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THE SLEEPING GIANT – A LONGITUDINAL STUDY SURVEYING THE MOBILE SERVICE MARKET IN FINLAND

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Abstract

Foresight scenarios indicated already in the late 1990es that mobile commerce would become a mainstream business with the growing number of mobile phones in the world; the estimate now is that we will reach 3 billion mobile phones by 2008. The reasoning is simple: with a global technology platform and growing numbers of developed mobile services, mobile commerce will become a huge industry. The future development of mobile technology will rely on mobile services and the use of mobile services will be an integral part of the revenues to be generated by third generation mobile phones. This scenario is now hampered as the adoption of new mobile services has been much slower than expected, especially in Europe. Basic services such as SMS, ring tones, icons and logos are still the most popular services. Several reasons have been suggested for the slow adoption rate, ranging from cultural issues to business models. In this paper we are focusing on the Finnish market, where there are several reasons to suggest that a rapid adoption could take place, including a relatively long history of mobile services, low costs, positive attitudes to the use of high technology and rather a good supply of mobile services. We are presenting results from a longitudinal study covering the years 2003, 2004, 2005 and 2006 where we for each year worked with a random sample of 1000 consumers; as the response rate was very high (close to 50% each year) the samples have been shown to be representative of the Finnish consumers. Some of the results are rather surprising and we will try to explain some identifiable reasons for the discrepancies between mobile services offered and mobile services actually used.

Keywords: Mobile value services, Mobile technology, Service adoption and use

1 INTRODUCTION

As the consumers get used to mobile devices, and more advanced mobile technologies are entering the market (cf. the third generation (3G) technology), mobile commerce is once again believed to be one of the most promising and lucrative growth markets. Forecasts from various sources have indicated that mobile commerce will become a mainstream business, which will bring growing revenues and create more benefits or values for consumers. In early 2000 Durlacher Research Ltd estimated that the European mobile commerce market would reach €23.6 billion by 2003 (Durlacher Report 2000). It did not happen. There are several similar estimates which have been published in the last 2-3 years and it appears that the analysts are not quite clear about what the coming mobile products will be neither what business models will be viable –not to mention what the markets and the customers should be.

In 2006 it has become apparent that the introduction of mobile technology applications is not progressing in any way close to the forecasts and scenarios. A number of technological advances took place alongside the introduction of GPRS in Europe. For example colour screens, cameras and Multimedia Messaging Services (MMS) became available. Such features were first introduced in high-end smart phones, which operate with the Symbian OS that supports third party services. Java became more mature, which lead to the birth of a market for downloadable applications, in particular mobile games. Even streaming video to mobile phones became functional (Repo et al 2004) and it was generally be-

lieved that the new and better technology would promote and even drive both the emergence and the adoption of new mobile services.

3G is a generic term that describes the next generation of mobile communication and 3G refers in particular to high speed and multimedia data services. 3G is also intended to support a concurrent usage of multiple services and to bridge the gap between mobile phones and computing (GSM World, 2004; UMTS Forum, 2004). Again the vision is the same as for the introduction of GPRS – higher speed networks, multimedia data services and the parallel use of multiple services will translate to more attractive mobile services, which will be adopted at increasing rates. As this did not happen with the GPRS there are now some elements of desperation and frustration in the new scenarios. Quite a few new services have been attributed to 3G (Robins, 2003; UMTS Forum, 2003) but they have, in fact, already reached mature stages with the GPRS platform. Even services, which rely on graphical browsing or multimedia messaging, have approached basic availability for regular users. Information services, ticketing and different forms of entertainment are maturing services which can be used over a number of mobile technologies, including SMS (Short Message Service, e.g. text messaging). Studies of the mobile Internet tend to neglect this because they do not consider SMS to be an Internet technology (cf. Ishii, 2004; Funk, 2005). The user is more concerned with the service than the technology and the basic form of the service may well be sufficient for the everyday needs of the user. The introduction of higher speed networks, multimedia data services and the parallel use of multiple services may not be seen as value-adding by the user; (s)he may not even notice the difference as it is not important to them (cf. the discussion of the Braudel Rule below).

