Institute for Media
and Communications Management
University of St.Gallen

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Delphi survey on social trends and mobile phone use
Standard report

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University of St. Gallen: Institute for Media and Communications Management

Introduction

In the autumn of 2004 the Institute for Media and Communications Management conducted a Delphi survey on the effects of mobile phone use. The Delphi technique is a questionnaire method for organising and sharing expert opinion through feedback (our Delphi used two waves, i.e., one feedback loop). During the process the participants are encouraged to build on their replies in the light of the anonymous replies of other members of the panel. We invited 300 experts from academia, research institutions and the telecommunications industry to take part in our survey and to answer a first online questionnaire. Fifty percent of the invited experts (from 23 countries) answered the questions in the first wave, and three-quarters of this panel answered the resulting second questionnaire (for details see the demographics section in this report). The response rate shows that the subjects addressed seem to be important and that the experts are exceptionally committed. Again, we should like to thank our Delphi participants for their valuable assistance.

Because this survey was interested in the experts' opinions about social developments in mobile phone use in the near future, we did not set too many specifications: We defined the 'mobile phone' as "a portable device which has to support voice calls whilst being able to move over a wide area. Today most mobile phones are able to process data services as well (i.e., messaging, information, entertainment etc). In our definition we do NOT include WLAN-PDAs (handheld devices) without voice call functionality." And we provided the following definition of 'future': "When answering all of the questions, please consider the near future (in two to three years time)." Therefore the time frame of the survey's relevance spans between the years 2005 and 2007 (at the same time the survey is a certain assessment of past developments).

The questionnaire in the first wave of the survey consisted of 54 closed and seven open questions. In fact, we provided statements (and short scenarios), and it was the participants' task to estimate these 'everyday situations' in the light of their likeliness to happen in the near future. To collect the experts' opinions the following six-point Likert scale was applied to all of the statements:

Description	Scale	Chart
Very unlikely	1	VU 1
Unlikely	2	U 2
Somewhat unlikely	3	SU 3
Somewhat likely	4	SL 4
Likely	5	L 5
Very likely	6	VL 6

After the first wave, the questions that evoked dissent among the panel were chosen to be asked again in the second wave (27 closed-ended questions which are marked with an arrow (⇳) throughout the report). The participants were encouraged to build on or

revise their replies in the light of the other replies. To be able to reconsider the first reply we provided mean value (arithmetic average), standard deviation (indicates how far a typical member of the panel is from the mean value) and the expert's own opinion for every statement. After considering this information the participants were asked to confirm their previous answer or to revise/alter the answer. The Delphi technique used is a subjective-intuitive method and builds on the experience that participants are more likely to revise their answers if they are not fully convinced about them.

The 'ratio' provided for each question throughout the report analytically reduces the answer to yes or no, likely or unlikely (where a ratio of 60:40 indicates that 60 percent of the experts have chosen 'unlikely' and 40 percent have chosen 'likely'). Applied to each question you will find a selection of comments made by the respondents. For those who are interested in actual figures, a data table is included in this standard report. The report ends with a list of those participants who agreed to be mentioned.

Executive summary

The experts agree on most topics. We are able to make clear and univocal predictions about the majority of the tested effects and potential risks. Exceptions are:
- Dependence on mobile phones and the related public debate (see 2.3)
- The mobile phone's importance for making new friends (see 4.1); even though it is not very significant the question seems interesting within this section and regarding future services
- A change in the predictability of social life because of the mobile phone (see 4.5)
- The potential of compensation for face-to-face contact (see 5.1)
- The protection of minors related to mobile phone use (see 7.1 and 7.2)
- Some problems non-users of mobile phones will face (see 12.1 and 12.2)
- Influence of texting on orthography and grammar skills (see 13.1).

Participants connected mobile phone usage to effects that are sociopolitically positive and need to be fostered: strengthening of relationships (see 4.4 and 5.2), family (see 8.2 and 8.3), efficiency and productivity (see 12.2, 12.3, 16.1, 16.2 and 16.4), raising public awareness about data protection (see 14.2, in general see 16.5).

Similar to our previous desk research (and public/media perception analysis), the Delphi survey shows that the experts share some highly critical opinions about the effects of mobile phone use. The main critical issues are:
- High dependence on mobile phones, and addiction as a media topic (see 2 and 3.2)
- Division as to the mobile phone's importance for relationships (see 4.3 and 12.3)
- Lower predictability of social life (see 4.5); (seems important because of dissent among the experts) (see also 19).
- Increase of social pressure because of its importance as driver of communication (see 5.4)
- Children's phone use and protection of minors (see 6 and 7), peer pressure (see 9)
- Cost control and indebtedness (see 10.2 and 10.4)
- Security risks (camera phones and data protection; see 11 and 14)
- Mobile spam (see 15)
- Endangered work/life balance (see 16.2 and 16.3)
- Social consequences of mobile phone use will affect everyday culture but not the telecommunications industry (see 17)

Small issues, big problems? Even though we have to put into perspective a few of the dangers and unwanted side effects, our experts are convinced that some issues will be covered by the media (dependence, addiction, data protection). We assume that this estimation is plausible because the media develop their own logic (i.e., only bad news is news). Issues that are already seen as controversial (because they are already observed) are more likely to be covered and followed by public opinion. There is and will be a gap between objective and subjective perception of mobile phone effects.

The questionnaire concluded with four open questions about the most positive and the most negative effects the mobile phone has and will have on people's lives. In this summary we present the lists of the top three issues for each question (together with the percentage of experts who mentioned them).

Most positive effects the mobile phone has had in the past (see 18.1)
1. connectivity and connectedness (15%)
2. flexibility, efficiency and convenience (15%)
3. security, safety and emergency (14%).

Most positive effects it will have in the near future (see 18.2)
1. connectivity and connectedness (18%)
2. data services (14%)
3. flexibility, efficiency and convenience (14%).

Most negative effects it has had in the past (see 19.1)
1. accessibility and the balance of work and life (25%)
2. privacy, stress and distraction (23%)
3. inappropriate usage (17%).

Most negative effects it will have in the near future (see 19.2)
1. privacy, stress and distraction (39%)
2. accessibility and the balance of work and life (13%)
3. cost and indebtedness (8%).

Beside the fact that already established effects will continue to be important, one can see that positive effects are more widely distributed in the experts' views and that negative effects come to a head more precisely (compare given percentages). In fact, one of the experts' statements is rather conclusive: 'Mobile phones are essentially a fulfilment of a universal need that has always existed!'

Unfortunately, the Asian sample is too small to draw relevant conclusions about this region. Still, it is possible to state that there are no significant differences as to participants' origin or workplace: Americans and Europeans are equally distributed among progressive and conservative views, whereas a certain type of 'cultural critique bias' is slightly visible among German participants; surprisingly, industrial members are equally as critical as academics. Cross-testing showed that self estimated 'higher level' experts tend to change less to the direction of mainstream answers and are more likely to remain with their opinions in the second wave. In general, changes between the first and second wave were not that significant. Despite a certain (methodologically given) movement towards the mean value of the first wave, changes between the two opposite opinions (unlikely vs. likely) were minimal. Where such a change exceeded five percent of the experts, this is mentioned in the report.

Demographics of sample

Gender

Percentage	Wave 1 (n=153)	Wave 2 (n=117)
Female	22.9	23.1
Male	77.1	76.9

Age

Percentage	Wave 1 (n=146)	Wave 2 (n=116)
20-29	6.2	6.0
30-39	39.7	38.8
40-49	28.8	27.6
50-59	19.9	21.6
60+	5.5	6.0

Origin

Percentage	Wave 1 (n=153)	Wave 2 (n=117)
Europe	75.8	76.1
North America	18.3	17.1
Asia/Oceania	5.9	6.8

Europe: Germany (23%), UK (13%), Finland (8%), Norway (7%), Switzerland (7%), Austria (3%), Spain (3%), Denmark, Netherlands, Romania, Sweden, Hungary, Italy, France, Israel
North America: USA (16%), Canada (2%)
Asia/Oceania: Japan (2%), Korea, Singapore, Hong Kong, Australia, Phillipines

Workplace

Percentage	Wave 1 (n=153)	Wave 2 (n=117)
University/ College	51.0	52.1
Telecom industry	17.0	17.1
Consultancy/ Market research	11.8	10.3
Private research institute	8.5	6.8
Public research institute	6.5	7.7
Other	5.2	6.0

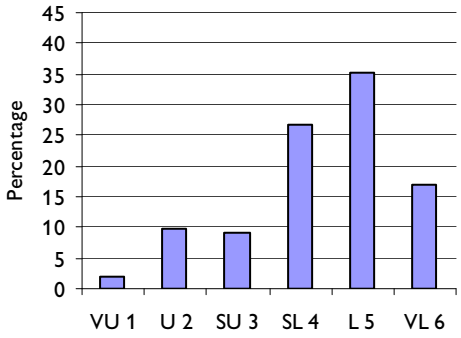
Self-evaluation
How do you rate your expertise on the topics addressed in this questionnaire?

Percentage	Wave 1 (n=146)	Wave 2 (n=113)
Low	4.1	4.4
Medium	28.1	28.3
High	67.8	67.3

1. How likely is it that each of the following will be an important driver of mobile phone usage in the near future?

1.1
Surfing the Mobile Internet (information, entertainment etc)

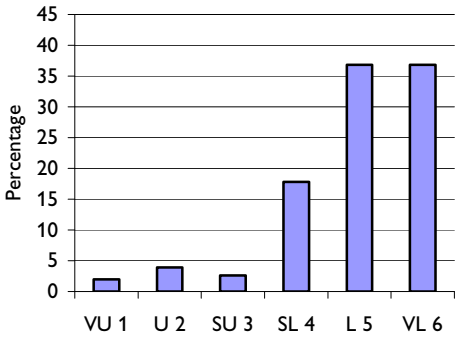
n	153
Mean	4.4
SD	1.3
Ratio	21:79



Accessing the Mobile Internet is not yet clearly seen as a major driver of mobile phone usage (compared to the other drivers). Using the wording of an expert, 'Mobile Internet will not be a driver in the next 2-3 years as it will still be slow, inconvenient and very expensive'. But it has the potential to become a driver in the longer run (as it already is in Asia). As soon as the mobile phone gets other technical capabilities (like a more precise location awareness) information gathering of different kinds could be a widely used application (mobile commerce was mentioned in this context as well). The significance of this driver will largely depend 'upon the degree to which the services offered meet the mobile lifestyle'.

1.2
Downloads (games, ringtones, music etc)

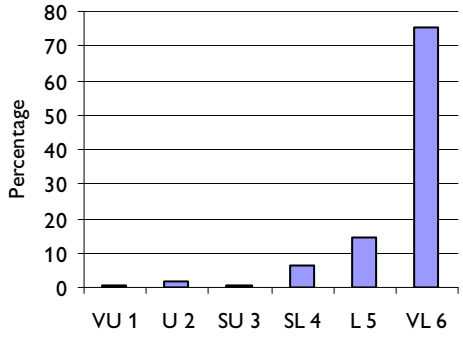
n	152
Mean	4.9
SD	1.2
Ratio	9:91



Downloads are already an important driver, especially among young people (ringtones, pictures and music, although the latter is not an important driver yet). Our experts predict that it will be even more important in the next two or three years. Like the ringtone example indicates, all of these drivers 'will depend on market segments', their symbolic value and cultural backgrounds. Gaming may become a key driver as well because 'people like to kill time and be entertained'. Another respondent points out that downloads are a given and therefore not a driver but already a checklist item.

1.3
Voice communication

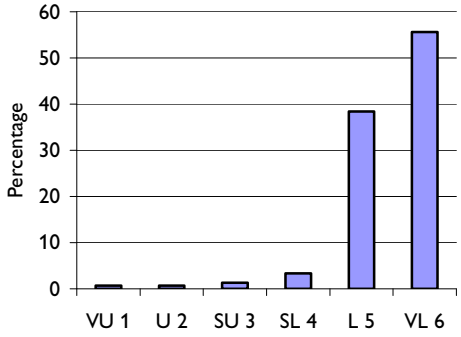
n	151
Mean	5.6
SD	0.9
Ratio	3:97



Experts estimate that voice communication will still be a major driver of mobile phone usage in the near future. One of the respondents objects that 'voice communication will remain constant and thus will not be a driver', another is convinced that 'its strategic importance and revenue growth potential have been overlooked by operators' but that this may change.

