



# **Early Demand for Nokia Multimedia Message Service**

Market Study of MMS

Case Study



**NOKIA**



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## Executive summary

The purpose of this study was to identify the early adopters for Multimedia Message Service (MMS). The focus was in person-to-person and person-to-multiperson messaging. Person-to-application messaging was excluded. Also, the nature and extent of the early demand for MMS was examined. More specifically, the opinions of innovators on usage situations, preferences, price perceptions, storage, and most preferred group sizes for Group Message Service were studied. The study was conducted in the capital area of Finland among 15-35-year-old men and women in June 1999. The sample consisted of 800 people, of which 174 returned the questionnaire.

There were two driving assumptions in this study. Firstly, it was assumed that the innovators MMS are found among today's heavy users of Short Message Service (SMS), that is, people under 35 years who live in an urban area. Secondly, since only 22 % of the sample returned the questionnaire and up to 92.5 % of them were interested in MMS, it was assumed that they were all early adopters of MMS. They are called the *innovators*. Those respondents (7.5 %), who did not show any interest towards MMS, were called *non-innovators*.

The analysis of the results included comparison of the mobile phone experience, technical background, media habits, and psychographic as well as personality characteristics of an innovator with those of a non-innovator. It was found that the younger the respondent, the more he or she is likely to be interested in MMS. Furthermore, the innovators tended to be more often single and more likely to travel abroad when compared with the non-innovators. The innovators were also more likely to send more short messages, and to be better aware of Smart Messaging or Mobile Media Mode than the non-innovators. Likewise, they were more likely to think that mobile phone is both useful and fun, to be interested in the latest technology, to be trendy and venturesome, and to have opinion leadership compared to the non-innovators.

The innovators were divided into two groups by age and mobile phone experience. The respondents aged between 15 and 24 years were called the *youngster segment*, whereas those between 25 and 35 years were called the *adult segment*. There were more women than men in the youngster segment. The majority had a high school education, and up to 73 % of them were still students, which mainly explains the low annual incomes of the youngsters. 96 % of them were single, and 85 % travel abroad at least once a year. The youngster segment was very familiar with the Internet. The mobile phone penetration was 94 %, and 15 % of the phones were Smart phones. The SMS penetration, instead, was 93 %, and the average amount of mobile originated SMSs was 12. TV, newspapers, magazines, as well as the Internet all seemed to be good media to reach the youngster segment by advertising.

Among the adult segment, there were more men than women. The adults were highly educated, and had a high annual income. Almost half of them were single, and 90 % travel abroad at least once a year. Also, the adult segment is very familiar with the Internet and mobile phones. The SMS penetration, however, is lower than among youngsters being 86 %, and the average amount of mobile originated SMSs is only 7. The adult segment had a high exposure to TV, newspapers, and magazines.

The most preferred services were the combination of SMS and Photo Message Service, and plain SMS. It can be concluded that consumers demand separate, non-packaged services. The plain SMS would be used in the same situations as today, and the new multimedia message would mainly substitute the traditional postcard. If the mobile phone contained also a digital camera, it would substitute cameras, scanners, and faxes. Both segments agreed that the richer the content of the service, the more they are ready to pay for it. A multimedia message was perceived five times as valuable as a short message. When it comes to group messaging, the same relation occurs.

It seems that the youngsters demand longer storage times for mobile terminated short and audio messages than the adults do; youngsters would prefer to store them for about one day and adults for only a couple of hours. Both segments would save photo, video, and multimedia messages for a few days. There were no differences in the demanded storage time for mobile originated messages, though. Both groups would

destroy a short message or an audio message after a couple of hours, and photo, video, and multimedia messages after one day.

## Introduction

Recently, Short Message Service (SMS) has proven to be a tremendous success in many countries. Operators in these countries have often also provided their subscribers with possibilities to personalize their mobile phones with ringing tones and graphical icons, which have proven extremely popular. The growth in this area will certainly serve as a valuable path to new and interesting ways for using the mobile phone, in ways yet unseen in the history of wireless communication.

As users have gotten accustomed to the easy use of SMS, the opportunity to send multimedia messages will mean new and easy ways of utilizing new handsets. With continuance of the path that Short Messaging and now Picture Messaging have opened, Multimedia Message Service (MMS) will add extensive value to the current offerings of the operator.

The concept of MMS is quite similar to Picture Messaging available with supporting Nokia phones, such as the 3210. With MMS conventional short messages can be combined with other elements – photographs, voice clips, and eventually also video clips – with the same simple way as SMS. In addition to sending messages mobile-to-mobile, it is possible to send them mobile-to-email. This means new and exciting possibilities for the person-to-person and person-to-multiperson communication, on which this study concentrates.

The arguments presented in this paper derive from a market study conducted by Nokia. The market study concerned the extent and nature of the early demand for MMS. Answers were sought to the following questions:

- Do the heavy users of Short Messaging find any added value in Multimedia Message Service?
- What are the usage situations for multimedia services?
- Should different characters (text, audio, photo, and video) be offered separately or together?
- What is the reasonable price for those services?
- Is there a need to store messages?
- Do the innovators of Multimedia Message Service find any added value in Group Message Service?

To find out the early demand for MMS, the early adopters must first be identified. In this study, the early adopters are simply called *innovators*, whereas the late adopters are called *non-innovators*.

The market study was conducted in Finland, which can be seen as one of today's leading geographical areas of the adoption and diffusion of mobile technologies.

## Conducting the market study

The driving assumption in the market study was that *without innovators the diffusion of MMS to mass markets and thus standardization of new technology will not take place*. To identify the innovators of MMS, a quantitative questionnaire was delivered to a sample group of 800 people who were between 15 and 35 years old and lived in Helsinki, Espoo, Vantaa, or Kauniainen. In other words, the target group was the heavy users of SMS. The names and addresses were collected from the Center of Population Register. Inside the previously mentioned frames the sampling method was random. The questionnaires were delivered and collected in June 1999. 174 people responded.

A **Short Message Service (SMS)** was described to the consumers as follows: *"You are able to send short messages by a multimedia mobile phone. A future short message can contain three times as much characters as the existing one. With a short message you can send, for example, a business card to your customer, or an important note or joke to your friend."*

With an **Audio Message Service** *"you can record speech, music and other voice clips to your mobile multimedia terminal and forward them to other terminals as an audio message. By using Audio Messaging you do not have to leave the same message to several voice mail boxes; you record the message only once and send to as many terminals as you wish."*

The **Photo Message Service** was described as follows: *"The multimedia mobile phone works as a digital camera as well. You can take a picture, for example, of your family on your vacation, and send the photo to your friends and relatives or to your PC as a photo message. The mobile phone/camera works also as a scanner. You can scan an important document to your phone and send it to your boss, for instance. Or you can scan a picture of your best friend and add it to your phonebook. It is also possible to load pictures to your mobile phone from the Internet and forward them to other multimedia mobile phones."*