Jenson (2005) openly criticized the mobile industry for adopting “default thinking”, which leads to failed consumer products and services. He illustrates this by using an industry comment “MMS is an extension of SMS and therefore a natural progression for the industry”. What is missing here is that MMS is a much more complicated service to use and most users do not see enough added value over SMS to adopt MMS; what is needed is a value adding usage context. Mobile phones with wireless data capacity are another “inbred” design. Jenson claims that the industry looked backward and saw the web. So this led to the following equation: “the Web is hot, phones are hot, and therefore web + phone have got to be hotter”.

The basic challenge for GPRS, 3G and sets of promising new mobile services is to understand how and why people adopt or do not adopt mobile services. Jenson’s approach suggests that the industry aims and consumer needs do not match; consumers are not part of the design process for the content/use context. Technology development is often seen as the key in service adoption, but as Ankar and D’Incau (2002) pointed out, more is needed. Carlsson et al (2005) shows that the relationship between technology adoption and the adoption of mobile services based on that technology is asynchronous, i.e. the adoption processes are different – the adoption processes can even be explained from different conceptual frameworks. Also Sarker and Wells (2003) point out that there is missing a clear understanding of the motivations and circumstances which guide consumers to adopt and use mobile devices. As they realize that there cannot be any business applications unless there is (cf. Sarker and Wells, 2003, p. 36) “widespread proliferation of wireless devices and related applications, there is a clear need to comprehend how and why individuals (potential m-commerce consumers) adopt such devices”. Knutsen (2005) illustrates that even if research on culture, infrastructure, inter-firm collaboration and business models may shed light on the phenomenon, the basic recurring theme suggested for further research is the value of services for the user.

The longitudinal study presented here is more an explorative than a validating/verifying study, which is why we will use a simple theoretical framework. We have chosen to apply the Braudel Rule as a theoretical framework to find out why and how mobile services can make sense as a basis for viable business. The Braudel Rule was introduced in Keen-Mackintosh (2001) and it states that “... freedom becomes value when it changes (actually “expands” in the original, French version; the difference is significant) the limits of the possible in the structure of everyday routines”; when this rule is applied to mobile services we could paraphrase it in the following way “... mobile services become mobile value services when they offer the possibility to expand the limits of the possible in the structure of everyday

routines". This is a simple and effective way to formulate some guidelines for understanding what mobile services will create value and what mobile services will not make any difference. When applied to mobile service markets it may help us explain why some heavily promoted mobile services have failed, and why the SMS has been a success even if it was not advertised at all in the beginning – it was not even understood to be a mobile service.

We will concentrate on the Finnish market, generally seen (at least outside Finland) as a technologically advanced market with a population ready and willing to adopt new services. As was found in a number of empirical studies (cf. Carlsson et al 2005, 2006), there is a supply-demand mismatch for mobile services in Finland. Even in Japan and Korea, which are considered to be forerunners in the adoption of mobile services, rather basic services (messaging and ring tones) have been most successful (Funk, 2005; Srivastava, 2004; Kim et al., 2004). Basic services have during recent years been popular also in Europe (Mylonopoulos & Doukidis, 2003, Carlsson et al., 2005, 2006) but more advanced services have not yet found their ways into the everyday lives of consumers.

In this paper, we are presenting results from a longitudinal study covering the years 2003, 2004, 2005 and 2006 where we for each year worked with a random sample of 1000 consumers; as the response rate was very high (close to 50% each year) the samples have been shown to be representative of the Finnish consumers. Some of the results are rather surprising and we will try to bring out some identifiable reasons for the discrepancies between mobile services offered and mobile services actually used. The material we have is rather unique as it covers a series of years in which the surveys were carried out with the same instrument and with random samples; the longitudinal study shows some changes in consumer behaviour and we will present some reasons and explanations for the changes.

The paper is structured as follows: in section 2 we will briefly review the state of the art of mobile services that are commonly available and which we included in the study; in section 3 we will work through some methodology issues and give a review of the data collection process and the statistical analysis we carried out; in section 4 we present some of the key results we found on current usage behaviour and future usage intentions for mobile services in Finland; section 5 is a summary and offers some conclusions.