1.4
Text and picture messaging

n	151
Mean	5.5
SD	0.8
Ratio	3:97

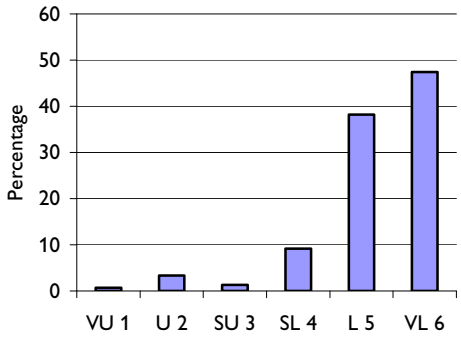


Voice communication's importance is followed by messaging services. Because it is mainly text messaging that is used so far in the Western hemisphere and because the two forms of messaging 'are, and will remain, being used differently', they should have been unbundled. Some experts pointed out that they would give a 'very likely' for text messaging and a 'somewhat likely' for picture messaging. Nevertheless our survey indicates that people-to-people communication is seen as the main driver of mobile phone usage (because voice and messaging 'will stay the main most used applications and are so well embedded in daily practices, they do not drive a change' anymore). One of the respondents stated 'that sense of community, family and security will also drive mobile phone usage'.

2. How much will users depend on their mobile phones?

2.1
If the mobile phone gets lost or stolen, it will affect the user's daily life a great deal

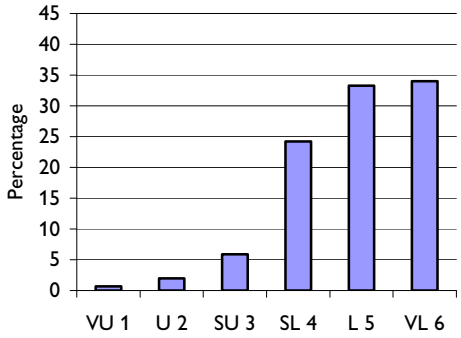
n	152
Mean	5.2
SD	1.0
Ratio	5:95



Even though a few experts claimed that there will be backup solutions for personal data stored in mobile phones, the opinion dominates that it really is affecting people's lives if they are separated from their mobile phone (and the data like contacts, messages, photos it carries). One expert's quote ('I think we should not overestimate dependency as it relates to objects.') can be partly refuted because there seems to be more than just a 'material object' involved.

2.2
Dependence on mobile phones will increase dramatically

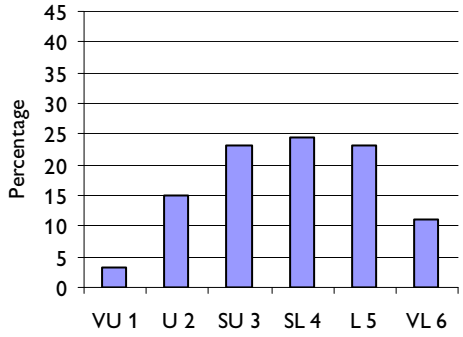
n	153
Mean	4.9
SD	1.0
Ratio	8:92



The device will become more and more important. This can be seen in the increasing dependence that is predicted by the Delphi participants. A few experts point out that dependence will not increase much more as people already depend a great deal on their mobile phones (developing countries, where adoption started only recently, are excluded from these objections).

2.3
Dependence on mobile phones will lead to a public debate

n	152
Mean	3.8
SD	1.3
Ratio	41:59



The expert sample is undecided as to whether dependence on a technological device will mobilise the broad public. It is finally a question of people's awareness of what kind of issue this will be in the future. According to one participant, 'the public debate depends on transparency regarding health risks and social status of the mobile phone'.

2.4
Why is (isn't) this dependence problematic?

Most experts do not acknowledge that people's dependence on mobile phones is problematic, as long as it is defined as reliance (and not as some psychological dependence or addiction). The idea of 'dependence' sometimes implies a negative effect, with which the participants do not necessarily agree. Dependence should not be seen in a functional but in a rather symbolic sense: It is a dependence upon communication and on the symbolic value of the mobile phone. Or with the words of one respondent: Losing a mobile phone is like setting on fire a set of business cards and phone numbers.

The situation in Japan clearly shows that the mobile device has become an 'essential' part of users' daily lives, however, they do not view this as dependence. All over the world, dependence, in the sense of reliance, is already given for a large number of people. Because it is generally accepted, people do not seem to regard it as a threat. It might be problematic if (published) evidence of health risks existed. But there are other restrictions seen by some experts as well: 'The dependence is problematic, in my view, because of the link between mobile devices and identity.' Or, because the social 'glue' is connected to presence and to a large extent to geographical constraints. If these become weakened, at the same time social networks will become less traceable and recognisable. And related to the previous objection: 'It has already become obvious that mobiles reduce our ability to be alone and reduce the level of social integration we have with those in our immediate proximity. What remains to be seen is whether we will devise alternative venues for social closeness.' Few experts acknowledge a further cause of stress and the 'shrinking' of personal time. In the words of one participant, one can state that 'problematic dependency might be better characterised as not so much our own dependence on our own phones, but on what will inevitably be a growing expectation that other people are always accessible.' In general, there are issues related to dependence that might be problematic for each individual but, not problematic on a societal scale. Another point can be seen in geographical differences: 'Underlying this question of depend-

ence is the relationship between individualism and sociality which is culturally specific.'

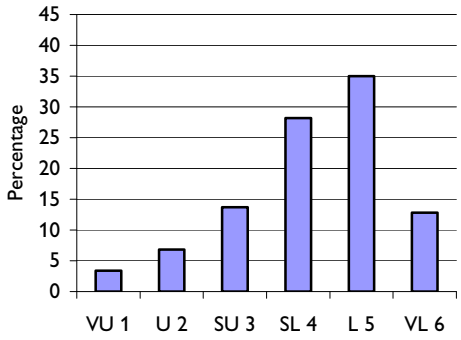
May dependence on mobile phones become problematic, 'but only because we have not found socially acceptable ways of dealing with mobiles' yet? While some experts state that dependence is already accepted by users and that it is 'no issue for a public debate', very few sense the lack of debate as problematic: 'It is unfortunate that we have so little discussion and decision-making about the introduction and infusion of new technologies into our social and professional lives.' When such a debate arises, it usually concerns specific uses, such as using while driving, ringing phones in inappropriate places, teenager's use of mobile phones etc, and not so much the dependence as such. Let us therefore conclude with the following statement: 'People are already very dependent on technologies – mobile phones, transportation, central heating, you name it – and the discussion is almost non existent. Why expect this to change?'

3. To what extent will mobile phone addiction be a genuine problem?

Addiction is a severe form of dependence, usually marked by physical and emotional dependence. If the addicted user is separated from his or her mobile phone, this may even lead to hypochondria, anxiety and insomnia.

3.1 ()
Mobile phone addiction will only affect very few people

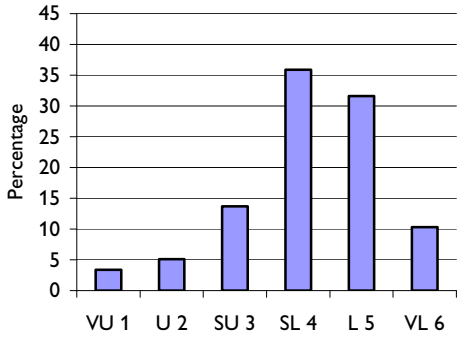
n	117
Mean	4.2
SD	1.2
Ratio	24:76



Even though we tried to define addiction in a appropriate manner (see above), some participants criticised our definition and stated that it is difficult to separate addiction from dependence. One expert made clear that 'addiction is a clinical condition, dependence is not.' The question would 'assume that there is such a thing as mobile addiction' and would 'portray an impending crisis which does not exist, even though understanding the psychology of mobile attitudes is very important'. A related question was quoted by one of the respondents: 'Is it the phone that is the problem or is the phone an extension of psychological problems?' In Japan it is already an issue (i.e., costs re i-mode packet bill, prostitution, etc) and it could become one in the Western world as well because of the same implications (i.e., 'extended usage can become disproportionally expensive'). It 'will play out differently in different cultural contexts.' Or, as another expert stated, 'the mobile phone becomes the scapegoat for larger issues about decay in society'.

3.2 ()
Mobile phone addiction will lead to a debate in the media

n	117
Mean	4.2
SD	1.2
Ratio	22:78



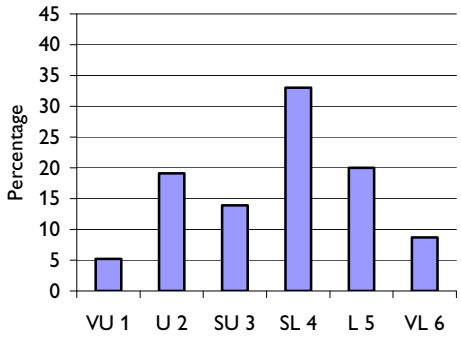
Because it is a controversial issue, the participants agree that it is likely that the media will cover mobile phone addiction. In the second wave of the survey, six percent of the participants changed their mind and said that it is likely to be covered. A problem affect-

ing not so many people can become a big issue (where 'issue' has to be defined as having media attention). Some experts point out that it is the logic of the media to search and display ambivalent and controversial issues ('perceptions of addiction rather than realities often drive media debates'). One suspects that 'this debate in the media will be relatively short lived'. Another expert is convinced that the 'media debate will not affect the problem.'

4. How will mobile phones determine social relationships in the near future?

4.1 ()
Mobile phones will be important to make new friends

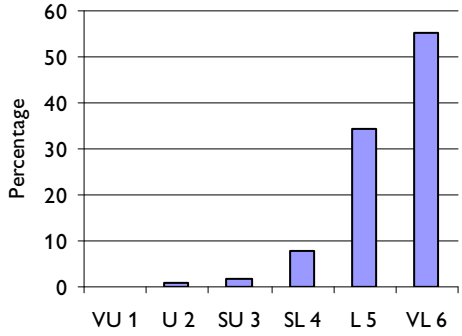
n	115
Mean	3.7
SD	1.4
Ratio	38:62



The experts do not agree on the statement that the mobile phone will be important for making new friends. The question even provoked someone to ask how this should be done, 'by calling people randomly?' There is still no convincing answer to whether the mobile phone will allow us to make new friends, but there is first evidence of an 'exchange of numbers'. There may be potential in offering services like a mobile 'friendster' to get to know friends of your friends as they are in the same bar or club for example.

4.2 ()
Mobile phones will be important to maintain relationships

n	116
Mean	5.4
SD	0.8
Ratio	3:97

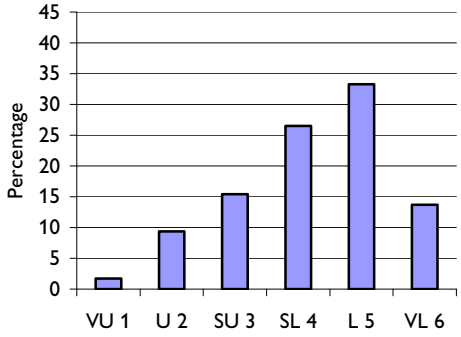


The mobile phone embodies the concept of a mobile way of living that dominates our everyday culture. Because the mobile is 'attached' to its user it allows an easy and always accessible connection to stay in touch with loved ones. 'Research so far has demonstrated that mobile phones are most often used to maintain contact with existing social networks, rather than make entirely new contacts'. Most experts agree with the statement that mobiles are an important means of maintaining relationships.

4.3 ()

People who do not use mobile phones will risk losing contact with mobile phone users

n	117
Mean	4.2
SD	1.2
Ratio	26:74

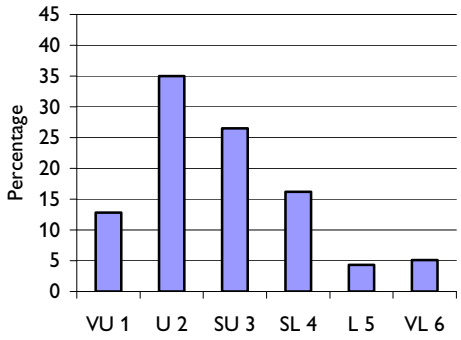


The result after the first wave showed that participants were discordant but that they tend to see it as more likely that non-users of mobile phones risk losing contact with other people. Some of them adjusted their answer in the second wave. According to the experts, it is still likely that possession of a mobile phone will divide the haves and the have-nots in the near future. One expert is convinced that this is 'only true among the young' and if people are not present in other ways (WLAN, landline phones etc).