A **Video Message Service** was described as follows: *"The multimedia mobile phone contains a videocamera, too. You can film your child's first steps or a negotiation at your office, and send a video message to some other multimedia mobile phone. Accordingly, you can load a music video or some animation from the Internet to your multimedia mobile phone and send it forward to some other terminal."*

A **Multimedia Message Service (MMS)** was described to the consumers like this: *"By a multimedia mobile phone you are able to send messages that contain some or all of the previously mentioned elements; text, sound, photo and video. By using a multimedia message you are able to, for example, add text to the photo you took of your family on your vacation. You are also able to add text to your 'postcard'. In work-related situations, you are able to take a photo or film the design, for instance, of Japanese cars, add your speech or written comments to it, and send it to your colleagues in another country."*

A **Group Message Service** was described as follows: *"If you have to send the same short, audio, photo, video or multimedia message to several people, you can define a group of recipients. By using a group message, sending a message becomes cheaper than by sending it separately to each member of the group. In addition, you save a lot of time and energy. If you, for example, have to inform your football team that the training begins one hour later than it was supposed to begin Group Messaging is a very convenient and quick way to do this."*

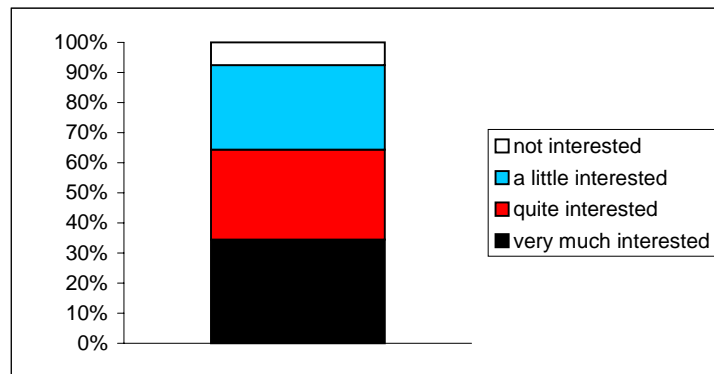
Next the results of the questionnaire are examined.

## General overview of the sample

The mobile phone penetration in the sample was 94 %, which indicates a successful sample especially when considering that the penetration in the whole country is about 60 %. 32 % owned their first mobile phone, 34 % their second, and 16 % their third one. 87% had used Short Messaging, of which 43 % sent more than 10 and 18 % more than 20 SMSs a week. The average mobile originated SMSs sent per week was 10. 33 % of the sample did not have to pay their own mobile phone bills, but got them paid by their employer, parents, or by some other relative. 27 % of the sample had used the ringing tone service.

The first assumption in this study was that the innovators for the MMS are found among the heavy users SMS, that is, people less than 35 years old, and who live in an urban area. The assumption is based on the fact that MMS is continuous innovation; MMS does not radically change the behavior of users nor does it require them to learn a new technology, but is a natural consequence of messaging evolution.

Figure 1: MMS interest



The second assumption was that since only 22 % of the sample returned the questionnaire and up to 92.5 % of them were at least a little interested in MMS (see Figure 1), they are all most likely to be innovators for MMS. On the whole, the interest in MMS was quite positive with 34.5 % of the sample being very much interested and 29.9 % quite interested in MMS. Only 7.5 % of the sample were not interested at all in MMS. Although this group now feels no need for MMS, their attitude might certainly change as MMS is widely adopted. History proves that this has happened also before, for example, with mobile phones and SMS. Thus, those 7.5 % will be considered as late adopters, that is, the non-innovators. To find out the early demand for MMS, the innovators must first be identified. The next chapter presents some characteristics of an MMS innovator, and compares them with those of an MMS non-innovator.



# Differences between innovators and non-innovators

## *Psychographic characteristics*

53.1 % of innovators are between 15 and 24 years old, whereas 46.9 % are between 25 and 34 years old. For non-innovators the figures are 15.4 % and 84.6 %, respectively. Thus, *the younger the respondent, the more he or she is likely to be interested in MMS*<sup>1</sup>. Furthermore, 51.3 % of the innovators are men, whereas 48.7 % are women. Of the non-innovators 30.8 % are men and 69.2 % are women. The influence of gender on MMS interest is not significant<sup>2</sup>.

51.3 % of the innovators and 84.6 % of the non-innovators have either a college or a university degree. Hence, the *non-innovators are higher educated than the innovators*<sup>3</sup>. 28.2 % of the innovators are either managers or professionals and 41.0 % are students, whereas 15.4 % of the non-innovators are either managers or professionals and 15.4 % are students<sup>4</sup>. 76.4 % of the innovators and 46.2 % of the non-innovators are single. Thus, *innovators are more often single*<sup>5</sup> *and more likely to travel abroad*<sup>6</sup>. *Annual income*<sup>7</sup> *does not influence the MMS interest*.

## *Mobile phone experience*

The brand or model of a mobile phone<sup>8</sup> or the frequency of how often one has changed his or her mobile phone to a newer model<sup>9</sup> does not affect the respondents interest in MMS. The mobile phone penetration among the innovators is higher (94.9 %) than among non-innovators (80.0 %). The proportion of Smart phones among the innovators is 16.8 % and among non-innovators 12.5 %. One can be interested in MMS even if he or she has no mobile phone; up to 80.0 % of those who own no mobile phone are interested in MMS, 50.0 % of them are very interested in MMS. SMS penetration among the innovators is 89.7 % and 50.0 % among the non-innovators. 44.2 % of the innovators send at least 10 SMSs a week, and 18.6 % more than 20. The respective figures for the non-innovators are 8.3 % and 0.0 %. *The innovators send more SMSs than the non-innovators do*<sup>10</sup>. No difference is found whether a respondent pays his or her own mobile phone bills or gets them paid by someone else (employer, parents, etc.)<sup>11</sup>.

## *Technical background*

Firstly, the *innovators are more often aware of Smart Messaging* (56.2 %) *than the non-innovators* are (30.8 %)<sup>12</sup>. Secondly, the *innovators tend to be better aware of Mobile Media Mode* (30.8 %) *compared to the non-innovators* (25.0 %)<sup>13</sup>. Furthermore, 51.6 % of the innovators and 38.5 % of the non-innovators have sent an electronic postcard. Nevertheless, there are no differences in the Internet<sup>14</sup>, E-mail<sup>15</sup> or ringing tone service<sup>16</sup> usage between the two groups.

## *Media habits*

There are no significant differences in TV<sup>17</sup>, newspaper<sup>18</sup> or magazine<sup>19</sup> exposure between the groups.

## *Personality characteristics*

Next, a closer look is taken at the personality characteristics of the innovators and the non-innovators, in order to find some differences between the groups.