2 MOBILE SERVICES MARKETS IN FINLAND

Finland has long been seen as one of the most successful countries in Europe in terms of the adoption and use of advanced mobile services. It is evident that Nokia – a Finnish company and the world's leading mobile handset provider - is pivotal to this. The world's first commercial GSM network was launched in Finland (1991), it was the first country in the world where mobile phones exceeded fixed connections (1998), to launch WAP-services, and to license, based on a beauty contest, 3G networks in Europe (March 1999). Key mobile network operators are Telia-Sonera, Elisa Communications, DNA and Saunalahti, next to a number of small players, i.e. mainly MVNO's. All the main MNO's operate GSM 900/1800 and UMTS networks. The market shares for mobile telecommunications are approximately 48% for TeliaSonera, 35% for Elisa Communications and 15% for the others (Budde, 2006). Finland has also been considered an advanced and sophisticated test market for new mobile services as the distribution and penetration of mobile phones is among the highest in the world. The number of mobile phone subscribers was in 2005 around 5.4 million and exceeds by far the number of fixed-lines; the penetration rate of mobile phones is more than 100 per cent. The mobile phones with GPRS, WAP, MMS and Java features was 1.8 million units by the end of 2004, representing around one third of the total mobile phone subscriptions in Finland. About 75% of the phones had features required for using new mobile services, such as WAP or MMS services (cf. Ministry of Transport and Communications Finland, 2005; The Association of Electronic Wholesalers, 2005). Mobile data services showed the strongest growth of the service categories in 2004. The market value grew 26 per cent to 21 M€ Nevertheless, the emerging mobile services are not even close to the SMS. Citizens sent 2241 million text messages in 2004 (an average of 37 text messages per month per person; the population is 5.2 million) with a market value of 203 M€ In comparison, there were 7.4 million MMS

messages representing a market value of 1.7 M€ It appears that acquired habits have a strong influence on the medium of choice and that new mobile services have to gain the same status in order to make a breakthrough. The total value of the Finnish mobile services market in 2004 was 246 M€(a growth of 11% from 2003); the corresponding numbers were 258 M€in 2005 (+ 5%) and 267 M€in 2006 (+ 3%). In 2004 the value of the content service market was 67 M€a 16 per cent increase over 2003 with ring tones, directory services and chat services the largest revenue providers. The market value for premium voice services was 120 M€with directory services and taxi orders the most used services. Mobile services differ from traditional services in their capability to provide relevant services regardless of temporal and spatial constraints. Advances in mobile technology (handsets and network components) have driven both the fast-growing mobile services market and consumers' acceptance or usage of these new innovative mobile services. The last few years have seen such trends in the Finnish mobile communication market, in terms of subscribers, mobile devices and mobile services. A large range of different services for mobile devices were offered in the period 1999-2006, ranging from ring tones and icons, instant messaging and presence services via WAP-based mobile banking, lottery, m-commerce and travel services (in 1999) to games (enabled by Nokia's N-Gage in 2003 and latter smart-phones), location-based services (on an experimental basis in 2002, and GPS-based in 2006) and multimedia messaging service (introduced in 2003), like mobile television (2005) and online music services (Musiikkilataamo). Sometimes access to these services was rather cumbersome. Teli-aSonera offered video calling and MobileTV in 2006. But not only MNO's were important in pushing the use of advanced mobile services. For instance the municipality of Helsinki promoted the use of mobiles for accessing public transport systems, soon followed by the City of Tampere.

The technologically advanced mobile phones have increased the possibilities of adopting new mobile services but are not actual drivers for the adoption nor do they explain why some services get adopted and others not. Mobile services development in Finland has actually slackened compared to many other countries and the optimistic and experimental mood five years ago – which explained the positive image of Finland conveyed by the first sentence - has changed to more conservative market operations. There are fewer risks taken with developing and launching new services. As an example, Finland was among the last countries to launch 3G-services in Western Europe (in 2004), although Finland was known as a pioneering country for mobile services in 2000-2002 (Ishii, 2004; Ministry of Transport and Communications Finland, 2004). The World Cellular Information Service reported in February 2006 that the fastest growth in mobile data services is found in Asia (Indonesia, Japan and Korea) and that Europe is lagging in producing value adding data services.

3 DATA COLLECTION AND ANALYSIS

The empirical data was collected in the spring of 2003-2006. Self-administered questionnaires which contained the same questions with very minor changes were mailed out to a random sample of 1000 Finnish consumers each year. The sample was selected from the electronic sampling frame provided by the Finnish Population Register Centre and was based on a stratified sampling procedure in which the sample was drawn by a simple random sampling method. The sampling frame offered a complete representation of the target population, which was defined as the Finnish population between ages 16-64, whose mother tongue was either Finnish or Swedish and with residence in mainland Finland. Four random samples were drawn for the 4 years of the longitudinal consumer study.