4.4 ()

Relationships will become more superficial (~less commited) because of the use of mobile phones

n	117
Mean	2.8
SD	1.3
Ratio	74:26

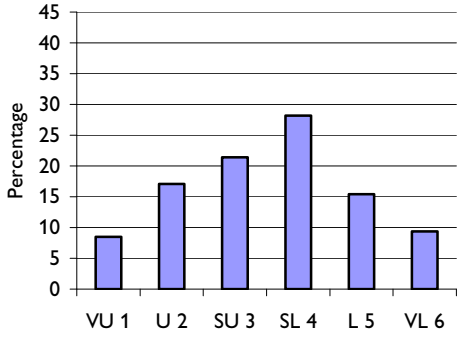


Most respondents do not think that relationships will become more superficial as a result of mobile phones. It is interesting to see that experts who already had an extreme opinion (options 'VU 1' and 'VL 6') tend to stick to their first estimation. It was mentioned again that all of these five scenarios are dependent on age, gender, different cultures and geographic regions: 'The debate will rage on around the lack of sensitivity and impact on social values as consumers withdraw into their devices and ignore the public settings they find themselves in. This is already very apparent in Japan and Korea.' Mobile telephony not only connects people but 'mobile telephonic practices run the risk of forging walled communities within already established social groups'.

4.5 ()

Social life will become less predictable because of the mobile phone

n	117
Mean	3.5
SD	1.4
Ratio	47:53

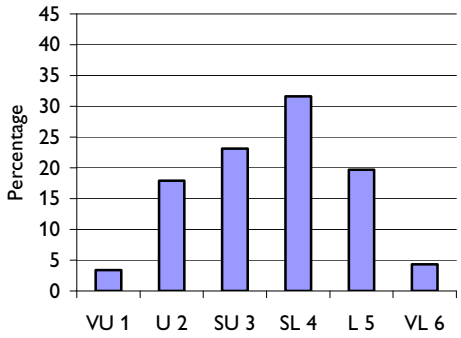


After the first wave of our Delphi survey there was distinct uncertainty among the experts (50 percent unlikely vs. 50 percent likely). This is also shown by the fact that all possible options were chosen significantly. After the second wave it seems to be somewhat likelier that social life may become less predictable because of spontaneous mobile phone use (see ratio). It is acknowledged by experts that mobile phones will increase the flexibility in social life and shorten planning time scales from days to hours or minutes. It was quoted that the mobile 'will allow (and even encourage?) people to be less committal' and that 'social life will become different because of the mobile phone.'

5. How will the mobile phone affect the ways people communicate?

5.1 ()
Mobile phones are going to compensate increasingly for face-to-face contacts

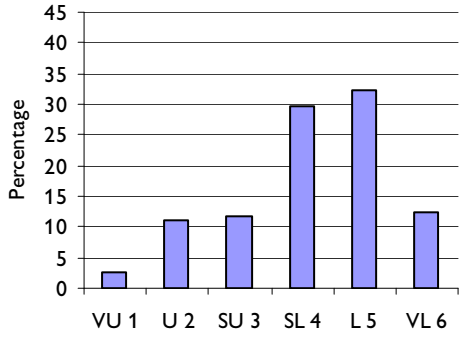
n	117
Mean	3.6
SD	1.2
Ratio	44:56



A similar, wide distribution (of the values on the scale) also appeared in the first-wave answers. There is a slight likeliness that distant communication compensates for direct communication. This effect can not solely be attributed to the mobile phone, and this may explain the experts' answers. According to one respondent, it is more likely that the 'quality of face-to-face contacts may decrease due to the presence of mobile devices (checking incoming mails etc)'. In Japan, 'it has been shown that mobile phone usage increases the instances of personal interactions with friends'. It is a rather widespread opinion that mobiles 'tend to add to and facilitate face-to-face communication, rather than replace it'.

5.2
Because of new services (pictures, video etc) people will spend more time communicating

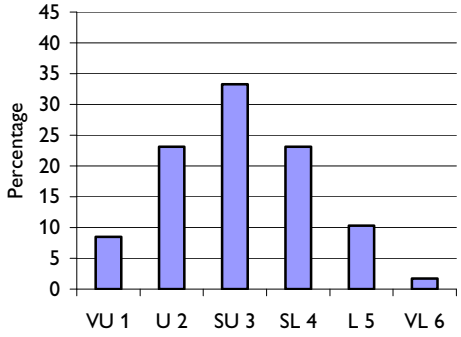
n	152
Mean	4.2
SD	1.3
Ratio	26:74



Three out of four experts in our sample think that there is a likeliness that communication will increase when a new channel is provided. If there are more opportunities to communicate, it is quite certain that people will use them. But as the comparison with the foregoing question shows, these communications will probably not replace established forms of mobile (or even human) interaction. Finally, it is quite obvious that the variety of mobile communication possibilities is growing.

5.3 ()
In mobile communication, pictures will increasingly replace words

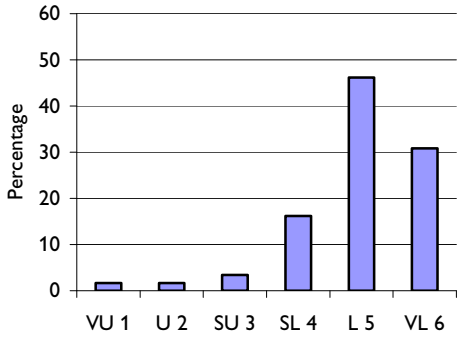
n	117
Mean	3.1
SD	1.2
Ratio	65:35



It seems to be unlikely that pictures will soon replace words in a mobile communication setting. The dominance of spoken and written words will not be broken in the near future (and we assume that it will take longer for pictures to be an important means of serious mobile communication). This is implied in the statements that 'pictures work with text' and that it needs 'special situations, where the picture can replace words or where the context is known'. Picture messaging is still very dependent on its costs as well.

5.4 ()
The social pressure to communicate anytime and anywhere will increase

n	117
Mean	5.0
SD	1.0
Ratio	7:93

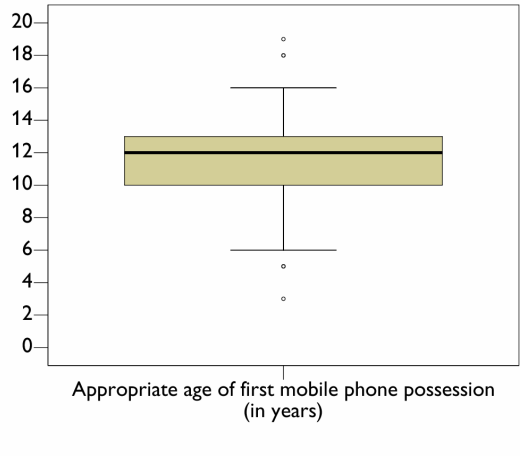


The Delphi participants think that there will be increasing pressure to use the communication facilities provided by the mobile phone. Five percent of the respondents moved from unlikely to likely in the second wave. Current research already shows that instant reaction to mobile communication attempts is expected by some people. Still, it is not known 'if social pressure to communicate with others is a function of age or exacerbated by the technology'. One expert is convinced that 'we will see a more conscious use of mobiles in the near future'. The following statement is connected to this: 'As a non-user of mobile phones I am very conscious of social pressure to be available anytime and anywhere, and have made a lifestyle choice to reject it'.

6. Thinking about children and mobile phones in the near future

6.1
Today, at what age should children get their first mobile phone? Please estimate the appropriate age

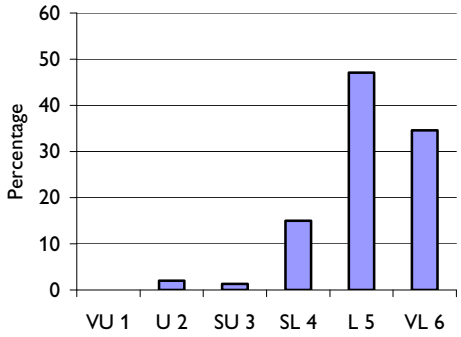
n	141
Mean	11.4 years
SD	3.0 years
Ratio	45:55 (≤10:≥11)



This was the only strictly normative question asked in our survey. We wanted to know what experts consider as the appropriate age to begin mobile phone use. Most experts specify an age between ten and fourteen years. We were surprised how broad the distribution was (the boxplot graphic above shows that it spans between the age of six and sixteen years). The estimation (a mean value of 11.4 years) can be seen as conservative, assuming that a higher age indicates a more conservative view. According to one expert, the appropriate age depends on the functions available. Another respondent answered the question more generally: 'When they earn enough money and have enough media competence to buy and run a mobile phone!'

6.2
The average age of children getting their first mobile phone will get lower

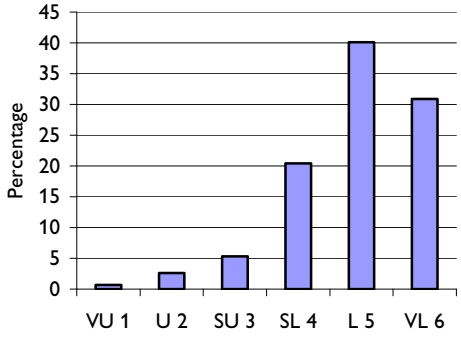
n	153
Mean	5.1
SD	0.8
Ratio	3:97



According to the experts, the average age of first mobile phone possession will drop further. Advantages and disadvantages applied to this development are outlined in question 6.4 and 6.5.

6.3
Children's possession of mobile phones will lead to a debate in the media

n	152
Mean	4.9
SD	1.0
Ratio	9:91



Because there is confirmed probability that children using mobile phones are getting younger, it seems likely to very likely that the public, and especially the media, will cover the issue. One of the experts made clear that 'parental choice should be a primary determinant not government regulation'.

6.4
How do children benefit from mobile phones?

Safety and security are the benefits mentioned most by experts, followed by the ability to stay in touch with parents, family and friends. The potential of being able to communicate in emergencies, or, as one expert said to the point: 'A virtual umbilical cord to parents means a certain sense of security.' Furthermore, to have a phone of their own seems to increase children's independence and allows them to maintain their peer social contacts and broaden their social circle (due to the fact that they have low mobility). Because children can 'contact peers without going through parent-controlled resources like the house phone', it may be possible that the mobile phone 'can facilitate social responsibility'. Less frequently, experts mentioned the possibility of acquiring media expertise, and the mobile phone as a means of learning (the latter applies more to future applications) and entertainment (which is surprisingly mentioned only a very few times).

Two experts objected that the 'answer is culture-dependent, and also dependent upon whether you are speaking from the perspective of the parent or from that of the child.' The difference would be that parents reply with 'safety', while children say 'social connectedness'. The first objection is confirmed by the fact that the 'media debate about mobile phone usage is something that happens already in Finland'.

But there are some rather critical notes as well, like the following: Mobile phones 'give parents/adults a (false?) sense of security.' A statement which doubts the effectiveness of the security aspect. Someone else expressed a similar concern regarding the connectedness aspect, and is therefore 'less convinced that increased/perpetual contact between kids and their friends is as clear-cut a 'good thing' – there seems to be plenty of contact anyway.' Five experts do not see a real benefit for children using mobile phones at all, their arguments span from 'prevents children from being under pressure or excluded from others who already got one' to 'it is just a marketing communicated benefit'.

6.5
How do children suffer from mobile phones?

Potential health hazards and surveillance (with different characteristics) have been mentioned most, followed by cost, responsibilities in general and peer pressure. The health issue (i.e., potential effects from electromagnetic radiation) is still not resolved and advice is for growing children not to use mobile phones, according to one expert. Because of the security issue (seen above as benefit), surveillance and control by parents could increase, and be connected to a loss of privacy and pressure to always stay connected or to be available wherever the child is. Again, with the words of a participant: 'The same virtual umbilical cord could mean decreased assertion of independence.' The independence mentioned above could turn out to be an 'illusion', and 'may lead to a lack of need to use one's own initiative'. There is another issue seen by our experts that can be defined as 'neglecting skills for other communication means'. Mobile phone use, according to some experts, takes time that could be spent conversing or interacting with family. The result of such a displacement may be 'lack of parental mediation in communication' and a 'skewed sense of social communication'. Again, this could lead to difficulties in decision-making, 'loss of social autonomy' and a 'reduced ability to handle difficult situations face-to-face'. The issue of a potentially false sense of personal safety was mentioned again in the answers to this question.

