 2.5 years.

There are two big investors behind 3, a Swedish investor called Vallberg & a Japanese investor called Hutchinson. Hutchinson contributes with most of the capital for 3, approximately \$ 4 billion. Even though Hutchinson provides 3 with most of its capital, they are not the ones who decide everything.

From the beginning 3s idea to concur the market was to design something cheap, technologically advanced and interesting.

### **2. Can you tell us something about 3s present situation?**

3s current situation is constantly updating with new coming campaigns. For the moment 3 has some difficulties on the market, since they have big concurrents such as Comviq and Vodafone. Prises are constantly decreasing, therefore we have to either lower our prices as well or give discounts. It is a "jungle" out there, you don't have time to focus on your own campaigns, since you have to focus on your opponents constantly changing strategies.

There is a pressure from inside the company "we try to do our best" and from the outside, "pressure from concurrents" It is sometimes hard to find a balance between service performance and selling.

### **3. Can you tell us about the technology behind 3, for example about 3G?**

With our current technology our customers can choose to pay with automatic bank giro. Our refill cards are only available in our stores, which very inconvenient due to big investments required.

It is not possible to have "twin card" which means that you can have one mobile phone nr connected to two different phones.

### **4. How many users are there in Sweden? Is the number of users increasing or deceasing? If in increasing or deceasing, can you tell us why? Are there any statistics of the situation?**

We currently have 450 000 users in Sweden, and 6 million world wide. The number of users is constantly increasing because of 3s business idea, inexpensive, technologically advanced and interesting. But it's not increasing as much as it should, because of "word of mouth" if one person is unsatisfied, the person tells it to other people, a chain reaction.

The variety of customers is big, for example in Lund there are a lot of students from different parts of Sweden, and then there are ordinary people from the country side. For example in Stockholm it is more about prestige, what kind of mobile you are using.

There are always ways to solve a customer's dissatisfaction, by giving a discount or some kind of satisfaction within reasonable boundaries.

#### **5. What are the most popular services being used by your customers?**

Video Communication is the most common services used by our costumers. 50 % of our customers buy our mobile phone plans due to the possibility of video communication. In the beginning of our campaigns we offered our costumers free video communications, so we believe this is one of the reason why video communication is so popular.

Sport events are very popular, e.g. to follow your favourite soccer team. Almost 80% are male users. People are also crazy about video games. The price to download a game is 15kr up to 40 crones per game.

There is a possibility to get an e-mail address to your phone; you can send an e-mail from a PC to a mobile phone. Why this service is not so popular is because it is a bit expensive to "surf the web", and in order to read your mail you need to go online. The price is 10 crones/ 1 MB, and normal webpage is about 2 MB, so it will cost you 20 crones to open one page. In the end, everything is about the price, the cheaper the more popular.

GPS navigation is not commonly used because people don't know what it is and how to use it.

#### **6. Do you believe that 3s services are fully developed?**

Not yet fully developed since it is quite a young company.

#### **7. Do you believe that 3 have achieved its success on the Swedish market? If not, why?**

Yes and No. We are successful, but we still have a long way to go. Thought we have only existed for a short period of time, we consider ourselves to be active and very competitive.

**8. Do you use a 3 mobile phone? If so, what services do you use, and why?**

Yes of course. I use video communication rather often. When I'm on the train, on my way home from work, I mostly use video media to watch big brother. I also book/order movie tickets through my mobile phone. For the moment this is the only possibility to consume a product outside 3s product range. Today's society is all about consuming products and services.

**9. Are you aware of the Japanese Company NTT DoCoMo's i-mode? If so, do you believe that there are any similarities between 3 and i-mode?**

No, I'm sorry; I don't know anything about it.

## **Appendix 2 - Interview with Izumi Watanabe, Sony Ericsson**

### **1. What do you know about the Company NTT DoCoMo. For example, who is behind the idea of i-mode telephone in Japan?**

DoCoMo is a subsidiary company of NTT DoCoMo. NTT is the biggest Japanese telephone Company in Japan. More than 50% of NTT's stock are owned by the Japanese government, so they are partly governmental, semi-official company.

Radio Bandwidth for 3G is controlled by the government in Japan, where three telephone companies, NTT DoCoMo, KDDI and Vodafone Japan can only do 3G business.

I-mode was produced by a woman in around 1998- 99. In the beginning it was a small project, but once they launched their services, people started to use i-mode more than expected. and the i-mode service expanded rapidly. Now most of NTT DoCoMo's products have i-mode functions.

### **2. Can you tell us something about i-mode's present situation?**

Now i-mode has a new function called Felica, which allows the user to pay money with their mobile phone. The Phone Wallet function is based on Sony's Edy technology. It is not so common to use it yet, since shops and sellers need to have some equipment, in other words, you need to build up an infrastructure for people to be able to use Felica at their shops.

People are able to buy for example train tickets, cinema tickets with i-mode's felica functions. Felica technology also implies that, for example, a persons ID, drivers licence can be stored in a mobile phone. Felica is tele communication technology at very close range, developed by Sony. It includes Edy technology which makes the e-wallet possible.

### **2. Can you tell us little bit about the technology behind i-mode?**

The only thing I know is that it is based on Java.

**3. How many users of i-mode are there in Japan? Is the number of users increasing or decreasing? If increasing or decreasing, can you tell us why? Are there any statistics of the situation?**

It is increasing, 70 % of the Japanese population is using mobile phones with similar functions such as i-mode, like ezweb from KDDI or J-sky from Vodafone Japan. Approx. 50% out of 70% are NTT DoCoMo's subscribers, so i-mode is definitely the biggest. The number is increasing because NTT DoCoMo puts i-mode function to almost all their phones so that they can increase the charges which are from people using i-mode function.

**4. What are the most popular services being used by your customers?**

E-mailing is definitely the most popular service used in Japan. Other popular services are music download, picture download like pop idol pictures.

Video communication is not so popular since a lot of people are still using 2.5 G and the picture resolution is bad. Services based on 3G have only started about two years before. 3G subscribers are increasing more and more.

With 2.5 G in Sweden, it is not possible to use same service like i-mode since GSM has some limitation. On the other hand, in Japan with 2.5 G it is possible to send e-mails since the 2.5 G network used in Japan is not based on GSM, it is based on Japanese standards. NTT DoCoMo has developed their own standard so it can become possible to use e-mail or the other services with i-mode.