Table 1: Personality characteristics comparison of the innovators and the non-innovators

Characteristic	Innovator	Non-innovator	Difference	Pearson $\chi^2$	Pearson's R	Significance
<i>Extrovert</i>	93.2	92.3	0.9	17.525	0.066	0.131
<i>Brand loyal</i>	74.2	61.5	12.7	7.078	0.043	0.852
<i>Thinks that mobile phone is useful</i>	<b>98.8</b>	92.3	6.5	37.379	0.374	0.000
<i>Sporty</i>	87.0	76.9	10.1	12.080	0.091	0.439
<i>Economical</i>	73.9	76.9	3.0	18.092	-0.008	0.113
<i>Interested in the latest technology</i>	<b>91.9</b>	46.2	45.7	46.707	0.402	0.000
<i>Impulsive</i>	76.7	84.6	7.9	15.275	0.111	0.227
<i>Pleasure-loving</i>	95.6	84.6	11.0	13.396	0.091	0.341
<i>Spends freetime at home</i>	74.8	76.9	2.1	14.383	-0.089	0.277
<i>Trendy</i>	<b>71.7</b>	38.5	33.2	28.348	0.200	0.005
<i>Thinks that mobile phone is fun</i>	<b>78.8</b>	30.8	48.0	33.650	0.381	0.001
<i>Venturesome</i>	<b>80.0</b>	50.0	30.0	25.760	0.240	0.012
<i>Opinion leadership</i>	<b>61.9</b>	0.0	61.9	37.176	0.299	0.000

It can be concluded from the table that the innovators are more likely to think that mobile phone is both useful and fun, to be interested in the latest technology, to be trendy and venturesome, and to have opinion leadership. Note that none of the non-innovators considers to be an opinion leader. In other words, *everyone who is an opinion leader also seems to be an innovator of MMS.*

## Innovator segments

Since age is a significant variable that influences MMS interest, innovators can be divided into two age groups. In this further analysis, users aged between 15 and 24 years are called the *youngster segment*. Consumers between 25 and 35 years old, in contrast, are called the *adult segment*.

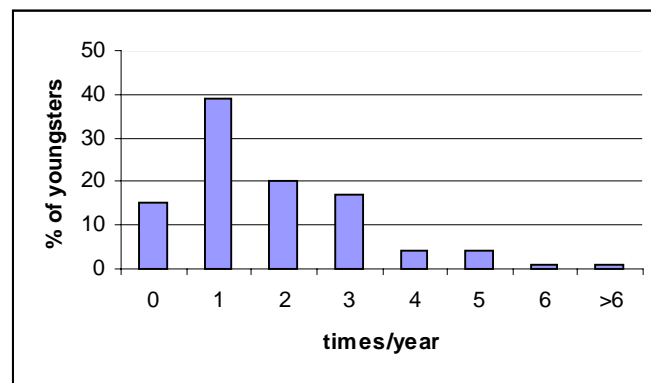
### Youngster segment

To identify the youngster segment, a clearer look is taken at the youngsters' psychographic and personality characteristics, technical background, mobile phone experience, and media habits.

#### Psychographic characteristics

In the youngster segment, there are a slightly more women (53 %) than men (47 %). The majority (44 %) of youngsters has a high school education. 12 % have a college and 13 % a university level education. Up to 73 % of youngsters are students, and 96 % are single. Mainly because of the huge amount of students among the youngster segment, 83 % earn annually less than FIM 100.000, whereas only 17 % earn more than FIM 100.000. 85 % of youngsters travel abroad at least once a year (see Figure 3).

Figure 3: Annual trips abroad according to the youngster segment



#### Technical background

43 % of youngsters use the Internet less than one hour a week (see Figure 4). 36 % use it 1-5 hours a week, 12 % 5-10 hours a week, and 7 % more than 10 hours a week. 81 % send less than 20 E-mails a week, 11 % 20-40, 6 % 40-60, and 2 % more than 80 (see Figure 5). 57 % of the youngster segment have sent an electronic postcard.

Figure 4: Internet usage of the youngster segment

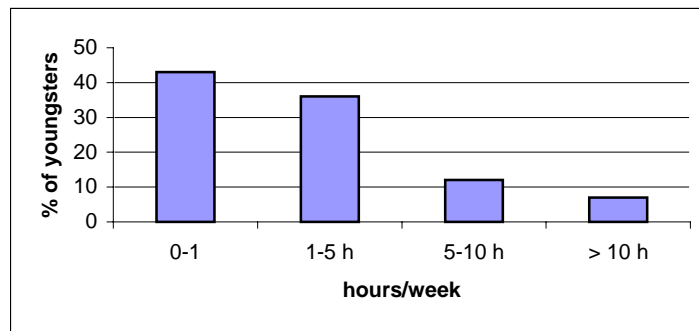
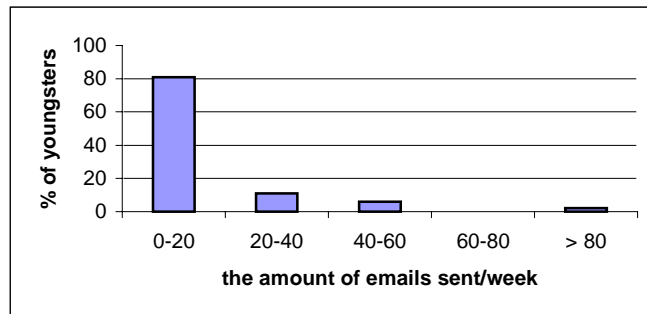


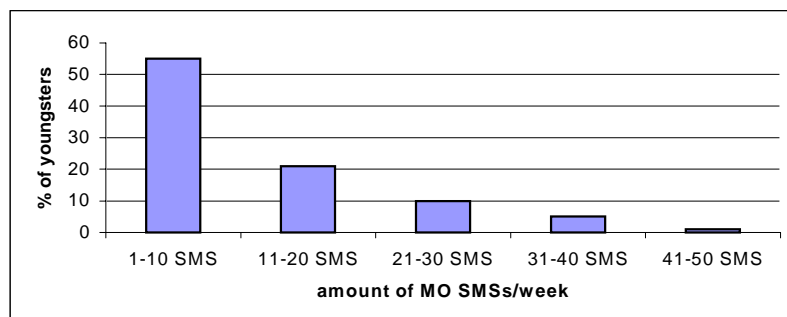
Figure 5: Email usage of the youngster segment



### Mobile phone experience

94 % of the youngsters own a mobile phone. 15 % of the phones are Smart phones and 85 % are legacy phones. The SMS penetration is 93 %, and the average amount of mobile originated SMSs in a week is 12. 59 % of youngsters send 1-10 SMSs and 24 % 11-20 SMSs a week (see Figure 6). As many as 17 % send weekly more than 20 SMSs. 70 % of youngsters pay their own mobile phone bills, whereas 30 % get them paid either by their parents or employer. Although only 15 % of the youngsters own a Smart phone and 7 % have tried it at least once, 58 % of the youngsters are aware of Smart Messaging. 34 %, instead, were aware of Mobile Media Mode (MMM), and 10 % were interested in it. 30 % use the ringing tone service.