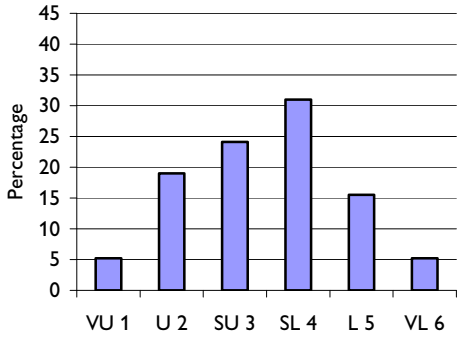
The high cost of mobile communication and children's problems with cost control are seen as further issues. But above all, the children's control over the device itself was mentioned: 'Anxiety, very heavy responsibility for the 9-11 year olds (e.g., loss of phone, forgot it at McDonald's, costs over limit, etc) are seen as an issue and culminated in the following statement: 'My children are simply not ready to take care of a device like that.' There could be other reasons behind such an assumption. Distraction, 'more stress and less concentration' because of the mobile phone have been mentioned as suffering. Additionally, 'issues of bullying that are not visible to others' are seen as a threat to children, because the mobile phone 'leaves them open to the harassment of others'. Some experts mentioned the peer-group pressure to have the latest device or possible 'damage to children's self-esteem if they do not have as many friends to communicate with as peers do'. Finally, third generation mobile phones 'present lots of new issues re internet, access to inappropriate content etc.' Usually connected with children's or young people's use of mobile phones is a tendency to addiction (although this was mentioned only a few times). In all these aspects where children may suffer from mobile phone use 'it is cultural practices around the phone that are the issues not the phones themselves'.

There are only few experts who completely deny issues where children may suffer. One opinion was that they suffer 'more by not having one...' One rather mediating statement read: 'But, in general, children gain, as everyone else from sensible uses of mobiles.' Let us conclude with the two most extreme statements found for this open-ended question: 'Just for the discussion I'd like to state: below 16 [years of age] mobile phones should be forbidden by law.' and 'They live in a multitasking and multinetwork world, and there is no evidence that they do suffer.'

7. Anyone can access adult content (such as porn or gambling) with a mobile phone. What will this mean for the protection of minors?

7.1 ()
The mobile phone will erode the protection of minors

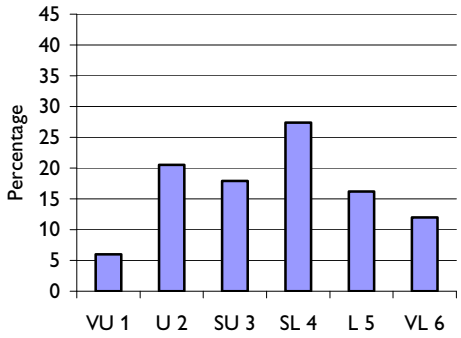
n	116
Mean	3.5
SD	1.3
Ratio	48:52



High peaks in the centre of the scale point to the fact that the experts are undecided as to whether minors' protection will be undermined by mobile phone use. The answers were almost equally distributed after the first wave (ratio 51:49) and changed slightly during the second wave of the survey. It can be rated as a highly controversial issue. This may have to do with a different understanding of the 'protection of minors' among the Delphi participants. According to one respondent, 'access to adult content is limited by the network operator's mutual agreement, so the actual statement in this [the title's] question is false'. Some experts claim that 'technical filters will be needed' but others are unsure 'if we would be able to regulate what gets transmitted from phone to phone.' The worst fear is seen in 'unsolicited porn (spam) showing up on a child's mobile phone.'

7.2 ()
We will need stronger legal regulation on minors' use of the mobile phone

n	117
Mean	3.6
SD	1.4
Ratio	44:56



The same can be stated for this statement where there is significant uncertainty as to whether we need stronger legal regulation on the matter. A few respondents are convinced that we will get more regulation but that stronger legal regulation 'will not help much' (as seen in 7.1). One expert believes that 'network operators will be forced to take legal responsibility for the content (of images) transmitted on their networks.' The solution, according to two experts, is parental control, not legal limitations, and teaching

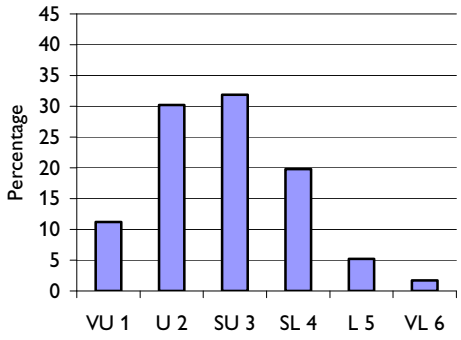
media competence is more important than regulation. Finally, some experts would agree with the statement that 'porn and gambling are regulation-resistant because there are so many sources to control and regulation is completely fictitious.'

8. How will the mobile phone affect family relationships in the near future?

8.1 ()

Because parents don't know what their children are doing with their mobile phone, they will lose authority

n	116
Mean	2.8
SD	1.1
Ratio	73:27

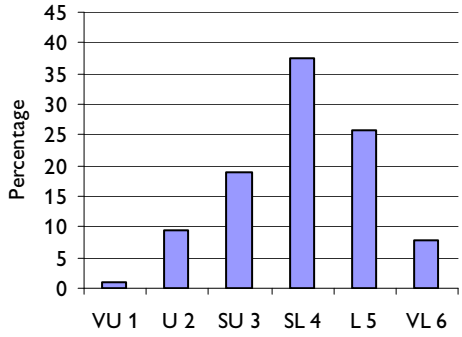


There is sparse dissent among experts but in general they negate our statement that parents will lose authority because of children's uncontrolled mobile phone use. This is even more unlikely after the second wave (plus seven percent). Still, 25 percent believe that such usage is somehow likely to have an influence on families. At the same time, participants' remarks indicate that this issue, as well as the two following, is dependent on context, like relationships and social practices within each individual family, and on the specific culture in place; thus, problems are not caused solely by the presence of the mobile phone. There is evidence that 'parents use the mobile, and prepaid or pay-as-you-go vouchers in particular, as a reward or punishment tool for their children'.

8.2 ()

Thanks to the mobile phone people will feel closer (more intimate) to their family members

n	117
Mean	4.0
SD	1.1
Ratio	29:71

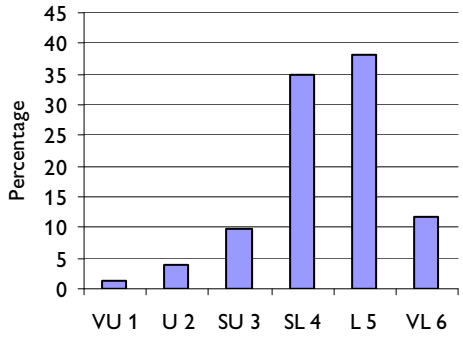


It is in some way surprising to see that family bonds are not seen to be strengthened by intense contact over distance. One may interpret this to mean that family bonds are still strong enough or that face-to-face contact is more valuable than mediated interaction. The mobile phone may allow people to keep in touch more often, but according to a few experts, 'this will not make the relationship more intimate or closer because it does not replace physical closeness'. Again, 'it depends on the kind of contact, the context, content and purpose of communication'. In the second wave an expert changed his mind

from 4 to 5 (and explained), 'although the intimacy is a bit luke-warm, it is still better than no connection'. Is it the phone that is the problem or is the phone an extension of cultural changes and changes in value systems in particular?

8.3
In families, the mobile phone will be used as a means of social control and surveillance

n	152
Mean	4.4
SD	1.0
Ratio	15:85

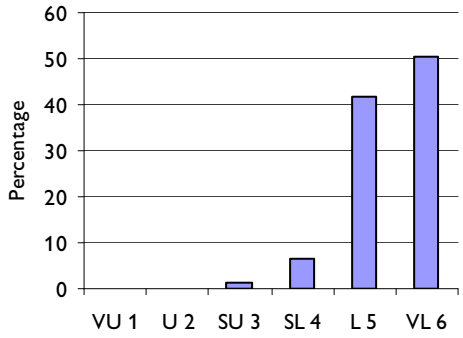


The phenomenon shown here is Janus-faced: Where there is a likelihood of closer relations, there is the same likelihood of control and surveillance. Children like the mobile phone because they can call their friends away from parental ears (statement 8.1 pointed to this), but it also allows parents to call them anytime, anywhere. Even surveillance can have a positive connotation, as long as parents can assure themselves that their children are alright and not in any danger. Some experts point out that 'children already have strategies to avoid surveillance'. It can be seen as 'a typical trade-off situation, you get more control but you also lose some'. One expert explained that 'children must have the possibility to do things without surveillance.'

9. In the near future there may be peer pressure among teenagers to have the latest device and to use new services (e.g. games, ringtones, video)

9.1
The mobile phone will be important for teenagers to display their own lifestyle

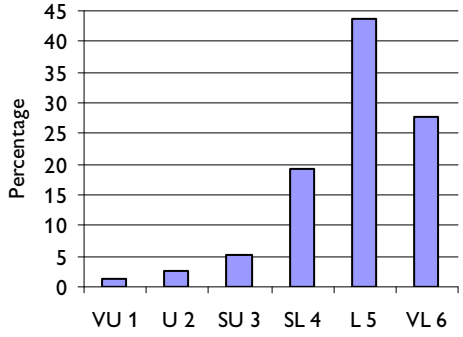
n	153
Mean	5.4
SD	0.7
Ratio	1:99



The chart for this statement shows strong evidence that the mobile phone is more than a means of person-to-person communication. Even though the answers are related to teenager usage, the question of taste and environment of usage determine what kind of phone a person possesses and what kind of abilities or services are used ('symbolic value'). In many places and for some years now, it is true to say that 'the mobile phone is already an important part of a teenager's identity', but it is dependent on culture as well: 'American teenagers are far less likely to see their phones as a reflection of themselves than are teens in Europe or Asia.' It looks as if 'the phone is the fashion item rather than the services or contents.'

9.2
New services and contents will put pressure on teenagers to use them

n	151
Mean	4.9
SD	1.1
Ratio	9:91



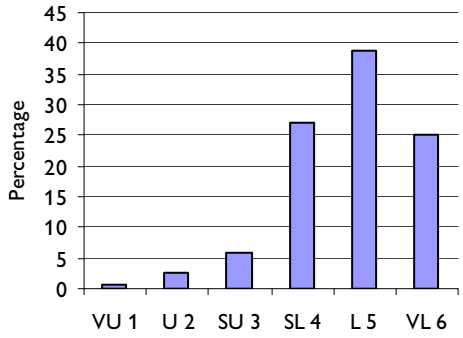
The widespread use of ringtones and wallpapers already indicates that the ability to use a certain service leads to strong usage. Services which are able to make the phone more unique and personal are especially seen as important drivers. In the near future it is likely this finding will apply to pictures, music and games. 'My phone is better than yours' could be an expression that leads back to the statement above. One expert points out that it is less likely 'that new services directly put pressure on teenagers to use them' although it is probable that they attract usage and evoke pressure among peers. Usually these fac-

tors will 'be tempered by the negotiation of economic cost (especially with parents), and also by the role of novelty in the expression of identity.'

10. Very intensive mobile phone use may lead to indebtedness. How likely are the following statements to happen in the near future?

10.1
The amount of money spent for mobile phone use will increase

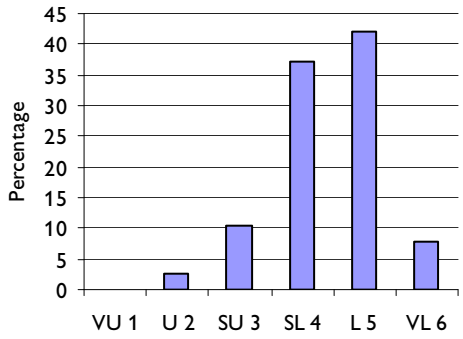
n	152
Mean	4.8
SD	1.0
Ratio	9:91



As stated on the issue of mobile phone addiction, indebtedness related to intense mobile phone use is probably ambivalent and the two are connected in a certain way. It is definitely likely that spending on mobile phone use will increase in the near future, according to experts. And 'the main reason will be that even more of the activities of daily life will take place over some mobile communication device.' Higher costs will be connected to more extensive uses.

10.2 ()
An increasing number of people will spend more money on mobile phone use than their budget allows

n	116
Mean	4.4
SD	0.9
Ratio	13:87

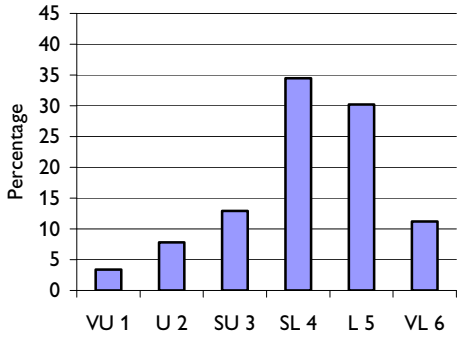


Compared with the outcome that only few people will develop some kind of addiction (see 3.1) it is somehow surprising that little cost control will be in place in the near future. Fifty percent of the experts estimate a medium or strong likelihood that this will be the case. On the other hand, it may soon happen 'that the expense for mobiles will be considered a necessity rather than a luxury' and that 'families prioritise these costs in their budgets' (this also happened to automobiles and televisions). 'People are much more aware of how much they spend on their mobile phone than on other household and personal expenditure.' This aspect is dependent on culture and development: 'There is a big difference between the UK and the Philippines.' As a social practice, debt is part of life and is not peculiar to mobile phones. A comparable objection is that using a mo-

bile phone is a bit like using a credit card, and that the user must be responsible and needs to know the limits. It was mentioned that 'kids often do not spend their own money'.