Personally I mostly send 20 e-mails per day in Japan.

Picture attached e-mail is also popular service.

**5. Is it true that it is not possible to send SMS in Japan?**

Yes, it is true. SMS is a function which is built in GSM system.

In Japan, They are using another telecom system called, PDC, cdma One and Foma systems.

Those Japanese systems also have same kind of function like SMS, but those function are available only between mobile phones based on same system. In such case, if you are using PDC system and your friend cdma One system, then you can send text message to your friend only by e-mailing.

Even when you send text message to your friend who are using same system, e-mailing enable you to send long message and that is also a reason why they prefer e-mail.

In addition, with 3G service Vodaphone Japan launched recently, ppl in Japan may be able to use SMS. However the people using Vodaphone 3G are quite few still.

**6. Do you believe that i-mode's services are fully developed?**

No, I don't think they are fully developed. Actually they have been continuously developing their services.

**7. Do you believe that DoCoMo's i-mode has achieved its success on the Japanese market?**

Yes, definitely. NTT DoCoMo started this kind of service as a fast runner, a pioneer and created a huge market, not only for operators but also content providers who do their business through i-mode.

**8. Did you use i-mode mobile phone in Japan? If so, what services do you use, and why?**

I used KDDI mobile phone which had Easy Web function, which is very similar to i-mode. So I could say yes & no. As mentioned before, e-mailing, downloading pictures, music etc. just for fun!

**9. Do you believe that there are any similarities between 3 in Sweden and i-mode in Japan?**

Yes, they are similar, in terms of Services they are providing. But the point is which and how many services are used by people.

In Japan, i-mode is used much more than 3 in Sweden. So the volume of contents and varieties of contents are different between i-mode and 3 simply because the size of Business is different.

**10. Which companies do you believe are the serious competitors to i-mode**



Vodafone, globally to say. Because Vodafone has been spreading their service like i-mode globally. In Japan there seems to be no serious competitors to i-mode.

**11. Is i-mode a leading company a trendsetter or a follower?**

It is a leading company in Japan.

NTT DoCoMo tried to make i-mode as a global service, but it is not successful at this moment. On the other hand NTT DoCoMo already provides i-mode services in several countries.

## Appendix 3 Survey analysis charts

Question 1

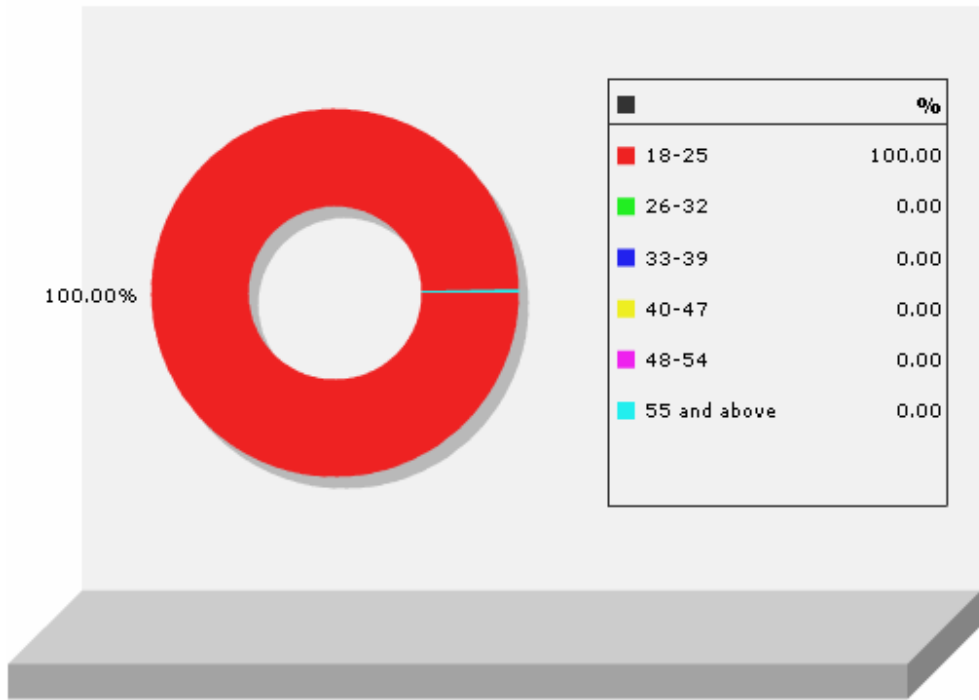


Figure 1 Age (Japan)

Question 1

		Percentage	Responses
18-25	<div style="width: 65.5%; background-color: #000080;"></div>	65.5	19
26-32	<div style="width: 27.6%; background-color: #000080;"></div>	27.6	8
33-39	<div style="width: 6.9%; background-color: #000080;"></div>	6.9	2
40-47	<div style="width: 0%; background-color: #000080;"></div>	0.0	0
48-54	<div style="width: 0%; background-color: #000080;"></div>	0.0	0
55 and above	<div style="width: 0%; background-color: #000080;"></div>	0.0	0
<b>Total responses:</b>			<b>29</b>

Age (Sweden)