3.1 The surveys

The survey instrument was built around 18-20 questions covering the consumers' perceptions of and intentions for using mobile technology, as well as their current usage and their future intended use of mobile services. In this paper, we primarily report on a questionnaire section in which the respondents were instructed to report on their current usage behaviour and to describe their future intentions for the

use of mobile services. For the current usage behaviour, a 5-point scale was used (1= never used, 2= tried, 3= a few times a month, 4= weekly, 5= daily). For the future intentions toward mobile services, a 5-point Likert scale was adopted (1= I would definitely not use, 2= I would probably not use, 3= I don't know, 4= I would probably use, 5= I would definitely use).

More than 30 mobile services which are available in the Finnish mobile service market have been included in the study. We have grouped these services into 6 categories: (1) communication services (text message SMS, MMS, mobile email, net chat and video calls); (2) entertainment services (ring tones, icons and logos, listening/downloading music, game, adult entertainment, mobile TV etc.); (3) reservations and purchases services (e.g. routine m-banking, auctions, payments, shopping); (4) information services (internet browsing, location-based services, search services, etc); (5) travelling services (checking flight or train time tables, making reservations, searching or making reservations of a hotel); (6) special (professional) services, (e.g., health care services, wireless alerting/security services). Some of the mobile services were excluded from the data analysis because they were dropped in the follow-up surveys as they were no longer relevant or available: these included advanced m-banking, brokerage, education services and personalized information message which were studied only in 2003; insurance services were included in 2003-2005, and spiritual services in 2004-2005.

3.2 Data analysis – Computing the degree of acceptance of mobile services by a representative sample of consumers

In this section, we will first present our approach to analyze the 4-year longitudinal data sets collected on the consumers' current and future intentions to use mobile services. In the analysis, we regrouped the scale values 3, 4 and 5 of the consumers' current use of mobile services as a new category, i.e. users. We redefined the scale values 1 and 2 of the consumers' future intention to use mobile services as no intention to use; the scale value 3 as neutral to use, and the scale values 4 and 5 as intention to use. After we had regrouped the scales, the responses of the consumers on their current and future use of mobile services can be collected in 3 choices, i.e. for each mobile service we have studied, the consumer can select one of three possible answers:

- Used or will use the service; we call this scenario the acceptance of the service by the particular consumer at the current stage or in the future;
- Did not use or will not use the service; in this case the consumer chooses against the service, i.e. rejects it at the current stage or in the future;
- Tried or will try the service without a definite opinion about using or rejecting it; this case of trial shows uncertainty of the respondent on the use of a mobile service.

It is clear that the measures we used in the surveys are represented by ordinal scales, which do not allow any numerical operations. We can, however, assign specific values to each of the three choices in order to quantify the degree of acceptance/rejection of a particular service by a particular consumer.

For each mobile service, let us represent

- its acceptance by the value 1,
- its rejection by the value -1 , and
- its trial by the value 0

With this representation we will be able to carry out some arithmetic operations on the answers. Our approach is fundamentally based on

- a numerical representation of the answers, and
- an aggregation technique by which we derive the degree of acceptance/rejection (the average score) of the service in the market

We can then compute an average score for each mobile service that measures the degree of consumers' acceptance of the service by the whole market. Since the number of respondents is high enough in our samples (approximately 500 for each year) and they are representative of the overall population of mobile service consumers in Finland (this was verified), we can assume that the behaviour of the

group will reflect (in a statistically significant way) the consumers' behaviour of the whole market. As a result, the derived average score, or the degree of acceptance of the mobile service by consumers in the market, will represent the degree of acceptance/rejection of a mobile service by a representative consumer of the market. This logic is shown in Figure 1.