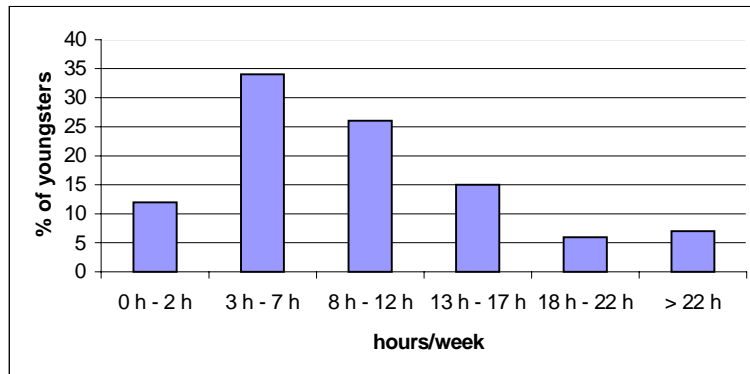
Figure 6: SMS usage of the youngster segment



**Media habits**

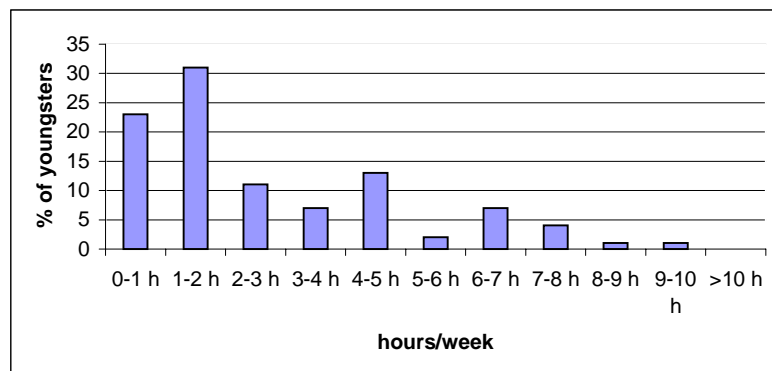
46% of youngsters watch TV less than seven hours a week (see Figure 7), which makes less than one hour a day. However, Up to 88 % watch TV more than two hours a week, which makes TV an efficient medium to reach the youngster segment.

Figure 7: TV exposure in the youngster segment



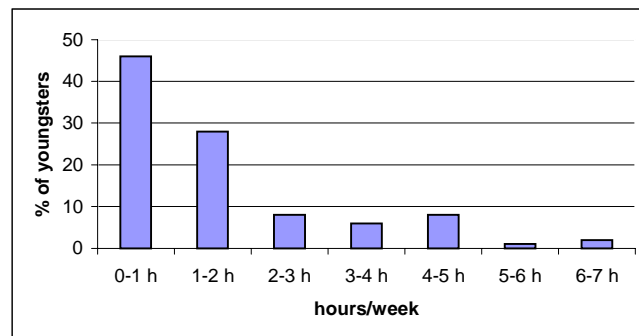
On average, the youngsters read newspapers about 3 hours and 30 minutes a week. The respective figure for all innovators is 3 hours and 40 minutes. However, the most typical time spent on reading newspapers is 1-2 hours (see Figure 8). As many as 77 % of the youngsters read newspapers at least one hour a week, which makes newspapers also a good marketing channel to reach the youngster segment.

Figure 8: Newspaper exposure of the youngster segment



Only 54 % of the youngsters read magazines more than one hour a week (see Figure 9). On average, the youngsters read magazines 2 hours and 8 minutes a week compared to 2 hours and 6 minutes for the innovators. That is, youngsters read magazines more than eight hours a month, on average, which means that magazine advertising is also a good marketing communications channel.

Figure 9: Magazine exposure of the youngster segment



### Personality characteristics

The youngster segment tends to think that mobile phone is both useful<sup>20</sup> and fun<sup>21</sup>. Furthermore, the youngsters seem to be very interested in the latest technology<sup>22</sup>, pleasure loving<sup>23</sup>, outward<sup>24</sup>, sporty<sup>25</sup>, venturesome<sup>26</sup>, economical<sup>27</sup>, brand loyal<sup>28</sup>, trendy<sup>29</sup>, and impulsive<sup>30</sup>. 61% of youngsters state that they have opinion leadership in mobile phone category in their reference group.

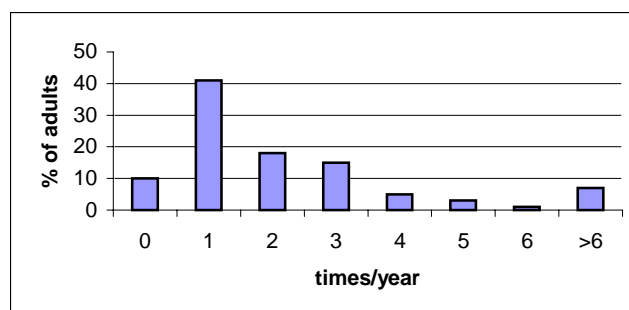
### Adult segment

Next a closer look is taken at the characteristics of the adult segment.

### Psychographic characteristics

Compared to the youngster segment, there are more men (56 %) than women (44 %) in the adult segment. 46 % of the adult segment have a college and 35 % a university level education. Many (47 %) of the adults are professionals, and 4 % are in a managerial position. 47 % of them are single. Only 24 % of the adult segment earn annually less than FIM 100.000, 59 % FIM 100.000-200.000, and 18 % FIM 200.000-300.000. 90 % of the adult segment travel abroad at least once a year (see Figure 10).

Figure 10: Annual trips abroad according to the adult segment



### Technical background

34 % of the adult segment use the Internet at least one hour a week. 40 % use it 1-5 hours a week, 17 % 5-10 hours a week, and 10 % more than 10 hours a week. Since 1-5 hours is the most typical time spent on the Internet (see Figure 11), the Internet can be seen as an efficient medium to reach the adult segment. 64 % of adults send weekly less than 20 E-mails (see Figure 12). 19 % send 20-40, 8 % 40-60, 4 % 60-80, and 4 % more than 80 E-mails a week. 47 % have sent an electronic postcard.

Figure 11: Internet usage of the adult segment

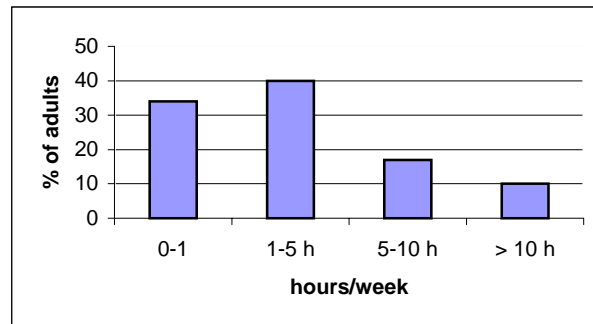
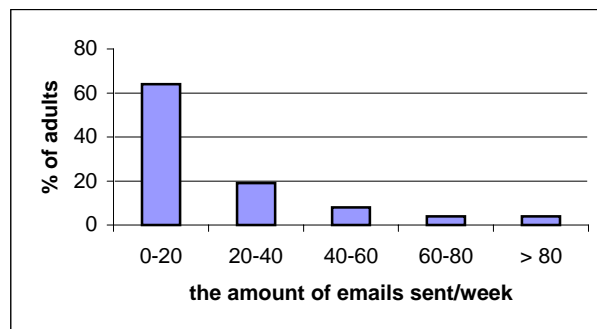