**Question 2**

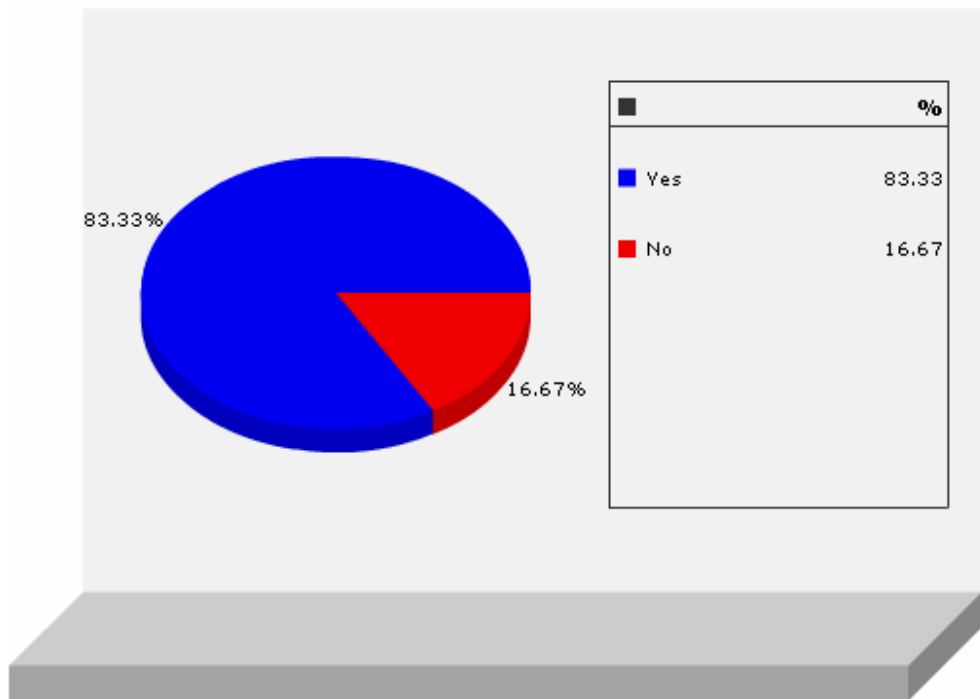


Figure 3 other services besides text messaging & voice communication (JAPAN)

**Question 2**

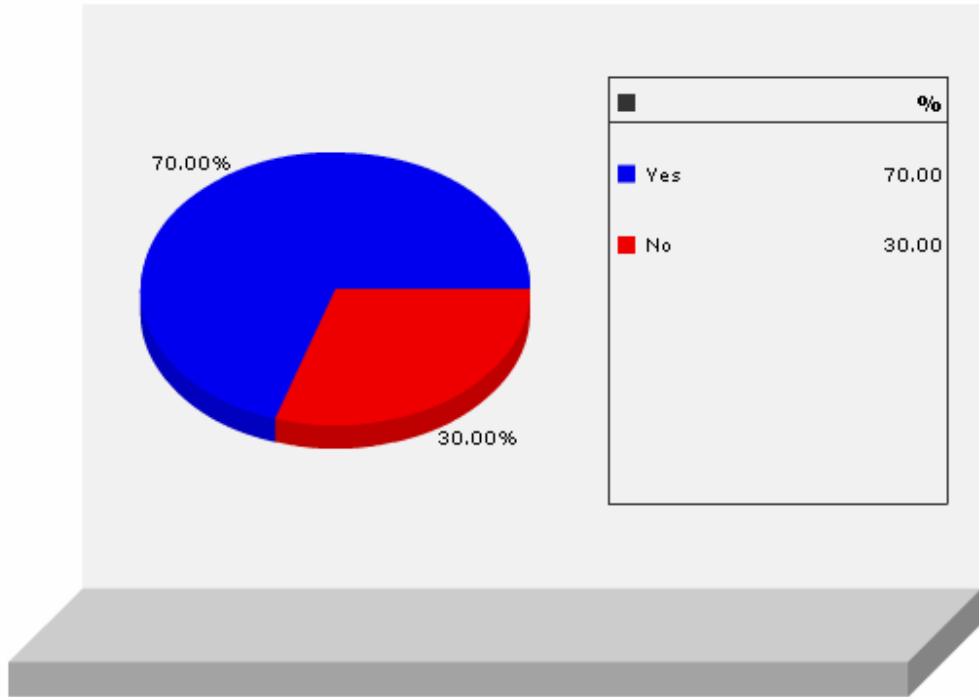




Figure 4 other services besides text messaging & voice communication (Sweden)

**Question 2**

		Percentage	Responses
Yes		75.9	22
No		24.1	7
<b>Total responses:</b>			<b>29</b>

Other services besides text messaging & voice communication (Sweden)

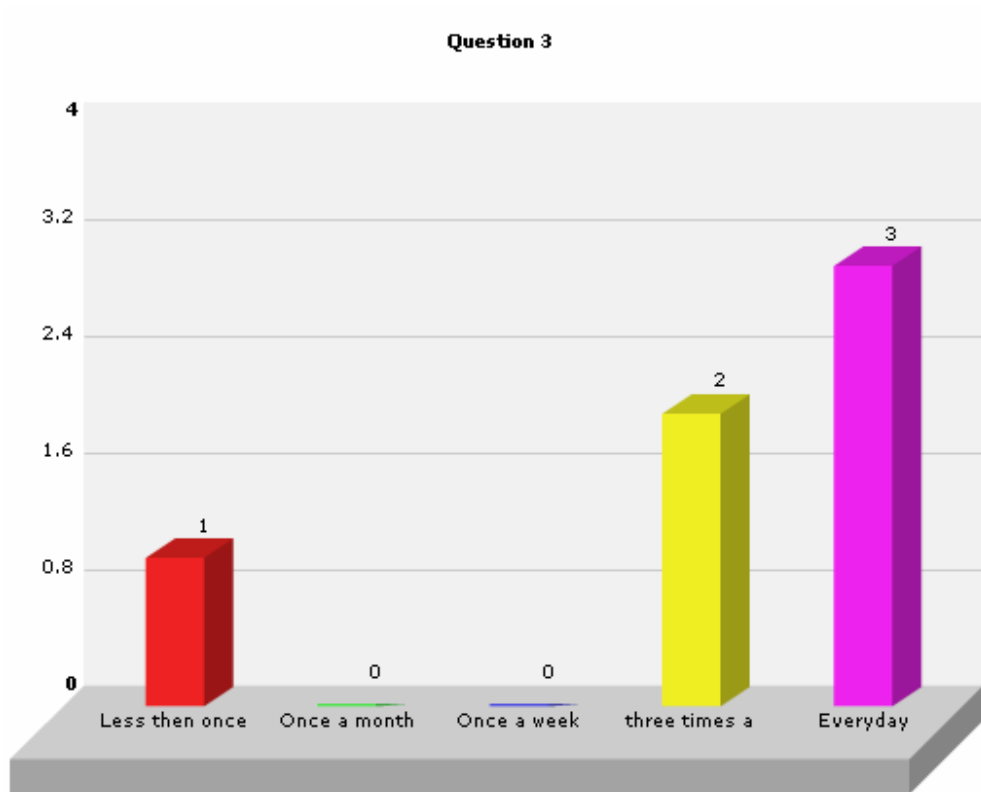







Figure 5 how often the other services are being used besides text messaging (JAPAN)