10.3 ()
The main reason for people's problems with cost control will be unclear tariffs or pricing plans

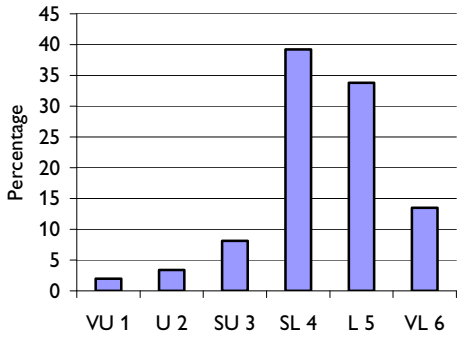
n	116
Mean	4.1
SD	1.2
Ratio	24:76



In the second wave of the Delphi survey it became more clear that operators' pricing plans pose a certain threat to people's cost control (plus five percent). But it is still a controversial issue and therefore difficult to deduce instructions for action. According to some experts, prepaid or pay-as-you-go options (or specific family plans) will decrease the risk of losing cost control. Additionally, consumers seem to be more sophisticated, 'changing tariff and pricing plans relatively frequently to establish what works for their call usage.' According to one expert, today's 'intelligence of billing systems allows operators to monitor usage, and increasingly, allows users to control usage.' Because 'pricing strategies will more and more move towards flat rates' it will facilitate users' calculations. 'Flat rates or simple minute budgets cause less financial surprises than highly differentiated pricing schemes.' One respondent assumes that 'overusers will overuse however clear the pricing plans are made', another thinks that at least in the US 'cell phone pricing plans may be in part federally regulated' in the near future. Service providers (who offer ringtones etc) with unclear cost policies and paid subscription offers are mentioned as well. Someone concluded that 'the ultimate reason for people's problems with cost control will be the state/industry's failure to facilitate cheap mobiles and service costs'.

10.4
Consumer protectionists will increasingly address indebtedness

n	148
Mean	4.4
SD	1.1
Ratio	14:86



Consumer protectionists are already criticising prices for mobile phone usage (especially for text messaging). The participants see average probability that this may increase in the

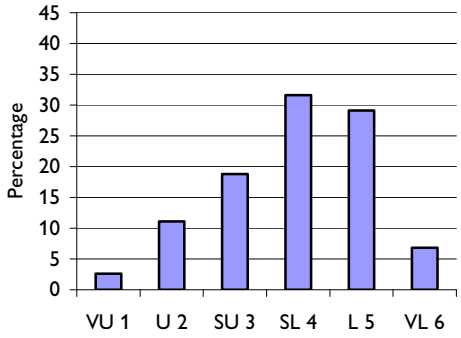
near future (probably due to new services and their pricing). One expert points out that this kind of indebtedness is 'a problem of the lower classes', and that these problems never find much real attention in the public debate. Another respondent quotes that 'there is insufficient attention by consumer protectionists to issues of 'purposeful price confusion' by service providers'.

11. What will be the impact of camera phones?

The number of phones with built-in cameras is rapidly increasing. Bans of their use in changing rooms and on company sites are already in place. How likely are the following to happen in the near future?

11.1 ()
Camera phones will invade people's privacy substantially

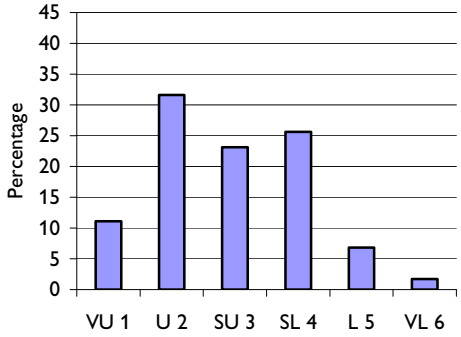
n	117
Mean	3.9
SD	1.2
Ratio	32:68



According to two third of the experts, camera phones may pose a threat to people's privacy in the near future. They will probably continue to gain in popularity but will not be at the centre of public debate. Findings among young Norwegians indicate that most likely, people do tend to behave according to accepted behaviour when they take photos. Therefore, 'camera phones will invade a few people's privacy intensely but there will not be widespread invasion of privacy'. Use/misuse of camera phones will be dependent on the culture in a specific society: In Japan there are already issues of concern (mostly around porn and copyright violations) visible.

11.2 ()
People will rediscover their surroundings and esteem their environment because of camera phone use

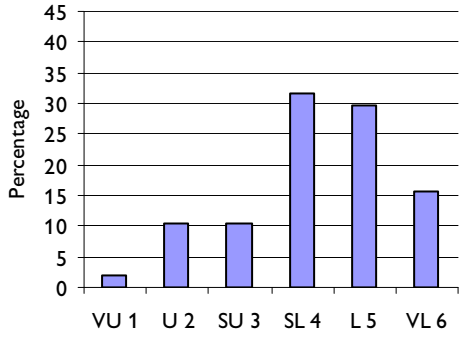
n	117
Mean	2.9
SD	1.2
Ratio	66:34



We assumed a positive effect of camera phones through the change of the definition of picture-worthy (Mizuko Ito). But more than sixty percent of our (mainly Western) experts do not see such a positively verbalised effect in the near future. One objects that it depends on the quality of the cameras. But mainly, expert's comments indicate that they 'see little connection between having a camera phone and one's appreciation for the environment.' The 'esteem of our personal surroundings is dependent on other factors than the use of camera phones'. 'People will rather use pictures increasingly to communicate about fashion, share time-tables etc.'

11.3
Governments will legislate against misuse of camera phones

n	152
Mean	4.2
SD	1.3
Ratio	23:77

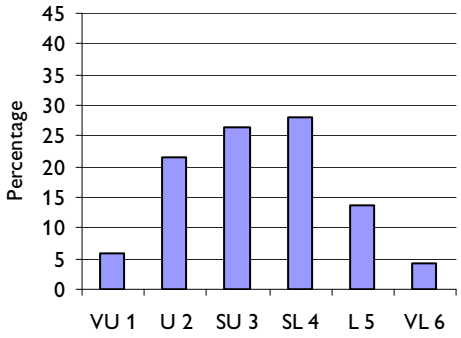


There is huge consent among the experts that if camera phones are massively misused legislation will be necessary. Less than a fourth of the experts are saying that such a scenario is unlikely. 'The Data Protection Agency in Italy has already legislated against the misuse of camera phones.' Similarly it has already lead to legislation in the US but after all, legislation seems more likely to happen in Europe. One respondent adds that it could be handled similar to smoking, others object that it is unlikely that many governments will legislate for this (also because it is difficult to enforce), and that it is more likely that 'control will happen at the organisational, local level (in individual buildings and facilities).' An exception can be seen in the 'moves by some governments requiring a shutter click on camera phones'.

12. What are the problems non-users of mobile phones are going to face?

12.1 ()
Information deficit

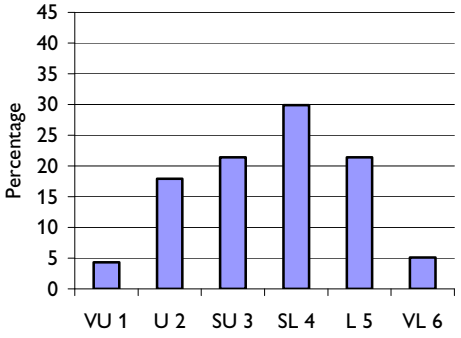
n	117
Mean	3.4
SD	1.2
Ratio	54:46



The Delphi participants are (slightly) undecided as to whether non-users of mobile phones will be confronted with an information deficit. The statement presumes that more and more information gathering will take place via mobile devices (this will probably not be the case in the near future, according to the experts). In general, experts do not seem to pay too much attention to the phone as a source of information ('because people always will have an (additional) online access via PC'). But, 'the mobile phone will very likely eliminate the information divide in due time' (because they are affordable, portable and can be bought second hand as in many developing countries). The problems that non-users 'may encounter may be much more about their social relations than a lack of information.' There is some connection between this and another expert's opinion: 'One should not underestimate the informational effect coming from spontaneous and flexible use of a device that offers access to sources or coordination with others.'

12.2 ()
Limitation of mobility

n	117
Mean	3.6
SD	1.3
Ratio	44:56

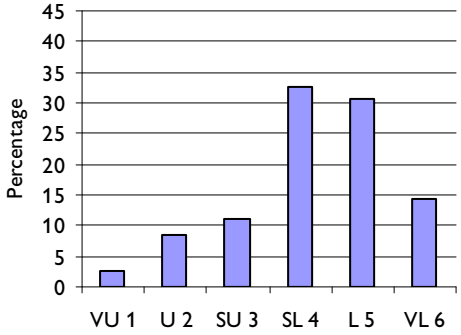


It seemed likely that not having a mobile phone could limit people's mobility. But similar to the previous statement, experts are undecided. This could be because non-users are not so detached from physical sources of information. Usually, 'non-users have strategies for not having a mobile phone, it is more likely to be a conscious decision not to have a

mobile.' How much this is a cultural issue is showed by one expert's opinion: 'In the US, I do not foresee mobiles becoming the necessity they seem to have become in Europe or Asia.' One respondent has drawn the following conclusion in the second wave: 'It is interesting that I found myself thinking, the core value of mobile phones is not the mobility' (see also 16.1).

12.3 ()
Problems coordinating everyday life

n	117
Mean	4.2
SD	1.2
Ratio	22:78

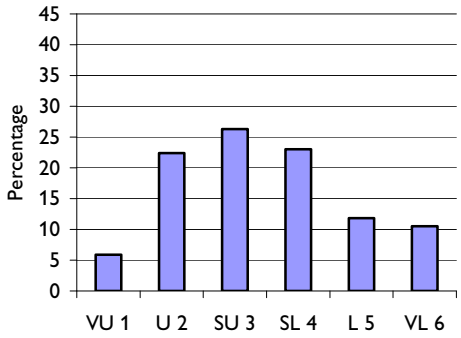


The detachment of the mobile phone user, in contrast to the non-user, is clearly shown by the significant likeliness of problems with planning and coordination with other people's lives. Taking into account that so many contacts already occur on mobile communications, it does not seem unrealistic that non-users 'may not be able to do as many things simultaneously, which in not necessarily bad.' According to respondents, not having a mobile phone in future should not be more of a problem than it is now. The second wave revealed the following statement, used as a conclusion to this issue: 'People who choose not to have a mobile have already alternative ways of solving these needs, and may be even more mobile since they will not care if there is coverage or not.'

13. How will mobile text messaging affect writing and literacy?

13.1
It will worsen young people's orthography and grammar skills

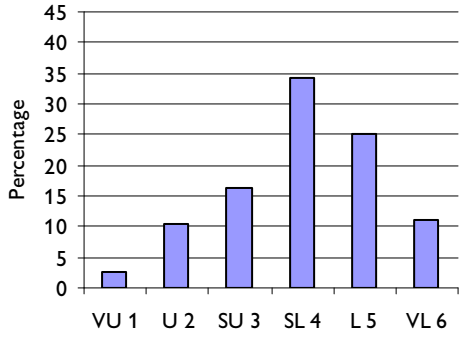
n	152
Mean	3.4
SD	1.4
Ratio	55:45



This issue brought up by the specific language of young people's text messages is finally not so easy to prove. Our experts think that it is rather unlikely that the use of such a language will worsen young people's literacy skills. One expert suggests 'that text messaging provides a creative means of expression that may disregard conventional grammar and is more closely associated with oral/aural language (as opposed to written language)'. Another expert objects 'that with mobile phone use so pervasive in the developed world, we would have seen some of this already occurring, and we have not.'

13.2
Mobile phone language will change standard language

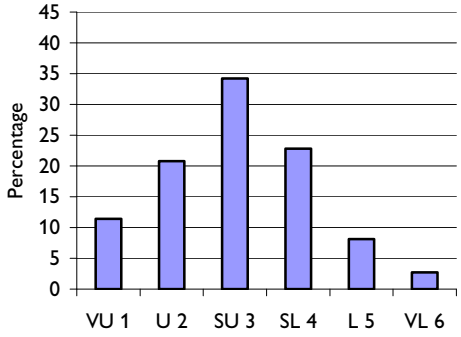
n	152
Mean	4.0
SD	1.2
Ratio	30:70



It seems likely that a new mobile language, which is adjusted to the device (small amount of characters, poor typing interface) and the lifestyle of their user, will interfere with standard language. Seventy percent of our experts agree that it is in any way likely. What consequences such a change may have is another question. However, such a change does not need to have solely negative impacts (as suggested and denied in the question above). Languages change for all kinds of reasons, therefore it is 'very likely, but it will not have a high impact'. Experts are not worried about such a change because languages, 'in order to be relevant to cultures, need to evolve, change and transform'.