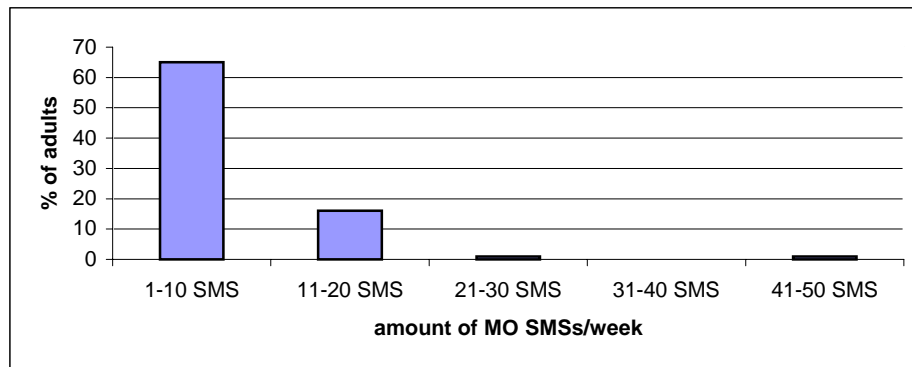
Figure 12: E-mail usage of the adult segment



### Mobile phone experience

96 % of the adult segment own a mobile phone. 19 % of the phones are Smart phones and 81 % legacy phones. The SMS penetration among adults is 86 %, and the average amount of mobile originated SMSs sent is 7. 78 % of the adult segment send 1-10 SMSs, and 19 % 11-20 SMSs a week (see Figure 13). Only 3 % of them send weekly more than 20 SMSs. 64 % pay their own mobile phone bills, others get it paid by their employer. Although only 19 % of the adult segment have a Smart phone, and 8 % have tried it at least once, 55 % of the adult segment are aware of Smart Messaging . 27 % of the adult segment, instead, are aware of Mobile Media Mode, and 11 % are interested in it. 24 % of adults use the ringing tone service.

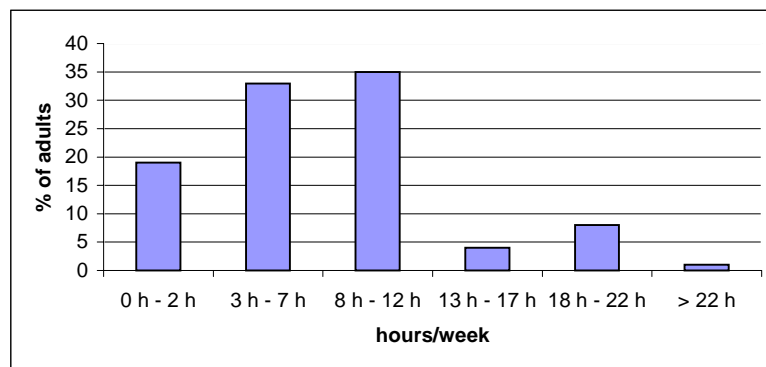
Figure 13: SMS usage of the adult segment



**Media habits**

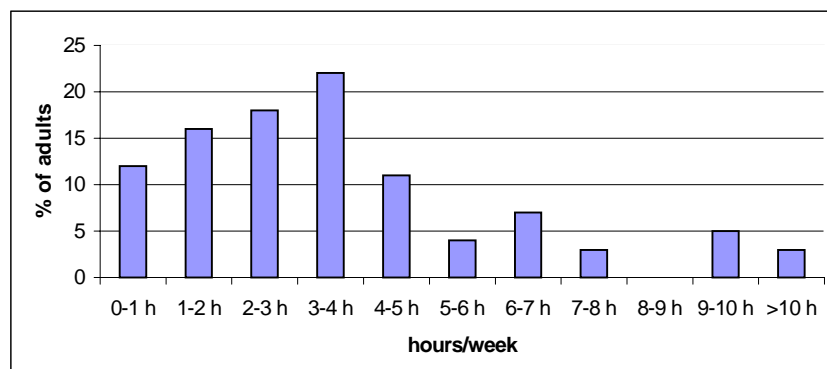
As many as 52 % of adults watch TV less than seven hours a week (one hour a day). However, TV is an efficient way to reach also the adult segment, because 82 % watch it at least two hours a week. The most typical time spent on watching TV is 8-12 hours a week (see Figure 14).

Figure 14: TV exposure of the adult segment



The mean time spent on newspaper reading is 3 hours and 40 minutes both among the whole innovator group and among the adult segment. Also, the most typical time spent on newspapers is 3-4 hours a week (see Figure 15). Because up to 88 % read newspapers at least one hour a week, it is a good channel for advertising MMS.

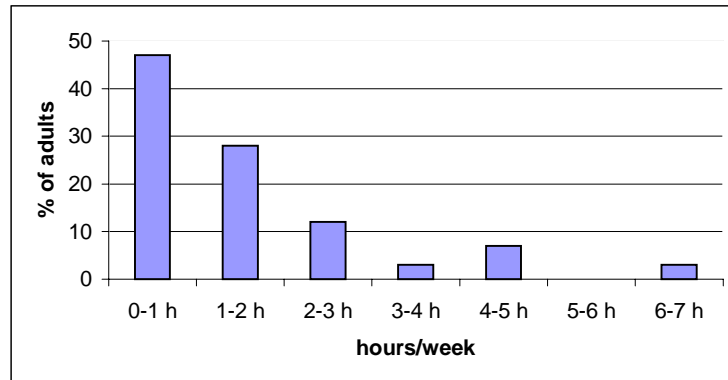
Figure 15: Newspaper exposure of the adult segment





The most typical time spent on magazine reading is 0-1 hours and only 53 % of adults read magazines more than one hour a week (see Figure 16). The mean time spent on reading magazines is 2 hours and 10 minutes a week both among the innovators and the adult segment. That is, an adult reads magazines more than eight hours a month. Thus, advertising in magazines seems to be a good medium to reach the adult segment.

Figure 16: Magazine exposure of the adult segment



### Personality characteristics

The adult segment tends to think that mobile phone is both useful<sup>31</sup> and fun<sup>32</sup>. In addition, the adults are very outward<sup>33</sup> and interested in the latest technology<sup>34</sup>. Likewise, they seem to be pleasure loving<sup>35</sup>, sporty<sup>36</sup>, impulsive<sup>37</sup>, brand loyal<sup>38</sup>, economical<sup>39</sup>, and venturesome<sup>40</sup>. They also tend to spend much time at home<sup>41</sup>. 62 % of adults state that they have opinion leadership in the mobile phone product category in their reference group.

## Demand for the different services

Next the nature and extent of the early demand for MMS are studied.

### *Usage situations*

According to the study people would use SMS when they were abroad because sending a short message is cheaper than calling. Short messages were also found useful when trying to reach a busy person or when the recipient had turned his or her mobile phone off. Some women would send a shopping list to their husband by a short message.