**Question 3**

		Percentage	Responses
Less than once a month		25.0	7
Once a month		17.9	5
Once a week		25.0	7
three times a week		17.9	5
Everyday		14.3	4
<b>Total responses:</b>			<b>28</b>

How often other services are being used besides text messaging (Sweden)

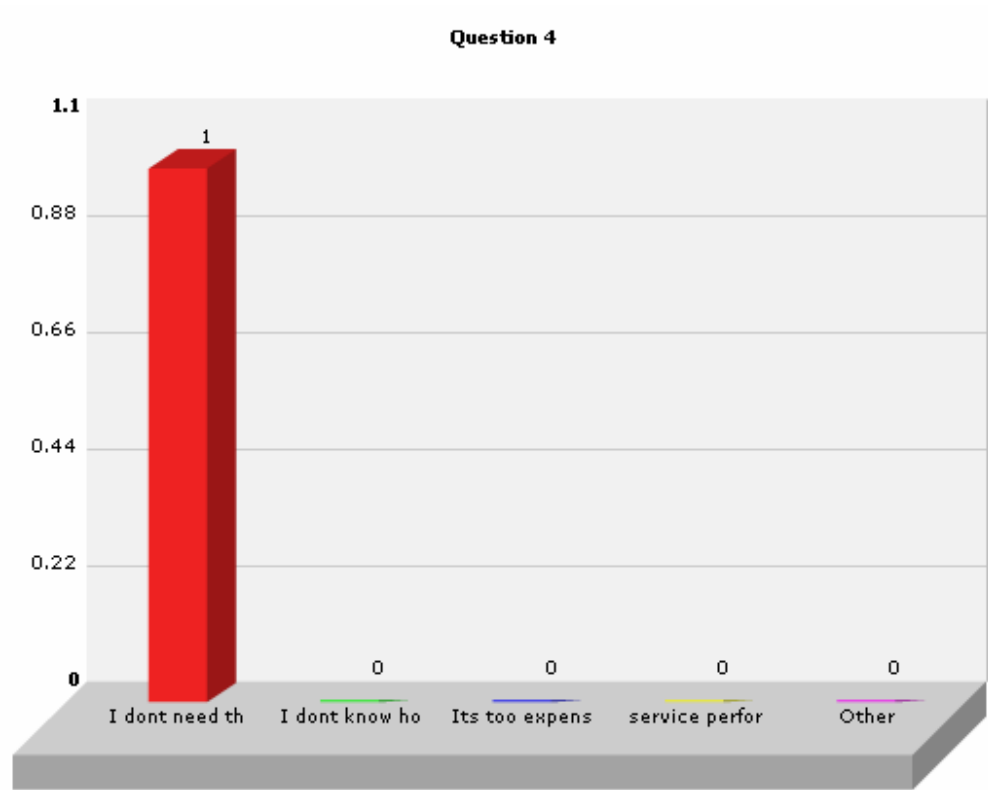







Figure 7 Why people don't use other services (Japan)

**Question 4**

		Percentage	Responses
I dont need the services		53.8	7
I dont know how to use them		15.4	2
It's too expensive		23.1	3
service performance not efficient		7.7	1
Other		0.0	0

Why people don't use other services (Sweden)

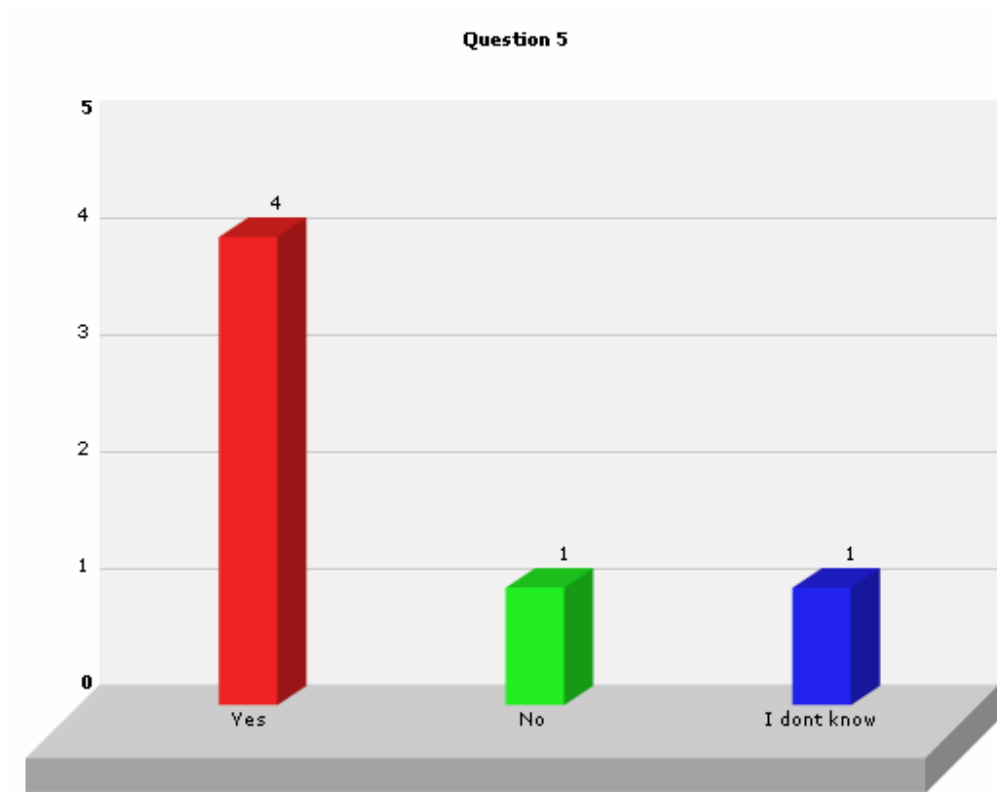














Figure9 Awareness of services (Japan)

**Question 5**

		Percentage	Responses
Yes		34.5	10
No		37.9	11
I don't know		27.6	8
<b>Total responses:</b>			<b>29</b>





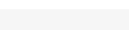




Awareness of services (Sweden)