13.3
Through mobile messaging near-illiterate population groups will be reintroduced to literacy

n	149
Mean	3.0
SD	1.2
Ratio	66:34



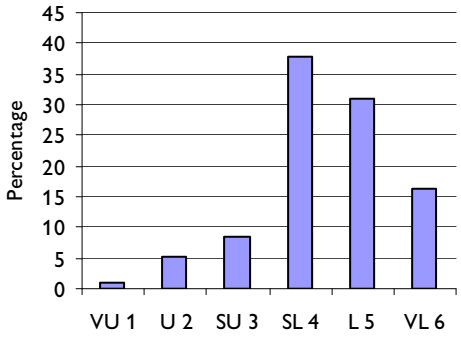
The rather extraordinary hypothesis implied in this question is not thought to be true, nor will it have an impact in the near future. Nevertheless there is a slight chance that the mobile phone may have unexpected impacts of that kind in a more remote future (more than thirty percent of the experts estimate such a scenario as likely in some way). Text messaging 'gives people an incentive to write and formulate their ideas, so in places with a low literacy rate, it may even boost literacy.'

14. Mobile phone use leaves data traces (e.g. shopping, downloads). How likely are the following to happen in the near future?

Personal data is defined as person-related information (such as identity, location, consumer habits, contacts etc), which allows that an individual can be identified from it.

14.1 ()
People will lose control over their personal data

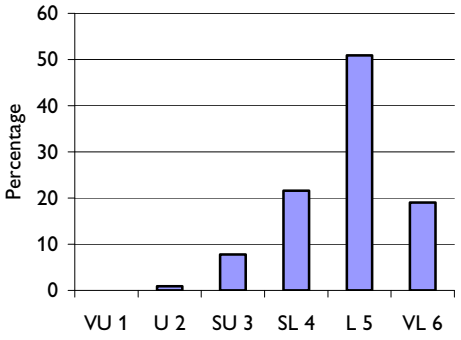
n	116
Mean	4.4
SD	1.1
Ratio	15:85



Data protection is a highly important issue with mobile devices. Our respondents obviously predict that it is likely for mobile phone users to lose direct control over their personal data (plus six percent during the second wave). 'Many companies so-called privacy policies outline exactly how individuals sign away many of their rights to control over their data.' This can be contrasted with another expert's notice: 'People give away a lot of personal information if you offer them bonus or incentives.' According to one respondent, most of our personal data is not as important as we think it is. It is even possible that the mobile phone may shift what is considered private.

14.2 ()
Misuse of personal data will lead to a public debate

n	116
Mean	4.8
SD	0.9
Ratio	9:91

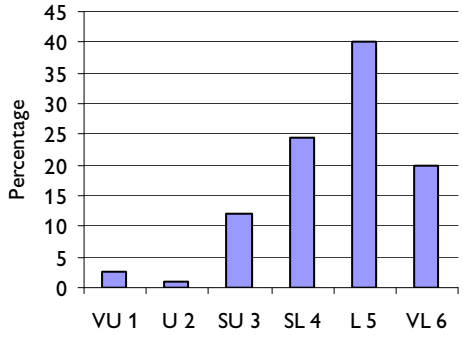


Therefore it seems likely that a new system (of gathering and organising information) will lead to debates, according to the Delphi participants. On the one hand, there are and will be debates about misuse of personal data, but on the other hand, where the media is controlled by corporations which directly benefit from this technology (like in the US), 'free and open debate about these issues is slow and uncommon'. There is another issue which rather hinders debate: 'Users are beginning to be aware of privacy concerns on the Internet, but I think awareness of issues related to the mobile lags behind.' 'People

are not technologically astute or interested enough to do anything about it until something happens.'

14.3 ()
We will need stronger legal regulation on this matter

n	115
Mean	4.6
SD	1.1
Ratio	16:84

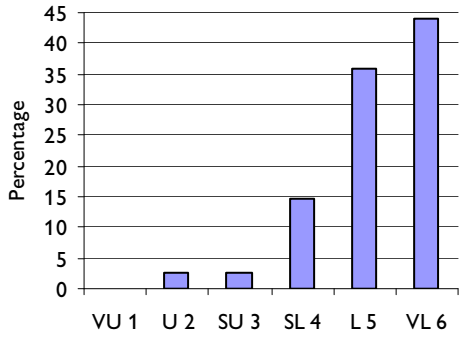


As soon as a new condition builds awareness for its impacts and is reflected as potentially dangerous (like identity theft, which seems to be becoming an even bigger issue in the US), people may ask for stronger legal regulation. Even though regulation of many kinds already exists, there is high probability of such a thing happening: 'We will need stronger legal regulation mandating privacy', and 'we will get stronger regulation'. Legal regulation will strengthen service providers' obligations to make personal data collection an opt-in activity. It is obvious that regulation is dependent on countries and markets: In Germany (and other parts of Europe) legal regulation is sufficient but needs to be controlled. In general, regulation in Europe is already more strict than in the US. This leads experts to demand stronger privacy laws. But there are rather critical voices as well: 'New regulation is more likely to allow governments to use person-related information than to protect individuals.'

15. To what extent will spam (unsolicited messages) be a problem for mobile phone users?

15.1
Spam on mobile phones will increase remarkably

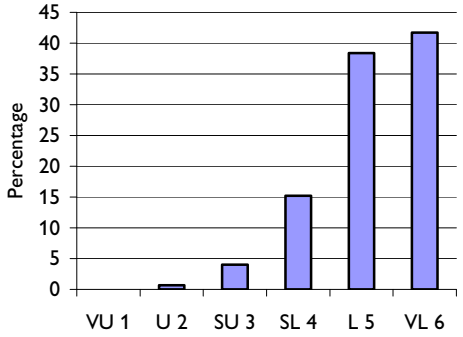
n	150
Mean	5.2
SD	1.0
Ratio	5:95



Spam is not a new phenomenon on mobiles but volumes remain low compared to computer-based e-mail. In Asian countries like Japan where mobile messages substituted e-mail from the beginning, it is already an issue operators had to react to. Not only our panel of experts but most wireless security experts expect spammers to begin attacking mobile phones in Europe and the US in the near future. There is no doubt among Delphi participants that unwanted messages will increase in number: 'I get unsolicited text messages at least twice a week, still limited to new mobile phone offers, but I am sure mobile Viagra is on its way.'

15.2
Mobile spam will lead to a debate in the media

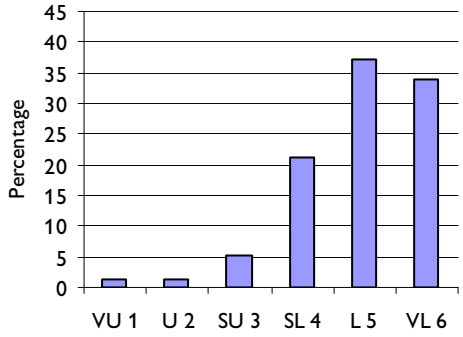
n	151
Mean	5.2
SD	0.9
Ratio	5:95



The media have already covered computer-based spam a lot, even governmental institutions deal with the matter. Our participants predict that mobile spam will likewise lead to a media debate but the impact will be low because of previous debates. According to a respondent, a debate about spam voice calls could be more likely in the US because some customers are charged for incoming calls.

15.3
Technological solutions (filters) will develop to keep mobile spam under control

n	151
Mean	4.9
SD	1.0
Ratio	8:92

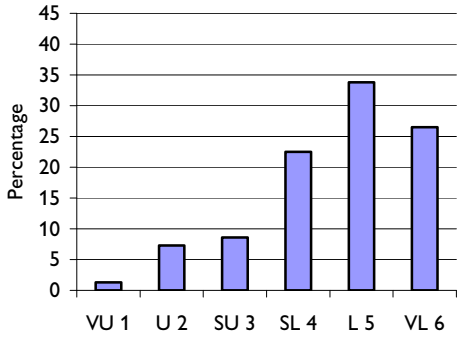


The industry will have to develop a solution in order to keep its customers satisfied. The results for this question indicate that there will be a technological solution to keep unwanted messages under control. But the effectiveness of such technologies is questionable: 'The real fixes will be legal and social because spammers adapt to tech fixes.' As 'markets change faster than social norms, and spam is a market-based phenomenon', another expert even questions the effectiveness of alternate fixes. After years with e-mail spam 'we might be better prepared'. It was also mentioned that 'pricing systems associated with mobile phones probably prevent spamming to some degree'.

16. Life, leisure and mobility. How likely are the following to happen in the near future?

16.1
The mobile phone will increase mobility

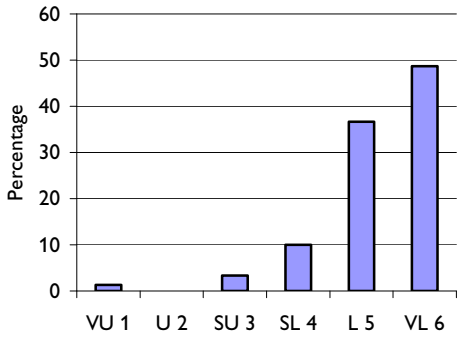
n	151
Mean	4.6
SD	1.2
Ratio	17:83



The result of this question has to be compared to question 12.2 where only a slight majority (56 percent) predicts a limitation of mobility for non-users of mobile phones. The chart for the present question shows that more than eighty percent of the Delphi participants think that it is likely that the mobile phone will increase its users mobility. But we would have expected the likelihood to be higher. This could have to do with the fact that 'the mobile phone became a mass consumer item at least in part because the population was already very highly mobile.'

16.2
The mobile phone will increase accessibility

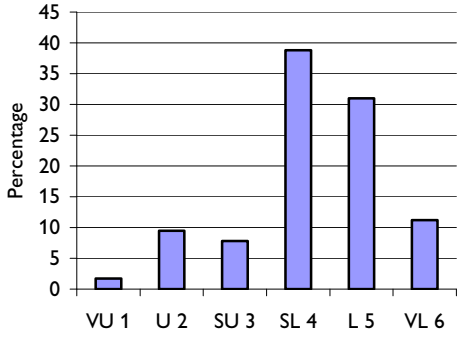
n	150
Mean	5.3
SD	0.9
Ratio	5:95



Accessibility seems to be of another quality than mobility. According to our experts, there is no denying that mobile phone use increases its users' accessibility. What may be surprising is the fact that the respondents (mainly from Europe and the US) predict an ongoing increase in accessibility in the near future. How much more accessible can people get? To have a closer look at this issue we asked the following questions again in the second wave of the Delphi survey.

16.3 ()
People will lose leisure time because they will always be accessible to their employer

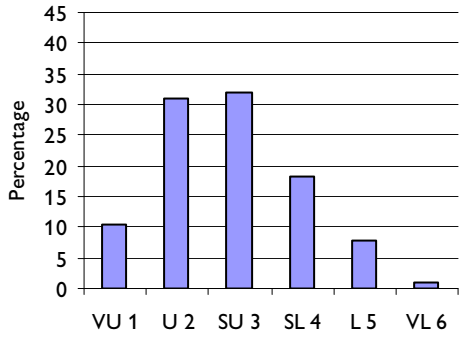
n	116
Mean	4.2
SD	1.2
Ratio	19:81



The balance between work and life seems to be endangered. There is a significant prediction shown in this chart that users of mobile phones increasingly face losing leisure time (plus seven percent during the second wave). The rise in accessibility because of mobile communication could have a negative impact. But accessibility needs to be adjusted as 'mobiles can both facilitate working practices, as well as become an interference in leisure time'. 'Constraints on leisure time are not just about mobile phones but also about changes in economic structures and business relations, and are heavily dependent on different countries and cultures.' Having to be accessible for employers is already a fact for most professionals known to one of the experts, but they seem 'to be attracted to the idea that they 'have' to be 'always on' because they are anxious to be seen to be indispensable'. It is comforting to see that 'those who are more relaxed about their value to their employer (or, I guess, to their friends and family) are more relaxed about turning the damn thing off.'