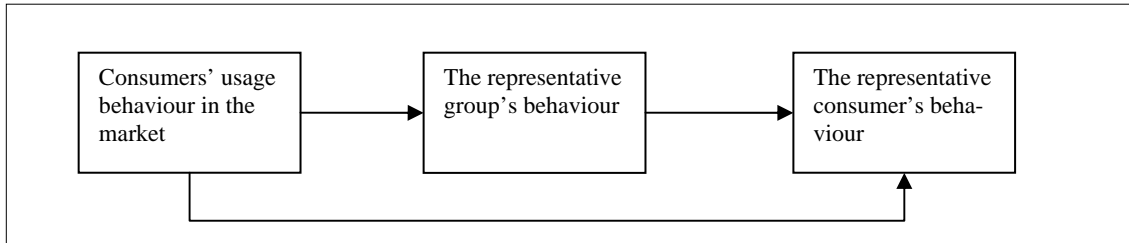


Figure 1 The relationship

Thus, for every consumer we have a definite value that measures the degree of acceptance/rejection of a mobile service. Let a_{ij} be the degree that consumer i accepts/rejects mobile service j , and let us assume that there are N respondents from which we received answers regarding the current use or the future intention to use m mobile services. Then, $a_{ij} \in \{-1, 0, 1\}$, for $i = 1, 2, \dots, n$; $j = 1, 2, \dots, m$, and we can compute the average score by

$$\frac{\sum_{i:a_{ij}=1} 1 - \sum_{i:a_{ij}=-1} 1}{N} = \frac{\sum_{i:a_{ij}=1} a_{ij} + \sum_{i:a_{ij}=0} a_{ij} + \sum_{i:a_{ij}=-1} a_{ij}}{N}$$

By adopting this formula we can compute the degree of acceptance/rejection of using a mobile service at the current stage or in the future by the representative consumer, who is representative of the consumers' acceptance/rejection of mobile services in the mobile service market. The results are shown in 3-dimensional pictures (Figures 2 and 3). The X axis represents the mobile services we studied in the data analysis; the Y axis represents the degree of acceptance [0-1]/rejection[-1-0] of a mobile service by the representative consumer, the Z axis represents the years 2003-2006.

3.3 Results

3.3.1 Samples Demographics

The useful responses we got were 502 in the year 2003, 484 in the year 2004, 462 in the year 2005 and 428 in the year 2006. The response rates of the four years varied from 42% to 50%, which were highly satisfactory for the type of research we carried out. The respondents were distributed in different age groups, but with rather few responses from the age group 16-22 and over 50% responses from the age groups 36-64. The female consumers dominated the responses throughout the years 2003-2006. The samples are representative of the Finnish population each year.

3.3.2 Consumer current usage experiences

The consumers' current use of mobile services in Finland (2003-2006) is shown in Figure 2. A "deeply sleeping" market is emerging from the numbers. Except for the use of text messages (SMS) and search services (a bit above 0, but not significantly), all other mobile services have still not been adopted and/or are not being used by the consumers.

SMS is the most popular and a widely used communication service throughout the years 2003-2006. The degree of acceptance of the SMS service is over 0.75. The use of multimedia messages service

(MMS) has been increasing from a degree $[-0.75, -0.5]$ to $[-0.5, -0.25]$ in the years 2005-2006, but consumers are in general still reluctant to use the service. The acceptance of mobile email does not change significantly, the degree of acceptance is $[-0.75, -0.5]$ over the four years. Net chat and video calls are the communication services that are very seldom used by consumers, the degree of acceptance is the lowest, i.e. $[-1, -0.75]$.

Ring tones and icons are popular mobile entertainment services among the consumers. The degree of acceptance shows a slightly declining trend from 2003 to 2006, the degree of acceptance decreased from $[-0.25, 0]$ to $[-0.5, -0.25]$. Mobile music services, games, adult entertainment, mobile TV (with or without an extra license) are the services not used over the study period; the degree of acceptance of each one of these services is below -0.75 . The degree of acceptance of ordering and/or sending jokes is declining from 2004 to 2006: from a degree above -0.75 to below it.

The degree of acceptance of mobile routine bank services has decreased from $[-0.5, -0.25]$ in year 2003 to $[-0.75, -1]$ in 2004-6. Mobile payments have been accepted or used by the consumers in the market over the study period; the degree of acceptance is slowly increasing from $[-1, -0.75]$ to $[-0.75, -0.5]$. Reservation and purchase services such as mobile tickets, mobile shopping, lotteries and stock rates, have not been much accepted by the consumers; the degree of acceptance is at $[-1, -0.75]$.

Consumers show a relatively high level of using mobile search services, the degree of acceptance has climbed above 0 in the year 2005 and maintained the trend in the year 2006. The degree of acceptance of browsing the mobile internet and news services is at $[-0.75, -0.5]$. Other information services that we studied are at the lowest acceptance level or are rejected.