### Question nr 6

		Percentage Responses	
GPS navigation		12.5	4
Download music		15.6	5
video communication		6.3	2
watch TV and video media		3.1	1
Download video games		12.5	4
send e-mail		18.8	6
access information on the Internet		15.6	5
Check weather reports		12.5	4
Other		3.1	1

Used Service (Japan)

### Question nr 6 (What kind of services do you use? )

		Percentage	Responses
GPS navigation		8.2	5
Download music		18.0	11
video communication		41.0	25
watch TV and video media		9.8	6
Download video games		8.2	5
send e-mail		3.3	2
access information on the Internet		11.5	7
Check weather reports		0.0	0
Other		0.0	0

**Figure 12 Used Services (Sweden)**



**Question 7**

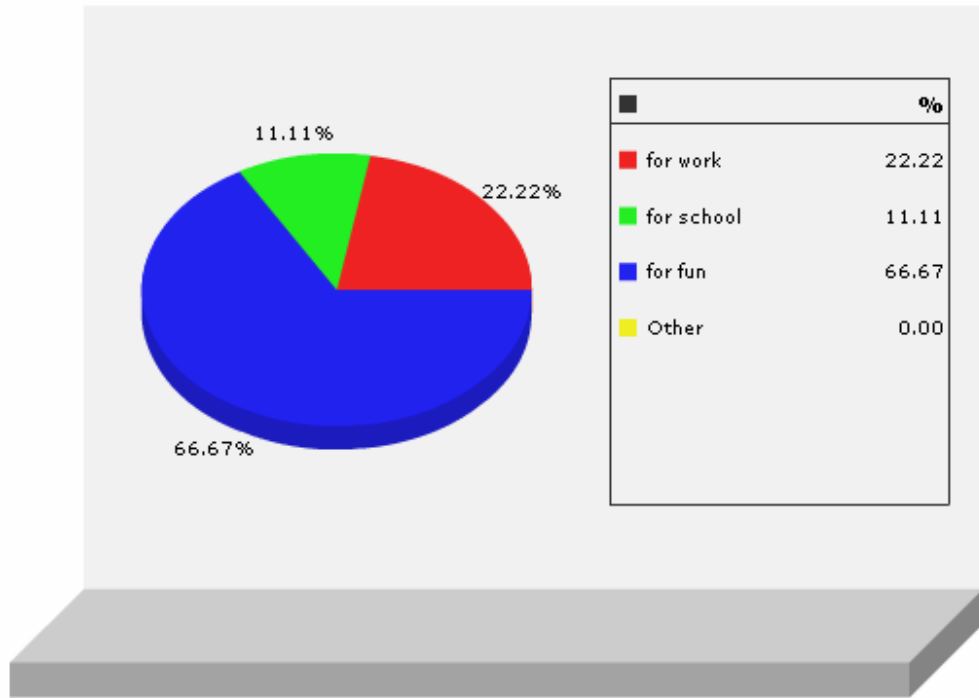


Figure 13 when the services are used (Japan)

**Question 7**

		Percentage	Responses
for work		6.3	2
for school		6.3	2
for fun		87.5	28
Other		0.0	0

Figure 14 If you answered the previous question, when do you use these services? (Sweden)

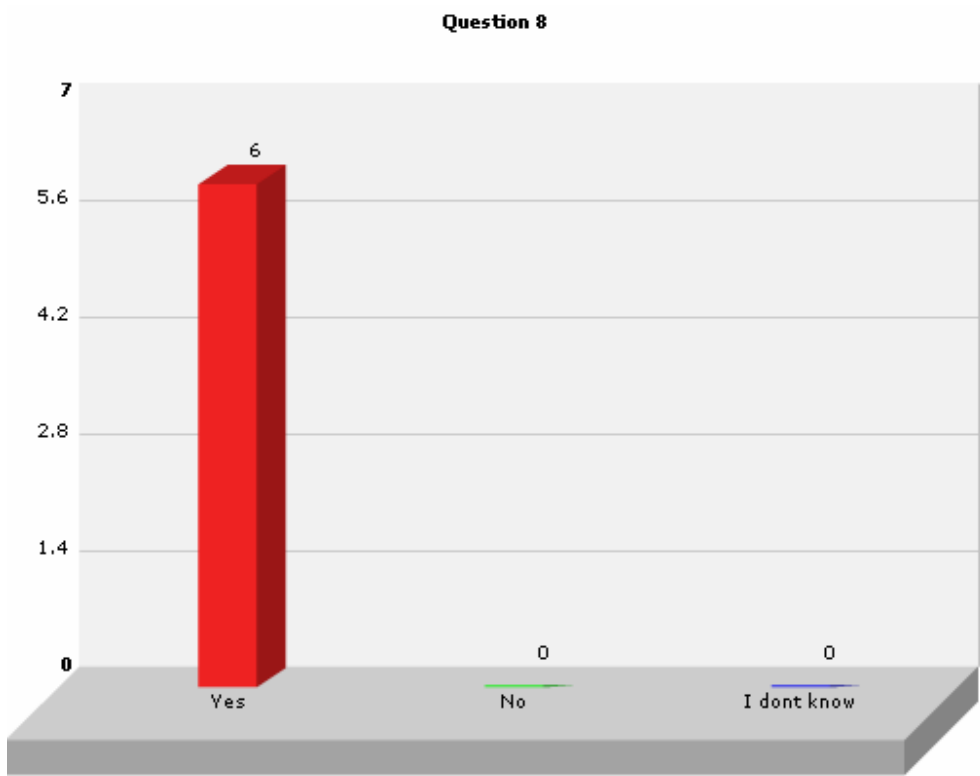


Figure 15 are the services provided easy to use? (Japan)

**Question 8**

		Percentage	Responses
Yes		69.0	20
No		17.2	5
I don't know		13.8	4
<b>Total responses:</b>			<b>29</b>

If Services are easy to use (Sweden)