16.4 ()
Due to the mobile phone people won't be able to do what they like with their leisure time

n	116
Mean	2.8
SD	1.1
Ratio	73:27



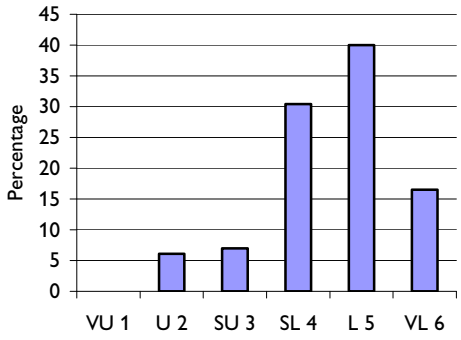
An expected change in quantities does not have to be followed by changes in the quality of people's life planning. Mobile phone users will still have control over their own leisure time. It could even be easier to organise both spheres and their interactions. According to one respondent, users are more of full age then generally expected but children up to 16 or 18 years of age should be supported and monitored in these topics. This issue is heavily dependent on the specific mobile phone user (or groups of users). It was mentioned several times that people have the choice of turning off their mobiles. It was also mentioned that 'people are very good at negotiating their public and private lives even as they continue to blur.' One expert objects that 'leisure time has already been eroded,

but because of changes in conditions of employment and the shift to service economies, the mobile has become embedded in these changes, rather than causing them.'

16.5 ()

People will develop awareness for the influence of mobile phones on their everyday lives

n	115
Mean	4.5
SD	1.0
Ratio	13:87

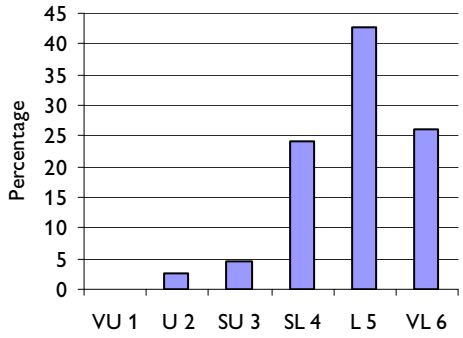


It is an important insight of our survey that almost ninety percent of our experts predict that there will be (more?) awareness for the influence of mobile phones on users' everyday lives in the near future. According to a respondent, 'people are already aware of the influence of the mobile phone in their everyday lives, as witnessed by their reactions when the phone is lost or stolen.' Another pointed out that 'the intense battle between addiction and awareness will go on.' Finally, another respondent thinks that 'we have seen the big shifts in structuring leisure time (and mobility) already.' In the second wave two respondents greatly doubted the outcome of this question, because 'people have not demonstrated an awareness of the influence of other technologies on their lives, so why should the mobile phone raise awareness', and because 'mobile phones will drop into the background and people are not likely to realise what has changed.'

17. What will be the wider effects of mobile phone use?

17.1
Social consequences of mobile phone use will affect everyday culture a great deal

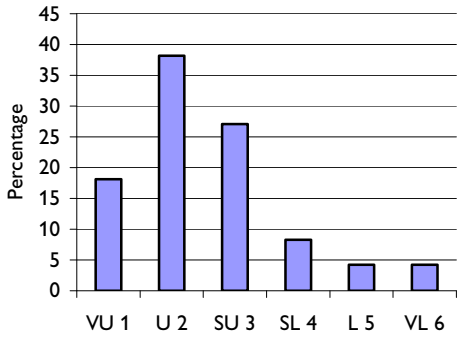
n	150
Mean	4.9
SD	1.0
Ratio	7:93



More than ninety percent of the Delphi participants predict that the mobile phone will have a considerable effect on our lives. Increased mobile phone usage changes everyday culture and therefore 'will have a profound effect on the way society functions'. Social consequences, for instance, how the mobile phone changes human interaction, will very likely have wider effects.

17.2
Social consequences of mobile phone use will pose a threat to the telecommunications industry

n	144
Mean	2.6
SD	1.2
Ratio	83:17



We wanted to know if social consequences (like those mentioned in our questionnaire) may harm the telecommunications industry in any way. Because we have not been able to ask the question for every single issue separately, the answer does not surprise. There may be issues which are more likely to pose a (minor?) threat to the industry than others. After all, the question is not suitable (as accurately mentioned by some experts).

18. The positive effects of mobile phones

18.1
What do you think is the most positive effect the mobile phone has had on people's lives so far?

The most important positive effect the mobile phone has had so far is **connectivity and connectedness** (it got 36 from a total of 237 votes given by 137 participants and analytically organised into ten categories, 15 percent of experts; it needs to be mentioned that some experts indicated two or more different effects; we use two or more terms to describe some of the effects because the question was asked open-ended and the result has to be a reliable construct). Increased 'social connectivity' (which then becomes connectedness) includes the easiness to keep in touch with people (mostly defined as friends and family). The mobile phone is seen as 'the most important channel in social life' because it facilitates interactions. According to one expert, this effect is especially important in developing countries where landline infrastructure did not really mature. The mobile enables closer social networks (by reinforcing peer or work groups) and stronger emotional connections, it allows an instant share of emotions and experiences. Especially for young people the mobile phone provided new experimental grounds.

The second most frequently quoted effect is summarised and coined as **flexibility, efficiency and convenience** (counted 35 times, 15 percent of experts, whereof convenience accounts for half of this number). First of all the mobile phone allows ease of communication in a yet unknown way. Furthermore it improves life quality because of an 'increase of flexibility in an environment with increasing demand for flexibility'. Through mobile phone use the user can achieve more efficient lifestyles and convenience in handling practical matters. Not only that 'work has become more efficient' via the 'ability to handle daily business on the fly', but the mobile phone allows people with restricted time (blue collar workers) or place (construction workers) to have more and efficient control over what they do (and maybe over a certain balance between work and life).

We find **security, safety and emergency** (32 mentions, 14 percent) as the third positive effect significantly brought up by our experts. Next to the mobile phone's ability to save lives (because it can be used in the case of emergency anywhere), it has increased (the sense of) safety in all kind of threatening situations. As a similar use in less dangerous situations, the mobile phone's effect labelled as the **micro-coordination and planning of social and everyday life** was mentioned 31 times (or by 13 percent of experts). It includes 'more convenience in planning everyday activities and appointments', or even less need for planning. Fast reaction to schedule changes allows us to manage complex and mobile lifestyles in terms of communication. **Mobility** or increased mobility is significantly quoted as well (28 experts, or twelve percent, consider this effect of the mobile phone as important).

With 27 experts (or eleven percent) citing **accessibility** or increased reachability, this effect can be seen as equally important (at the same time it is quoted as the most negative effect the mobile phone has had on our lives so far, see 19.1). In this category of effects we included those quotes mainly connected with time (like anytime communication). Contrary to 'flexibility et al.' (see above), accessibility of friends and family was mentioned more often than that related to work situations. The aspect we shall call **ubiquity** bundles those quotes which mainly go for the anywhere part of communication, anytime and anywhere (mentioned 21 times, or by nine percent of experts, and mostly connected with mobile communication in particular). Through this effect, the mobile phone 'allows convenient communication less dependent on location', and 'gives the user true freedom to move anywhere in the world'. In general it is important that the mobile 'liberates people from spatial limitations'. This effect should not be mixed up with 'mobility' (even though it would be possible to think of them together): Where mobility is an indicator for 'on the move', ubiquity simply indicates the anywhere as an un-specific place or space.

A category of effects which had to be defined on larger scale includes **spontaneity, independence, freedom and autonomy** (twelve mentions, five percent of experts), and has to be distinguished from 'flexibility et al.' mentioned above. Whereas the latter is more strongly connected to work situations, this effect mainly affects the private sphere. Increased independence leads to 'freedom and untethered lifestyles' (though lifestyle is a connecting variable between the two spheres). One expert defined the mobile phone as 'an attractive lifestyle accessory for users belonging to the fun-generation'. Today, with the use of mobiles, there is a lack of the social control that 'is the case when using landline phones in families'. This effect includes spontaneous use of the phones as well (and in unexpected situations). Finally, according to one participant, it has enabled the physically disabled and deaf population to be able to operate within the physical world and the hearing population with more ease.

Because the experience with advanced mobile data services has just started in the Western hemisphere, those who indicated **access to information, entertainment and multimedia** are clearly outnumbered (only mentioned by eight out of 137 experts or three percent). Someone specified that via the mobile phone one can better communicate a feeling by sending a picture instead of a text message (with this example we can see how intertwined communication and data still are). Similar to the uncertain estimation of the mobile Internet as a driver for mobile phone use (see 1.1 in this report), data services have not yet reached perception (of course Asian panellists are excluded from such a statement). The last category of effects we have created (and finally included all of the effects quoted by experts within the ten categories) is labelled as **more communication**. Seven experts (or three percent) who mentioned this effect are sure that the mobile phone 'has facilitated an overall increase in communication'. Through its use it obviously lowers barriers in contacting other people, and allows communication in new situations and contexts (this applies especially to text messaging). Finally, the mobile gives access to telecommunication to many people who were previously excluded from telephony and information technology.

18.2
What could be the most positive effect it will have in the near future (i.e. 2006-2007)?

The most important positive effect the mobile phone will have in the future is **connectivity and connectedness** (35 from a total of 194 votes given by 135 participants and analytically organised into ten categories, 18 percent of experts). The possibilities to share experiences (given by pictures and video) will grow, and there will be an overall increase in mediated social connectivity. This will allow the 'strengthening of social relations between groups of friends, family or business colleagues', or even change the ways in which people interact.

This question requests an outlook and mobile **data services** (with location-based services excluded because they have their own category, see below) are the second most frequently quoted effect (27 mentions, 14 percent of experts). The answers reach from communication tools (like e-mail) over access to services and exchange of data to entertainment purposes, because of the mobile phone's ability 'to be increasingly in touch with data assets'. Its ability to easily communicate data 'will be beneficial both for work and leisure'. An equal number of experts mentioned **flexibility, efficiency and convenience** as one of the important effects the mobile phone will increasingly have in the near future (counted 27 times, 14 percent of experts, where convenience accounts for a third of this number). One of the experts sees 'the greatest benefits going to populations that are not a part of the mainstream and to white-collar workers'. New data functionalities will increase the ability to work and communicate nearly everywhere and according to people's own schedule, and will therefore lead to new and increased flexibilities. One benefit in terms of efficiency can be seen in saving transportation time and costs. According to another expert, the mobile phone will 'allow in many places the continuation of important cultural practices (see for instance the spread of Islamic applications on cell phones in the Middle East).'

The mobile phone's effect labelled as **micro-coordination and planning of social and everyday life** was given 23 times as an answer (or by twelve percent of experts). Contrary to the previous question, this is more strongly connected to the user's 'control over his or her own life and environment'. In future, even more than now, 'the mobile phone will be a representation of the user's social life'. Because the mobile 'may increasingly become a multipurpose instrument' it could soon offer yet unknown ways to organise and manage everyday situations and 'help people to balance their lives'.

The effect we earlier called **ubiquity** (and defined as the indication of anywhere as an unspecific space) is now supplemented by 'convergence' (19 mentions, ten percent of experts): Mainly the convergence of landline and mobile phone services was quoted by experts, but also the mobile phone as a constantly improved device with additional functionalities (specific functions like information, data or location are addressed elsewhere). A future 'mobile phone' may not only liberate people from spatial limitations but also from the usage of several different devices. There is a decided demand for 'less system complexity and more integration on the basis of ease of use'. Another expert expects 'that the mobile phone will be less complicated and less demanding' in the near future. This seems to be a precondition for seamless communication.

Whereas in the previous question only eight experts mentioned **access to information**, on this point 16 participants (or eight percent) estimate immediate information retrieval to be an important positive effect of the mobile phone in the future. 'It will be easy to access information on the fly', and the mobile will provide a broader base of people with the ability to use information technology. **Security, safety and emergency** will still be an important effect of mobile phone usage (even though it was brought up again by only twelve experts or six percent). The respondents expect further services to improve support in cases of emergency or public health in general. Because it seems to be taken for granted as well, increased **mobility** was only quoted by eleven experts (or six percent). Nevertheless these are two crucial effects the mobile phone has had and will have in the future. The same can be said for **accessibility** or increased reachability (ten mentions, five percent of experts).

One of the rather new effects of mobile phone use is seen in services related to **location-based or presence** (as yet mentioned by five out of 135 experts or three percent; again, this does not apply to Asian panellists). It would be appreciated by many if location-based services were integrated into mobile handsets (e.g., tourist guide, shop or restaurant search). Another kind of location-aware service offering 'presence' (i.e., the ability to check availability and proximity of friends or family) could influence the way we manage social bonds.

One expert does not expect more positive effects to show up in the future, seven experts indicate that they do not have an answer to this question. One expert sees an advantage in new jobs being created in the ecosystem of mobile communication and services.