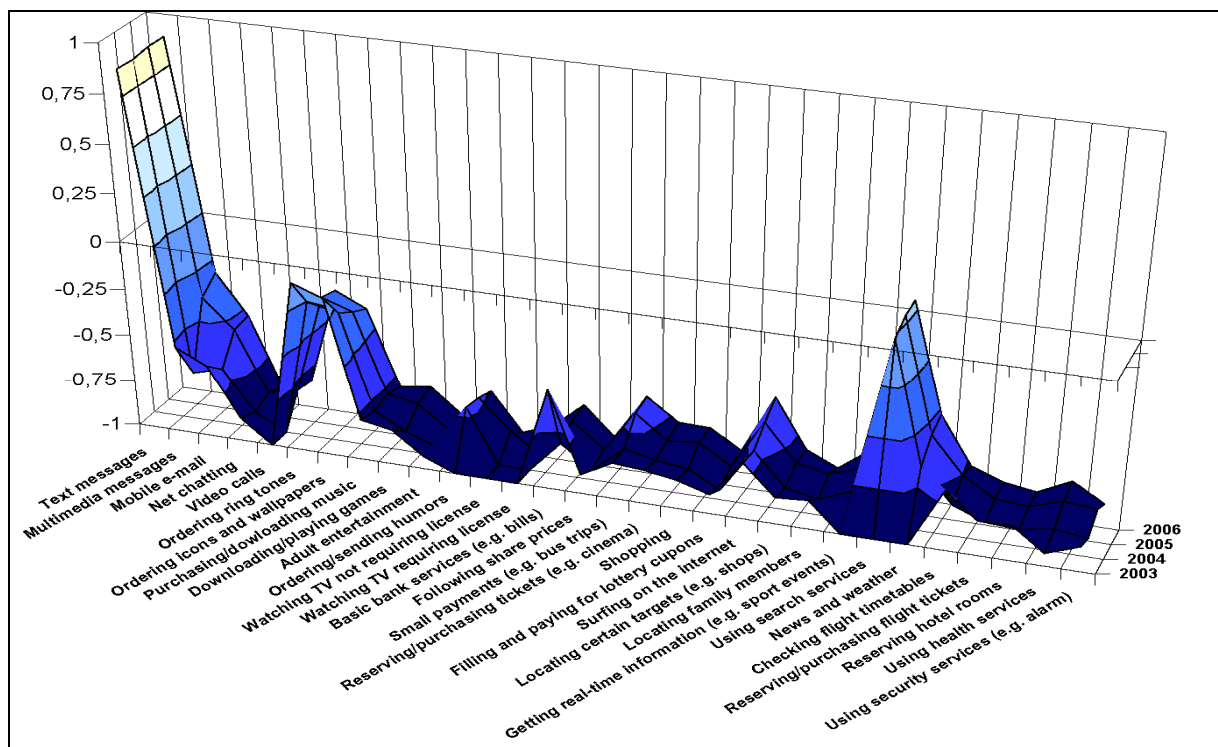


Figure 2 Consumers' current use of mobile services in Finland (2003-2006)

There are three groups of mobile services which have been repeatedly predicted to become important revenue generators: travel and travel support services, mobile e-health services and mobile security services. Studying figure 2, we can now see that mobile travelling services (checking flight timetables, reserving/purchasing tickets and reserving hotel rooms) are still far from being used by the consumers; the degree of acceptance of the three services is very low. The same is true for mobile e-health ser-

vices: the acceptance is uniformly low for the four years. For wireless/mobile alert or security services there is neither any significant acceptance by the consumers.

In the years we have studied we found relatively and rather stable patterns in the preferences of Finnish consumers in their choice of mobile services. The level of the actual use of some of the services is slowly increasing. As we have reported in some earlier analyses (Carlsson et al (2005), (2006)) we have seen that the role of barriers is decreasing and benefits are becoming more important. The descriptive, longitudinal material we have in Figure 2 confirms these results; it represents a stepping stone for further analysis in order to extract some more cause-effect relationships on the adoption and use of mobile services. As we have argued earlier, (Bouwman et al 2007) it is necessary to look at the specific characteristics of the mobile services. Technology can not be treated as a black box, the way it is treated, for instance, in TAM and UTAUT research. As a way to confirm the visual impressions of the consumers' current use of mobile services in Finland (2003-2006) we have also computed the correlations of the results and found that they are highly correlated (Table 1), which confirms that the structure of the market does not change very quickly.