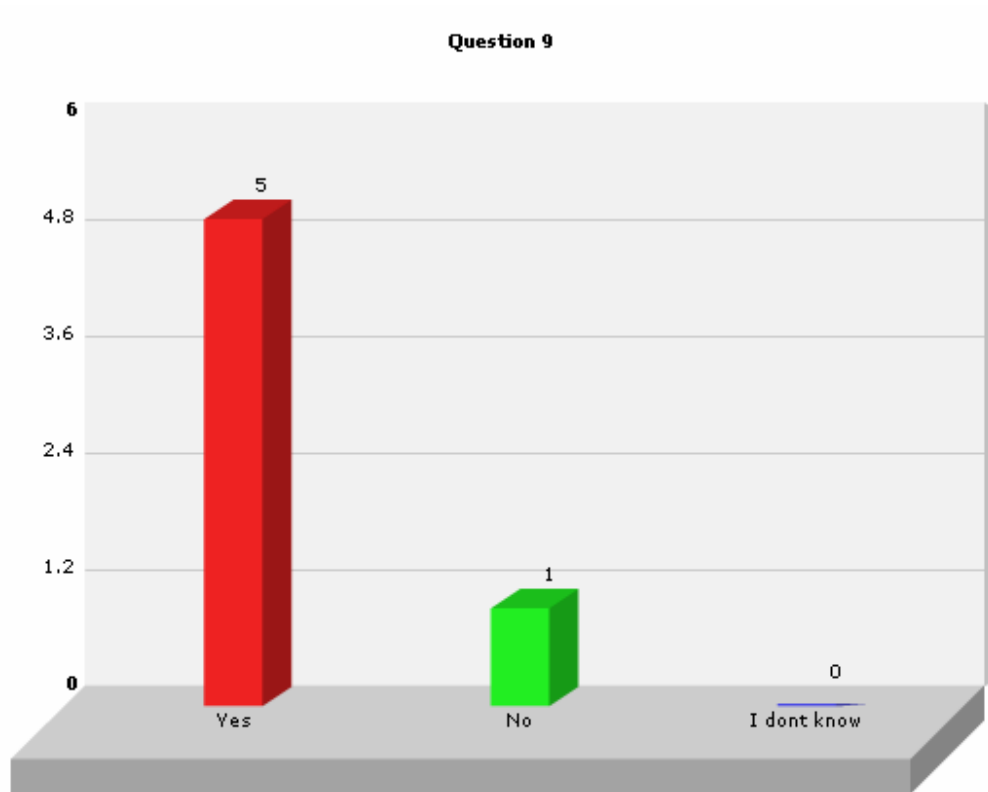


Figure 17 does the price affect your usage of a function? (Japan)

**Question 9**

		Percentage	Responses
Yes		82.8	24
No		17.2	5
I don't know		0.0	0
<b>Total responses:</b>			<b>29</b>

If the price affects the usage of a function (Sweden)

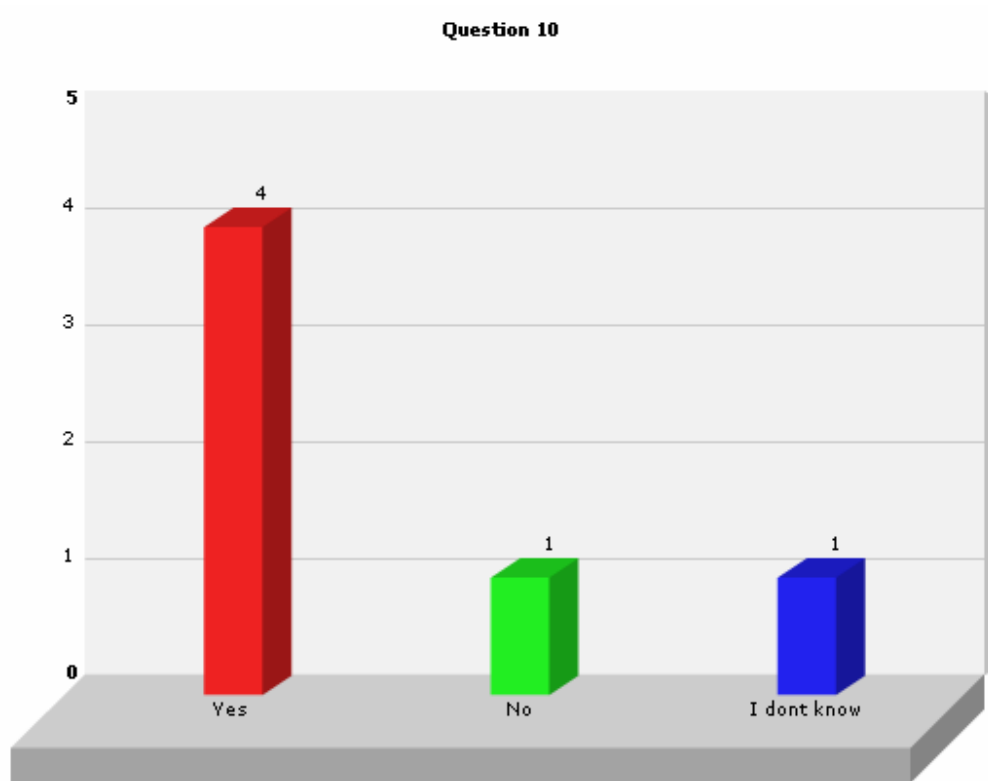
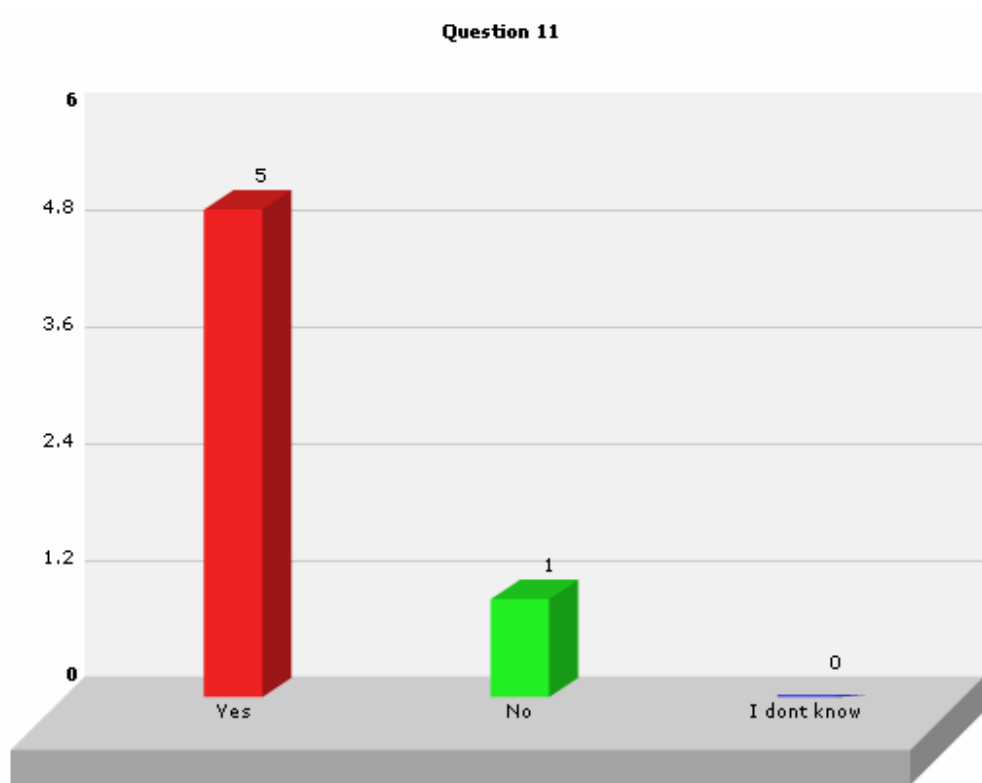