Users would send an audio message when they were too lazy to write a short message, or when they needed to communicate with blind people. Some people would use it for sending a "Happy Birthday" – song to a friend, or for sending a love song to a girlfriend. Some people would use it for calling up a meeting. A recorder and a microphone in a mobile phone would be very popular.

According to users, Photo Message Service would be very useful both at work and at leisure time, especially when it contained a digital camera or a scanner. People would use Photo Message Service for sending a postcard, for getting to know someone (also with work-related situations), for getting a quick response from a colleague or a boss for something that has to be seen, or for a substitute for fax. Someone would take a photo of a city map in order to use it and find different places, for example, during vacation. People who do visual work, for example, art directors and architects, are likely to find Photo Message Service most useful because it is a quick and easy way to get other peoples' opinions and agreements on something. Married people would use Photo Message Service when shopping alone; "How would you like this sofa, honey?"

If a mobile phone would contain a videocamera people would use Video Message Service when their child is taking his or her first steps and they wanted to show it to the child's grandparents. Some people would use a video message when they were on vacation and wanted to show someone what the place is like. Work-related potential usage situations were quite few; people might, for instance, use Video Message Service for industrial spying.

MMS with all four elements would be popular in all the situations that were mentioned in relation to other messaging forms, for instance, when sending a postcard, an invitation, a shopping list, or when showing one's boss how the job is proceeding.

According to the study, people would use Group Message Service when they needed to call up a meeting, keep customers or members of a project up-to-date, or invite friends to a party. Some respondents would use it when they needed to inform many people of change in their address or phone number. Many respondents would make a multimedia Christmas postcard and send it to relatives and friends via Group Messaging.

The following tables summarize the innovators' images of each service. The figures presented in the tables are mean values; 1 = very much, 2 = much, 3 = a little, and 4 = not at all. Table 2 illustrates the image of different services according to the youngster segment.

Table 2: The image of the different services according to the youngster segment<sup>1</sup>

	SMS	AMS	PMS	VMS	MMS	GMS
<b>Interesting</b>	<u>1.57</u>	2.02	<u>1.67</u>	2.06	<u>1.84</u>	2.02
<b>Entertaining</b>	2.16	<u>1.73</u>	<u>1.67</u>	<u>1.65</u>	<u>1.76</u>	2.55
<b>Useful</b>	<u>1.63</u>	2.28	<u>1.89</u>	2.26	<u>1.91</u>	<u>1.66</u>
<b>Pragmatic</b>	2.08	2.51	2.11	2.50	2.08	<u>1.87</u>
<b>Work-related</b>	2.62	2.62	2.36	2.68	2.22	<u>1.91</u>
<b>Freetime-related</b>	<u>1.65</u>	<u>1.80</u>	<u>1.75</u>	<u>1.69</u>	<u>1.68</u>	<u>1.88</u>

As Table 2 shows, the youngsters consider all services very *freetime-related*. SMS is also found very interesting and useful, but Audio and Video Message Services only entertaining. Photo and Multimedia Message Services, instead, are considered very interesting, entertaining, and useful, whereas Group Message Service is found very useful, pragmatic, and work-related. Thus, the youngsters find added value in Group Message Service. Table 3 illustrates the respective figures for the adult segment.

Table 3: The image of the different services according to the adult segment<sup>2</sup>

	SMS	AMS	PMS	VMS	MMS	GMS
<b>Interesting</b>	2.03	2.61	<u>1.83</u>	2.39	2.03	2.04
<b>Entertaining</b>	2.53	<u>1.94</u>	<u>1.79</u>	<u>1.74</u>	<u>1.84</u>	2.49
<b>Useful</b>	<u>1.89</u>	2.83	2.19	2.57	2.06	<u>1.75</u>
<b>Pragmatic</b>	2.17	2.96	2.46	2.71	2.23	2.01
<b>Work-related</b>	2.60	3.10	2.39	2.85	2.39	2.35
<b>Freetime-related</b>	2.00	<u>1.94</u>	<u>1.85</u>	<u>1.86</u>	<u>1.81</u>	2.06

The adult segment considers all services very *freetime-related*. The other figures, however, are not as positive as they were for the youngster segment. Only Short and Group Message Services are found very useful, whereas other services are considered mainly entertaining. Photo Message Service is found very interesting.

It can be concluded that MMS is a very *freetime-related* service. The difference between the two segments seems to be that *freetime-relatedness* brings much added value to the youngster segment, but not necessarily to the adult segment. The adults tend to seek clear benefits from messaging in general, whereas the youngsters seek merely fun from it.

<sup>1</sup> AMS = Audio Message Service, PMS = Photo Message Service, VMS = Video Message Service, and GMS = Group Message Service

<sup>2</sup> AMS = Audio Message Service, PMS = Photo Message Service, VMS = Video Message Service, and GMS = Group Message Service

## Preferences

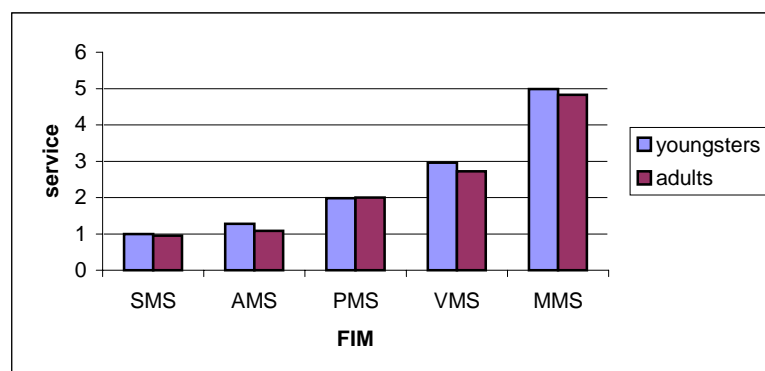
The youngster segment preferred the combination of Short and Photo Message Service the most. The second most popular service was plain SMS, and the third most a packaged MMS. Within the adult segment the same three services were found the most popular but in a slightly different order; the adults preferred plain SMS the most, the combination of text and photo the second, and the packaged MMS the third most. Both segments agreed that SMS can only be combined with Photo Message Service. Audio and Video Message Services, however, were not popular by themselves, but offered much added value to consumers when combined together. One could conclude that both segments demand separate, non-packaged services. It seems like there still exists a huge demand for plain SMS. The market appears to be ready to adopt the Photo Message Service.

According to mean values, the youngsters seem to be most interested in Photo<sup>42</sup>, Group<sup>43</sup>, Multimedia<sup>44</sup> and Short Message Services<sup>45</sup>. The adults, however, were most interested in Short<sup>46</sup>, Photo<sup>47</sup>, Multimedia<sup>48</sup> and Group Message Services<sup>49</sup>. Audio and Video Message Services seemed to interest neither of the groups.