	2003	2004	2005	2006
2003	1			
2004	0.82	1		
2005	0.81	0.98	1	
2006	0.80	0.97	0.992	1

Table 1 Current Market Structure

3.3.3 Consumer future usage intentions

The future intentions the consumers had to use the mobile services are presented in Figure 3. In comparison with Figure 2 the market structure has now changed. The degree of acceptance of mobile services shows a growing trend, which shows that the consumers believe that they will use mobile services more in the future than they do today.

The SMS service continues to dominate also in the future. It maintains its growing trend over the four years period with a degree of acceptance over 0.5 in 2003, and over 0.75 in 2006. Mobile multimedia (MMS) services and mobile email will be accepted by the consumers with a degree of acceptance around or above 0.25. Video calls over mobile phones are getting more attention from the consumers, but the degree of acceptance will still be below 0. The use of net chat seems not to be a very likely service - the degree of acceptance is below -0.5.

Consumers show a rather surprising negative intention to use any of the entertainment services. The results from 2003 showed a positive future intention to use ring tones and icons; this intention is turning negative in the following 3 years and reaches its lowest level in 2006. Mobile games, adult entertainment services, humoristic messages, mobile music services and mobile TV (with an extra license), seem not to gain much interest from the consumers. Mobile TV service (without an extra license) is only listed in the survey of 2006; the future intention to use the service is negative, which is not a good signal for its future success.

The results also showed that in 2003 the consumers were quite willing to use mobile routine-banking services, mobile payments and reservation of tickets in the future. However, this positive trend turned slightly negative in the following 3 years. Checking stock rates and mobile shopping are two services that consumers seem not to want in the future; the degree of acceptance is below -0.25.

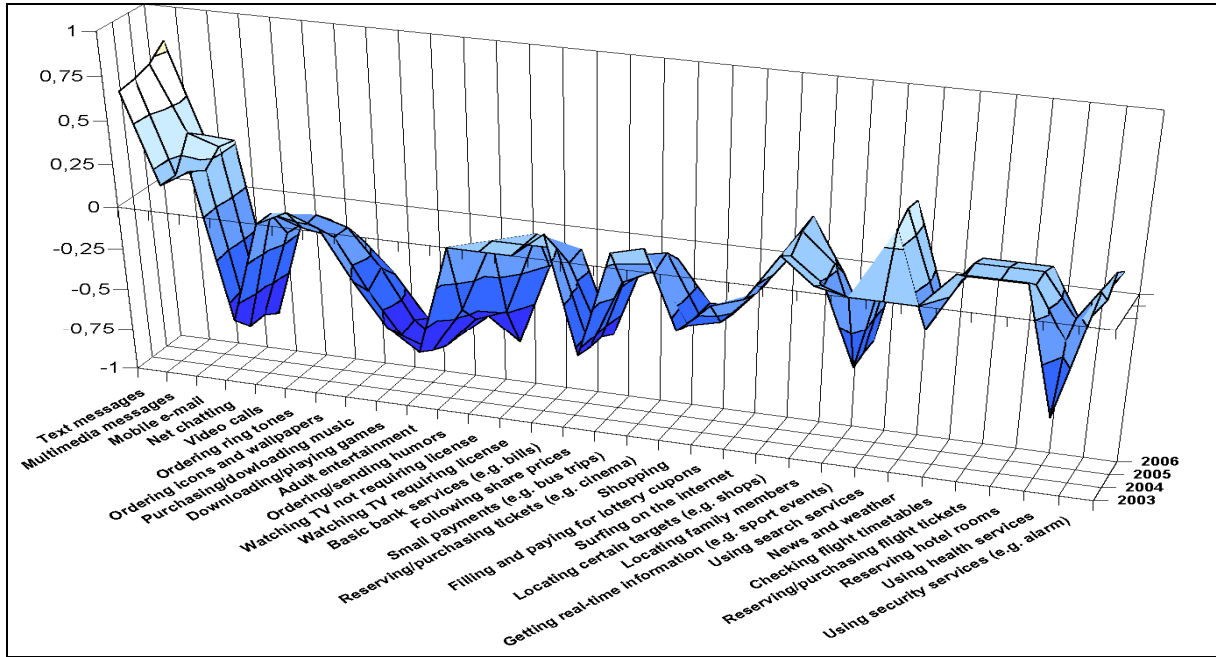


Figure 3 Consumers' future intention to use mobile services in Finland (2003-2006)