Figure 19 overall services affect how often you use a function (Japan)

**Question 10**

		Percentage	Responses
Yes		72.4	21
No		20.7	6
I don't know		6.9	2
<b>Total responses:</b>			<b>29</b>

Performance time affection on usage of a function (Sweden)

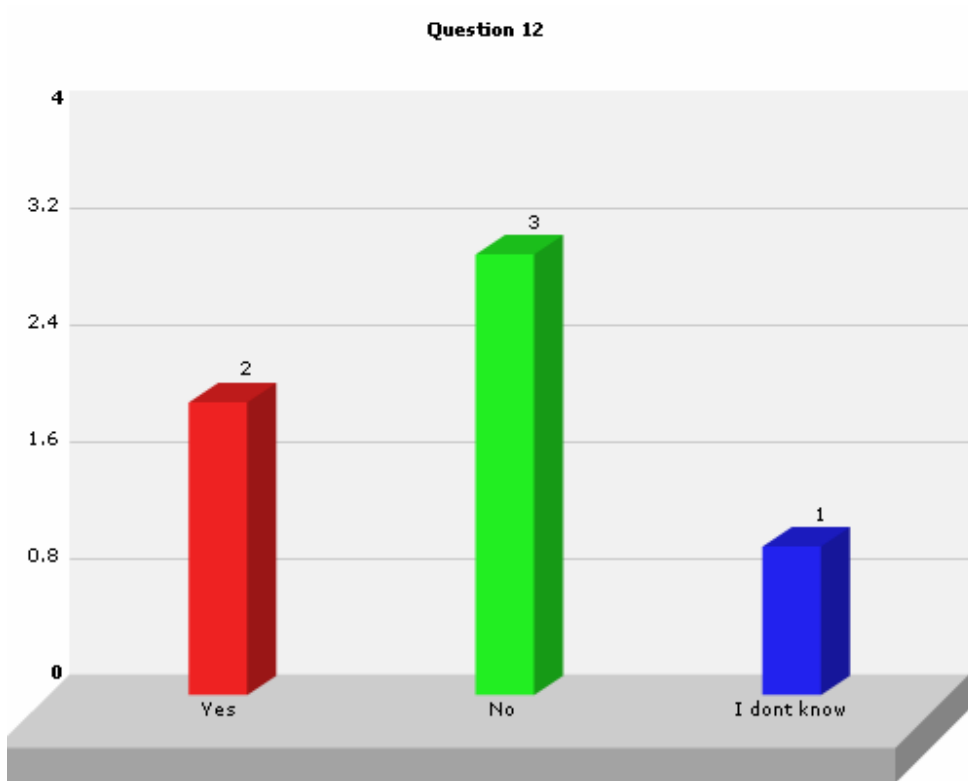


Performance time of the overall services is efficient (Japan)

**Question 11**




		Percentage	Responses
Yes		27.6	8
No		58.6	17
I don't know		13.8	4
<b>Total responses:</b>			<b>29</b>

Efficiency of the performance time ( Sweden)



the usage of these services is complicated (Japan)

**Question 12**

		Percentage	Responses
Yes		20.7	6
No		55.2	16
I don't know		24.1	7
<b>Total responses:</b>			<b>29</b>

If the usage is complicated (Sweden)

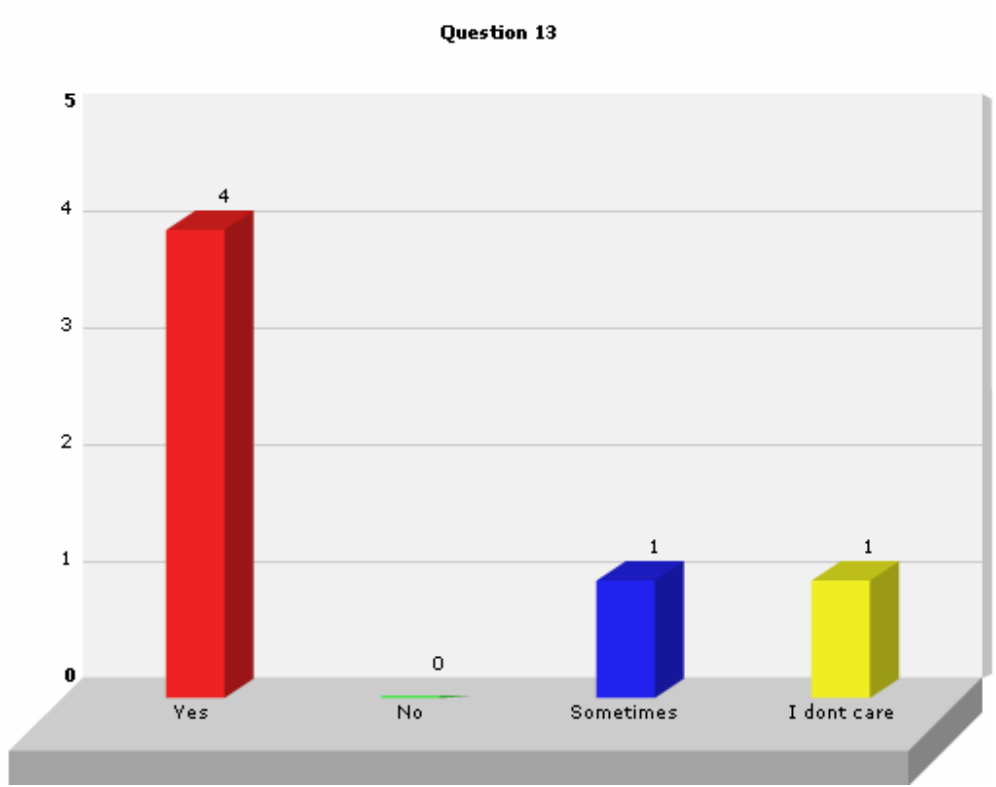






Figure 26 if the security affects your usage of the functions (Japan)