## Price perceptions

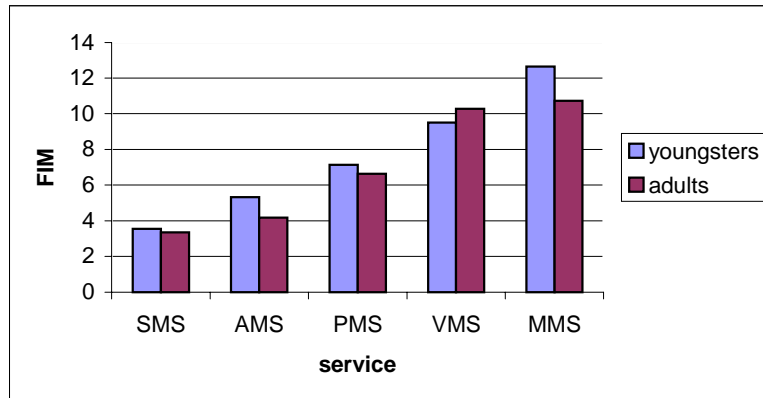
There are no major differences in price perceptions between the youngster and adult segments (see Figure 11). It seems as the richer the content of the service, the more the innovators are ready to pay for it. Both segments perceive the price for SMS and Audio Message Service to be around 1 FIM. According to the innovators, one photo message could cost twice as much as a short message, for instance, FIM 2. A video message could be three times as expensive as a short message. Finally, the price of a multimedia message could be around FIM 5. That is, pricewise it is perceived five times more valuable than a short message.

Figure 17: Price perceptions for different services



A group message to seven people is worth FIM 3 according to both segments. A group audio message is worth FIM 5, a photo message FIM 7, a video message FIM 10, and a multimedia message FIM 11 according to both youngsters and adults.

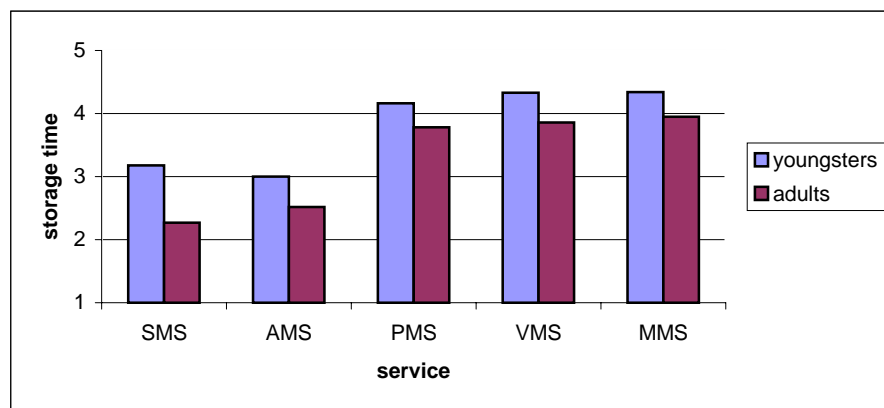
Figure 18: Price perceptions for group messaging to seven people



### Storage

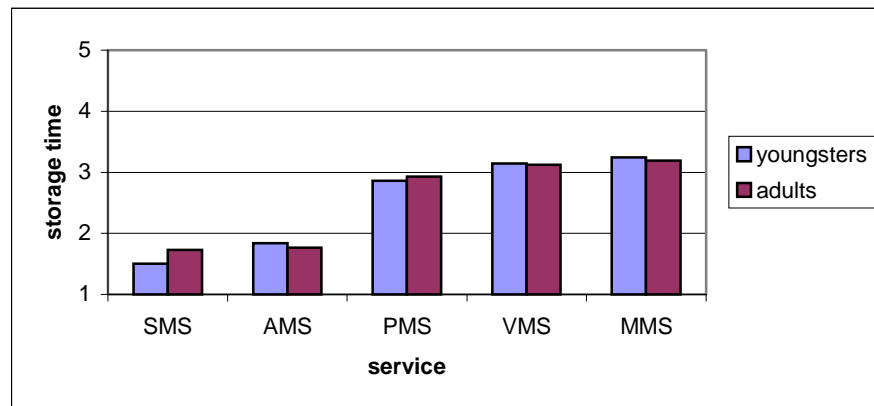
The youngsters would save a mobile terminated short message for one day, whereas the adults would save it only for a couple of hours. The youngsters would save an audio message for one day, and the adults from a couple of hours to one day. Both groups would save photo and multimedia messages for a few days. It seems that the youngsters demand longer storage times for mobile terminated short and audio messages<sup>50</sup>.

Figure 19: Storage of mobile *terminated* messages (1=would destroy immediately, 2=would save for a couple of hours, 3=would save for one day, 4=would save for a few days, 5=would save for a week or longer)



The mobile originated messages would not be saved for as long as the mobile terminated messages. Both groups would save a short message or an audio message from a couple of hours to one day. Similarly, mobile originated photo, video, and multimedia messages would be saved for one day.

Figure 20: Storage of mobile originated messages (1=would destroy immediately, 2=would save for a couple of hours, 3=would save for one day, 4=would save for a few days, 5=would save for a week or longer)



### Group size

Both segments prefer the group sizes of 5-7 or 8-10 the most. Especially the adults find also bigger group sizes useful. This may be due to their most relevant usage situation for Group Message Service; communication between a project group, that usually includes more than ten people. Likewise, the adults often belong to a sports team, which might include more than ten players. Consequently, it would most likely be best to let the user customize the demanded group size him or herself.

Figure 21: The most preferred group sizes

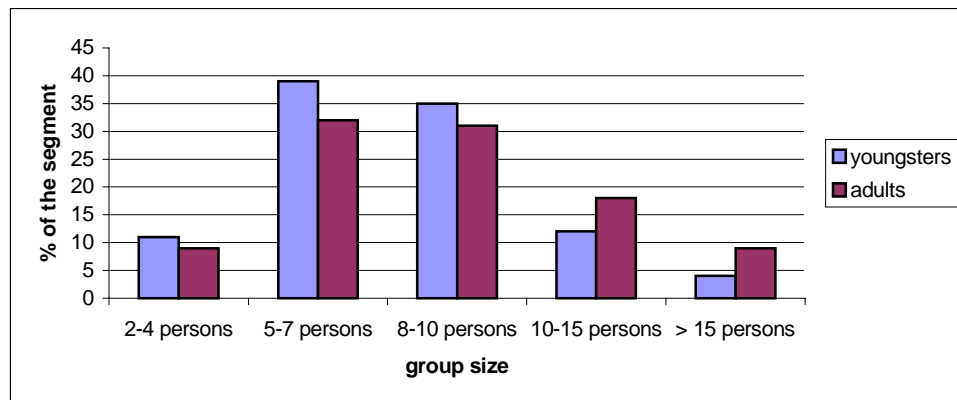


Figure 12 on page 11 showed the innovators' price perceptions for GMSs, when the group size was 7 people. The prices for a group size of 5-10 people can be calculated accordingly;

Short Message Service:	FIM 2.15-4.30
Audio Message Service:	FIM 3.20-6.40
Photo Message Service:	FIM 5.00-10.00
Video Message Service:	FIM 7.15-14.30
Multimedia Message Service:	FIM 7.85-15.70

Finally, in this study, the users were asked to tell their own hopes and ideas about the future mobile phone.