Search services and location-based services are welcomed by the consumers; their future intention to use them is rather positive over the four years. The future acceptance of search services is over [0.25-0.5] and is around 0.2 for location-based services. Location services for family members have gotten mixed intentions: positive in 2003 and 2005, but negative in 2004 and 2006. Other information services are not likely to be used in the future with a degree of future acceptance below 0 over the four years.

As showed in Figure 3, there will be some degree of acceptance for mobile travelling services in the future. The three services which were studied gained positive intentions from the consumers with a degree of acceptance around [0-0.25], but the positive intentions are declining from 2003 to 2006.

Mobile e-health service seems not to be extensively used in the future: the degree of acceptance is below 0, ranged between [-0.5, -0.25]. On the other hand, the wireless alert/security service is shown with positive intentions throughout the years 2003 to 2006.

The descriptive material we have collected in Figure 3 shows that future intentions to use mobile services are rather more positive than the actual use (cf. Figure 2). This attitude is found also over the years as quite a few services show growing intentions to use them. One of the challenges we are facing in the next few studies is to find good explanations why the intentions do not translate to actual use of mobile services – an intention should become actual use the following year (or maybe when the consumer upgrades his/her mobile phone). In order to confirm the visual impressions of the consumers' future use of mobile services in Finland (2003-2006) we have also computed the correlations of the results of the four years and we found that they are highly correlated (Table 2), which confirms that the structure of the future intentions does not change very quickly.

	2003	2004	2005	2006
2003	1			
2004	0.95	1		
2005	0.92	0.98	1	
2006	0.92	0.99	0.99	1

Table 2 Future Market Structure

4 DISCUSSION AND CONCLUSIONS

The numbers we have that describe the Finnish penetration rate of mobile phones show that there is a potential market for new mobile services which can be very significant if these services reach the same level of usage as SMS, i.e. if they show the Braudel effect and “will expand the limits of the possible in the structure of everyday routines”. If the Finnish mobile service market is an indicator for the much larger European market we could indeed have a sleeping giant market.

The longitudinal study shows that the current use of mobile services is limited to mainly three: SMS, ring tones and icons, and search services. This is despite the efforts to launch an additional 20-30 mobile services which did not get adopted by the consumers. The longitudinal study also shows that the market is changing slowly and that the introduction of more advanced phones did not drive the acceptance of new mobile services. The main explanation we have is that these new services did not satisfy the Braudel Rule (the consumers have not figured out how the mobile services will expand the limits of the possible for them, i.e. the services are not replacing daily routines in such a way that there would be no return to the old routines). This is so far mainly a proposition which should give a good basis for a number of empirical studies of how new mobile services would fit into the everyday routines of ordinary people.

The longitudinal study also shows a clear and growing trend for mobile services when we asked about the future use of the services. We interpreted this as a proposal that consumers believe that they will use mobile services more in the future than they do today, i.e. that even if there is no need for a specific mobile service now, there may well be a need in the future. It is also easier to find a possible future use for specific mobile services as the context is not as clear as the present; this means that the impact of the Braudel Rule is much less and that the consumer is more willing to agree that the use may be beneficial. The correlation matrix showed that the changes in future intentions are slow which means that the actual use will be slow to materialise.

Overall it is fair to state that ordinary people are more concerned with the mobile service than the technology and that the basic form of the service may well be sufficient for the everyday needs of a user. The introduction of higher speed networks, multimedia data services and the parallel use of multiple services is probably not value-adding for the user as (s)he may not even notice the difference as it is not important to him/her. Thus the penetration of mobile services will be better understood as a service diffusion process than as a technology acceptance process (cf. TAM, UTAUT).

Then the challenge faced by the mobile operators starts to form: there is a need to gain a better understanding of mobile services by applying the Braudel Rule and to build new business models to start delivering these services to the consumer market in such a way that technology-based mobile services can be transformed to mobile value services (“... mobile services become mobile value services when they offer the possibility to expand the limits of the possible in the structure of everyday routines”).

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