**Question 13**

Yes		13.8	4
No		51.7	15
Sometimes		17.2	5
I don't care		17.2	5
<b>Total responses:</b>			<b>29</b>

If the security affects your usage of the functions (Sweden)

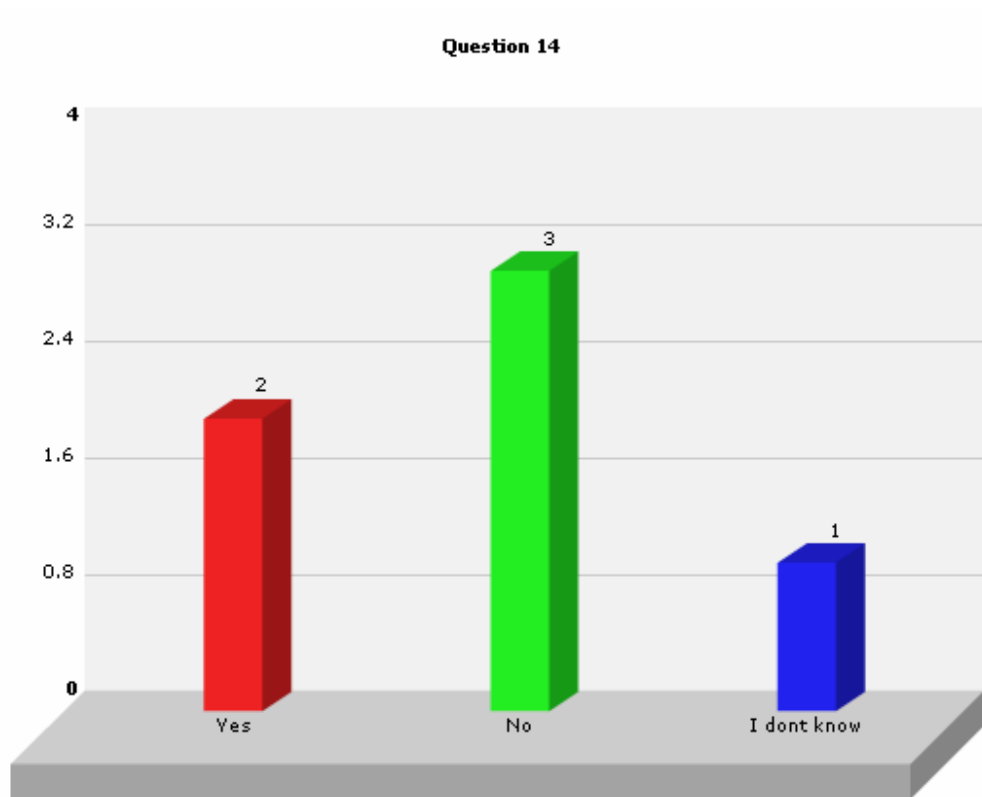





Figure 28 If the size and resolution of the screen affect the usage of the offered services (Japan)

**Question 14**

		Percentage	Responses
Yes		44.8	13
No		44.8	13
I don't know		10.3	3
<b>Total responses:</b>			<b>29</b>

If the size and resolution of the screen affect the usage of the offered services (Sweden)



#### Question 15

- big screen important and good

If size & resolution matter, why (Japan)

#### Question 15

- the screen is too small to watch tv and films on, even to email I think. Otherwise it's good..
- photos are too bad , not worth the trouble. Size is satisfactory. Resolution sometimes bad, sometimes good.
- man vill ju se hur pass bra kvalitet.ex. video är. Tror dock att användandet stagnerar allt eftersom... Hade kvalite varit skral hade jag aldrig nyttjt tjänsterna.
- very small
- too small
- the screen is too small, pictures are not clear sometimes

If size & resolution matter, why (Sweden)

## Appendix 4 survey questions

### Usage of 3s/i-mode services on the Swedish/Japanese market

#### 1) Age

- 18-25
- 26-32
- 33-39
- 40-47
- 48 and above

#### 2) Do you use other services than text messaging and voice communication offered in your mobile phone?

- Yes
- No

#### 3) If the answer of previous question is yes, how often do you use these services?

- Less than once a month
- Once a month
- Once a week
- three times a week
- Everyday

#### 4) If the answer of question nr 2 is no, why not?

- I don't need the services
- I don't know how to use them
- It's too expensive
- service performance not efficient
- Other (Please Specify):

#### 5) Are you aware for all the services offered in your mobile phone?

- Yes
- No
- I don't know

#### 6) What kind of services do you use?

- GPS navigation

- Download music
- video communication
- watch TV and video media
- Download video games
- send e-mail
- access information on the Internet
- Other (Please Specify):

**7) If you answered the previous question, when do you use these services?**

- for work
- for school
- for fun
- Other (Please Specify):

**8) Do you believe the offered services are easy to use?**

- Yes
- No
- I don't know

**9) Does the price of a service affect how often you use a function?**

- Yes
- No
- I don't know

**10) Does the performance time of the overall services affect how often you use a function?**

- Yes
- No
- I don't know

**11) Do you believe the performance time of the overall services is efficient?**

- Yes
- No
- I don't know

**12) Do you believe the usage of these services are complicated?**

- Yes
- No
- I don't know

**13) Is the security of the offered services something that affects your usage of the functions?**

- Yes
- No
- Sometimes
- I don't care

**14) Does the size and resolution of the screen affect your usage of the offered services?**

- Yes
- No
- I don't know

**15) If the previous answer was yes, please specify;**

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**Thank you for your cooperation! ☺**