## The ideal mobile phone

According to consumers, the future mobile phone is not just a phone anymore, it is also a digital camera, a videocamera, a tape recorder, a TV, a video recorder, a tamagotchi, a karaoke with a songbook, a ministereer with mobile loudspeakers, a playstation, and a GPS-navigator. It contains an electronic dictionary for twenty languages and an automatic word translator. It is very small, quick and light, and it can be totally controlled by voice.

The ideal phone contains maps of the world's most important cities, and you are able to scan more of them. The mobile phone tells your location if you are lost, or advises you about local services. It also informs you about traffic jams, bus timetables, menus of the nearest restaurants, and TV programs. The SIM-card is also a bank- and VISA-card, a driving license, a passport, and a key to your car and home. You can control your home electronic appliances with the mobile phone. The mobile phone's battery can be charged by solar energy. The phone has a connection with a printer, and it contains a text and photo-editing program. You are able to compose ringing tones. The phone includes a schedule, an address book, and a more advanced calculator, for example, for engineers. It is possible to receive phone calls only from certain numbers, for example, during a meeting. When it comes to Short Messaging, it is possible to write bold, italic, and underlined text, and one short message can contain at least 300 characters. The Short Messaging Service also includes the symbol of heart, and ready-made electronic postcards.

## Conclusions

The innovators for MMS are people who are between 15 and 35 years old and live in an urban area, that is, the same people who are the heavy users of SMS. There were also innovators who did not use SMS at all or did not even own a mobile phone, which means that there are also other potential users than the heavy users of SMS. Users that have already adopted SMS find added value especially in Photo Message Service. They would use the combination of text and photo the same way people use E-mail nowadays, or as a substitute for postcards. A digital camera, a scanner, and a fax in a mobile phone would be very useful.

SMS is the only service that succeeds by itself, all the other services require each other to be successful. SMS works best with Photo Message Service, whereas Audio Message Service is most demanded when combined either with Video or Photo Message Service. A package with all four elements is the most demanded service after the combination of SMS and Photo Message Service and the plain SMS. Consequently, it might be best to sell the different services separately, that is, to charge according to the content of the originated message, and not to set a fixed price to include all kinds of multimedia messages. A roof price, however, should be set for a multimedia message, and to adjust the quality of the image or a video clip to it, and to make the usage of the services more easy and secure for the customer.

According to the innovators, sending a short message could cost FIM 1, and a photo message FIM 2. Sending a package of all four elements could cost about FIM 5 and a group multimedia message to seven people about FIM 11,50. Group Messaging is found very interesting and useful, and it is the only service in addition of MMS that is found pragmatic and work-related. The most demanded group size would be 5-10 people.

The richer the content of the service, the longer would users like to store it. Users would mostly like to save both mobile terminated and originated multimedia messages for a day to a few days.

In summary, a strong demand for Multimedia Message Service seems to exist. Some barriers might exist, however. Users probably do not realize how much more capacity is needed for transferring a photo from one terminal to another than for transferring plain text. FIM 5 is definitely not enough for such amount of data. In addition to this, users demand long storage times for mobile terminated multimedia messages, which require an enormous memory from the mobile phone. Other possible barriers may include the quality of services and the availability of multimedia mobile phones; people do not quite believe that, for instance, photo and video messages could be of high quality, and a fact is that users need multimedia mobile phones for Multimedia Messaging. Usability may also be a barrier, although not a very likely one, since Multimedia Messaging is as easy to use as traditional Short Messaging.

In addition to person-to-person and person-to-multiperson MMS, users seem to be very enthusiastic about person-to-application MMS. Together these multimedia services will enhance the usage of traditional messaging in the future.



- 1 Correlation: Pearson Chi Square=9.273, Pearson's R=0.206, df=3, p=0.026
- 2 Correlation: Pearson Chi Square=3.272, Pearson's R=0.108, df=3, p=0.351
- 3 Correlation: Pearson Chi Square=26.299, Pearson's R=0.227, df=15, p=0.035
- 4 Correlation: Pearson Chi Square=23.258, Pearson's R=0.046, df=18, p=0.181
- 5 Correlation: Pearson Chi Square=17.095, Pearson's R=0.145, df=9, p=0.047
- 6 Correlation: Pearson Chi Square=57.466, Pearson's R=-0.047, df=36, p=0.013
- 7 Correlation: Pearson Chi Square=16.950, Pearson's R=0.078, df=18, p=0.527
- 8 Correlation: Pearson Chi Square=8.078, Pearson's R=0.057, df=6, p=0.232
- 9 Correlation: Pearson Chi Square=20.314, Pearson's R=-0.146, df=24, p=0.679
- 10 Correlation: Pearson Chi Square=66.698, Pearson's R=-0.235, df=63, p=0.002
- 11 Correlation: Pearson Chi Square=9.366, Pearson's R=-0.097, df=9, p=0.220
- 12 Correlation: Pearson Chi Square=20.760, Pearson's R=-0.258, df=12, p=0.054
- 13 Correlation: Pearson Chi Square=10.878, Pearson's R=-0.191, df=6, p=0.092
- 14 Correlation: Pearson Chi Square=25.313, Pearson's R=-0.142, df=3, p=0.828
- 15 Correlation: Pearson Chi Square=7.009, Pearson's R=-0.110, df=12, p=0.857
- 16 Correlation: Pearson Chi Square=5.782, Pearson's R=0.147, df=3, p=0.123
- 17 Correlation: Pearson Chi Square=30.129, Pearson's R=-0.150, df=27, p=0.308
- 18 Correlation: Pearson Chi Square=31.945, Pearson's R=0.016, df=30, p=0.370
- 19 Correlation: Pearson Chi Square=29.759, Pearson's R=-0.058, df=21, p=0.097
- 20 Mean 1.58 (1=agree very much, 2=agree quite much, 3=agree to some degree, 4=do not agree)
- 21 Mean 2.44
- 22 Mean 2.08
- 23 Mean 2.19
- 24 Mean 2.24
- 25 Mean 2.26
- 26 Mean 2.67
- 27 Mean 2.76
- 28 Mean 2.82
- 29 Mean 2.89
- 30 Mean 2.84
- 31 Mean 1.76
- 32 Mean 2.86
- 33 Mean 2.16
- 34 Mean 2.20
- 35 Mean 2.16
- 36 Mean 2.43
- 37 Mean 2.63

38 Mean 2.72

44 Mean 1.91

39 Mean 2.71

45 Mean 1.91

40 Mean 2.89

46 Mean 1.57

41 Mean 2.74

47 Mean 1.58

42 Mean 1.71

48 Mean 1.71

43 Mean 1.79. GMS was not included in tothe preference question.

49 Mean 1.81

50 Correlation: Pearson's R=-0.334, p=0.000

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