19. The negative effects of mobile phones

19.1
What do you think is the most negative effect the mobile phone has had on people's lives so far?

The most important negative effect the mobile phone has had so far has been coined as **accessibility and the balance of work and life** (it got 40 from a total of 161 votes given by 131 participants and analytically organised into nine categories, 25 percent of experts). This threat emerges from the expectation of constant availability and pressure on social life emanating from the mobile phone's intrusiveness (see 'privacy et al.' below). It includes the demand for immediate response which is part of people's 'feeling of always being on call'. The 'continuing speed up of what is expected to be done' is 'leading to difficulties separating work and leisure' (one expert argues that this is a short-term problem that will be resorbed as people 'domesticate' mobile phones). Through the use of mobile devices it is already possible that 'work follows you everywhere' and this is 'eating leisure time', according to one expert.

The effect summarised as **privacy, stress and distraction** was frequently quoted by our experts as well (37 mentions, 23 percent of respondents). They complain about a loss of privacy and intimacy, and criticise surveillance, increased stress and distraction which accompany to a life supported by mobile communication. The invasion and loss of privacy, the 'control within personal relationships about whereabouts (and development of mistrust)' may lead to friction and stress. According to an expert, the mobile phone 'has made people more insular and rude with their environment'. Furthermore some participants are convinced that the use of mobile phones has led to a loss of people's control over their everyday life ('less structure in life', 'intrusion on the flow of social life' and loss of autonomy are those to mention). Another threat to people's lives can be identified in an increased hectic pace, where 'some people get stressed by the possibility of always staying in touch'. There are some wider effects applied by our experts as well: The mobile phone 'has reduced time to reflect and to adjust to situations', led to a lack of concentration and to a reduced 'ability/readiness to contemplate and rest without external contact'. This may even lead to 'the inability to cope with solitude and disconnectedness (off-line phobia)'. Using the wording of another expert, the mobile phone 'fractures reflective social interaction and promotes short attention span interaction and the lack of abstract thinking'. Finally, there is the aspect of 'distraction' by mobile phone use. Opinions range from 'we have many distractions but this one seems particularly pernicious and ongoing' to an even more discerning statement seeing the introduction of a 'new opaque and aggressive industry and an over-priced consumer distraction from more important issues'.

The **inappropriate usage** of mobile phones was mentioned 27 times (or by 17 percent of experts). This effect is connected with the issues of increased ambient noise and disturbance, the blurring of the public and the private and a decline in social etiquette. The

invasion of private conversations in public space is 'blurring the boundary even more between public and private spaces'. Inconsiderate use in meetings, cinemas, restaurants etc and its negative effects on people's environments is not only connected with simple annoyance. But even 'barriers where cell phone use was considered a faux pas are gradually being eroded' and the same is happening to the 'social permission regarding interruption' (where inappropriate use directly leads back to accessibility).

Dependence on mobile phones in everyday life is seen as a disadvantage (15 mentions, nine percent of experts). Because 'people need to have a mobile phone to keep up with social relations' there is a 'sense of obligation that you must have one or you will be socially excluded'. Apart from peer pressure (not only for teenagers) there is a second face to this where some people can not live without the mobile phone anymore, and 'feel uncomfortable if they do not have it with them'. According to one expert, 'people are not capable of switching the mobile phone off, they stay prisoners of the phone'. But this effect seems to be externally influenced as well, where technological convergence (of information about communication and relations within one device) 'elevates the impact of its potential loss'. The issue of **cost and indebtedness** is closely connected with mobile phone usage (and got 13 votes by eight percent of experts). Participants not only mention children's indebtedness but an 'increased pressure on personal budgets' in general.

Today, it is almost obvious that mobile phone communication has led to **less commitment and flexible appointments** (mentioned by seven experts or four percent). 'Based on the freedom to communicate at all time, we are losing our sense for punctuality'. This issue spans from the 'inability to commit to times and places for meetings' to the point where the mobile phone is 'disrupting the ability to maintain planned schedules'. **Too much communication** evoked by mobile phone use was mentioned six times (or by four percent of experts). Provoked by the extended time available for communication, 'communication without meaning increases', 'as evidenced by the very dull conversations heard on commuter trains'. A few experts suggested that 'we have to learn not to communicate, and not to feel guilty for being non-responsive'.

The issue of **health and pollution** is quoted by five experts (or three percent). Even though there are only a few participants who mentioned mobile phone radiation (and other environmental aspects like recycling), this aspect should not be underestimated. Yet, we 'do not know long-term effects on health', and should there be evidence that mobile technology poses a severe threat to human health, this will suddenly evolve into the most negative effect.

Five experts said that they see **no negative effects** ('because people make their own choice when they switch on the phone') or not much (unspecified; one expert argues that such effects depend on the user); three experts indicate that they do not know the answer to this question. One expert mentioned 'adult content' as a negative effect of past mobile phone use (which we assume has to be the statement of an Asian panellist), another mentioned 'phone theft'. With a third individual opinion pointing out that 'misunderstandings of new lifestyles using mobile phones may be serious in each society' (and therefore indicating the cultural circumstances which should be taken into account), we conclude and move on to the assessment of forthcoming negative effects.

19.2
What could be the most negative effect it will have in the near future (i.e. 2006-2007)?

The most important negative effect the mobile phone will have in the future is seen in **privacy, stress and distraction** (56 from a total of 142 votes given by 122 participants and analytically organised in nine categories, 39 percent of experts). This category of effects was already important in the past, but now it is mostly extended with 'intensified' or 'increasing', such as intensified loss of privacy. The risk of easy access to specific information may lead to an abuse of personal data and an intrusion of integrity; and 'privacy issues will become more significant with location-based services' (increasing quality of camera phones, where pictures will be taken in all kinds of situations, is mentioned by some experts as well). According to one expert, users need to become more aware of the dangers provided by data collections and their potential misuse. Another effect, 'mobile spam' and mobile advertisement account for eight of the mentions in this category, like for example: 'spam might be a big problem'. According to another expert, mobile spam will only be 'a short-term threat' (in general, experts are convinced that technological solutions will develop to keep mobile spam under control, see 15.3). The (increasing) loss of intimacy has a second face to it, loss of attention: According to one respondent, the mobile phone could be used as a means of not-being-excluded (see 'dependence' and 'digital divide' below), and this could 'encourage the proliferation of the public use of mobile phones' to avoid a certain aloneness within public life, to avoid being ignored. Mobile phone dependence, the 'inability to turn off and focus' is closely related to this. At the same time, intense mobile phone use could 'diminish the ability to be alone with oneself' and 'reduce time for face-to-face communication'. Using the words of another expert, mobile phone usage could lead to a lack of a 'sense of being in the present'. Some participants are convinced that increased stress due to mobile communication will affect some people in the near future. Others see a 'detachment from nature' or 'distraction from the environment'. The mobile phone 'will test the bounds of security, privacy, and social and behavioural taboos'. However, to quote one expert, one can 'reckon that people will learn to actively manage the technology'.

Far behind with a mere of 18 votes (or 13 percent of experts) ranks **accessibility and the balance of work and life**, the most negative effect seen in the past (which of course will be important in the future as well, thinking about fourth generation mobile network infrastructure). 'Increasing expectation and pressure to be accessible most of the time' and 'without messaging you are a nobody' are seen as very negative trends. According to respondents, mobile phone use will 'further abolish the borders between business and leisure life'. Control over accessibility is more and more eroded.

The issue of **cost and indebtedness** was mentioned by twelve experts (or eight percent). 'People will be more and more lured into expensive no-value-services.' This especially applies to younger people who have problems affording mobile phones and services; less control over children and their use of mobile phones is not only relevant to cost control (but to the protection of minors etc). 'Unexpectedly high prices for mobile data use' could lead to increased indebtedness. 'By spending more and more on ringtones, games etc, people tend to invest less in traditional media such as magazines, CDs, DVDs etc'. The last statement indicates the usual shift in demand related to new media that has to be expected with advanced mobile devices as well.

Dependence on mobile phones in everyday life is seen as an ongoing disadvantage (eleven mentions, eight percent of experts) and is usually correlated with (converged) next generation mobile devices. The main criticism addresses people's 'over-reliance on technology as an enabler of social networks'. According to one respondent, it is not the phone's fault but a question of not being capable of taking charge of one's life that makes it impossible to switch the phone off (there is an inherent connection between dependence and aspects discussed in 'privacy et al.'). Regarding the near future, the issue of **health** got twice as much attention from our experts than it did in the answers to the previous question (ten mentions, seven percent of experts). Health issues are increasingly being observed because there is a 'possible risk of radio-frequency exposure'. With increased use of mobile phones, the consequences for health could increase as well.

Too much communication is one of the effects mentioned again (this time by ten experts or seven percent), but it is now connected with 'data or information overload' because people will increasingly access certain data with their mobile devices. An 'overstimulation with irrelevant data' could lead to further stress (not only in business situations). Again, the potential increase in communication is not necessarily related to an increase in the quality of communication. Ubiquitous communication could diminish 'people's ability to differentiate what is important and meaningful and what is not'. Or like another expert stated: There already are 'too many unnecessary calls'.

The **inappropriate usage** of mobile phones mostly follows the previous effect, and was mentioned eight times (or by six percent of experts, compared to 27 times or 17 percent in question 19.1). 'Too much noise in the streets' deriving from mobile communication could lead to an 'irritation of public environments'. Using the words of a respondent, 'there will be 400 million more of the chattering class by the end of 2007 and the noise level will go up!'

Eight experts (or six percent) think that there are **no (new) negative effects** of mobile phone use to be expected in the near future. Some kind of **digital divide** is anticipated by five experts (or four percent). It is argued that the uneven distribution of mobile phones could enhance or deepen a 'digital divide'. On a smaller scale, it is possible that 'people could begin to interact only with a community they define [with the help of the mobile phone address book for example] instead of with their real community'. Or: The use of mobile phones 'not only leads to closer networks, but also to more distance to other networks (social segmentation)'. Four experts indicate that they do not have an answer to this question.

Data table (Percentage, Mean and Standard deviation)

	Wave 1									Wave 2								
	1	2	3	4	5	6	n	M	SD	1	2	3	4	5	6	n	M	SD
1.1 Drivers: Mobile Internet	2.0	9.8	9.2	26.8	35.3	17.0	153	4.4	1.3									
1.2 Drivers: Downloads	2.0	3.9	2.6	17.8	36.8	36.8	152	4.9	1.2									
1.3 Drivers: Voice communication	0.7	2.0	0.7	6.6	14.6	75.5	151	5.6	0.9									
1.4 Drivers: Text and picture messaging	0.7	0.7	1.3	3.3	38.4	55.6	151	5.5	0.8									
2.1 Dependence: Affecting life	0.7	3.3	1.3	9.2	38.2	47.4	152	5.2	1.0									
2.2 Dependence: Increase	0.7	2.0	5.9	24.2	33.3	34.0	153	4.9	1.0									
2.3 Dependence: Public debate	3.3	15.1	23.0	24.3	23.0	11.2	152	3.8	1.3									
3.1 Addiction: Few people	5.3	9.9	10.6	21.2	38.4	14.6	151	4.2	1.4	3.4	6.8	13.7	28.2	35.0	12.8	117	4.2	1.2
3.2 Addiction: Media debate	4.0	7.3	16.6	29.1	32.5	10.6	151	4.1	1.3	3.4	5.1	13.7	35.9	31.6	10.3	117	4.2	1.2
4.1 Relationships: Make new friends	6.0	18.5	15.2	28.5	21.2	10.6	151	3.7	1.4	5.2	19.1	13.9	33.0	20.0	8.7	115	3.7	1.4
4.2 Relationships: Maintain relationships	0.0	1.3	0.0	10.5	30.9	57.2	152	5.4	0.8	0.0	0.9	1.7	7.8	34.5	55.2	116	5.4	0.8
4.3 Relationships: Losing contact	1.3	14.5	13.2	27.0	20.4	23.7	152	4.2	1.4	1.7	9.4	15.4	26.5	33.3	13.7	117	4.2	1.2
4.4 Relationships: Superficial	13.1	37.9	23.5	14.4	5.9	5.2	153	2.3	1.3	12.8	35.0	26.5	16.2	4.3	5.1	117	2.8	1.3
4.5 Relationships: Social life	7.8	23.5	19.0	22.9	15.7	11.1	153	3.5	1.5	8.5	17.1	21.4	28.2	15.4	9.4	117	3.5	1.4
5.1 Communication: Face-to-face	5.9	22.2	15.0	30.7	17.6	8.5	153	3.6	1.4	3.4	17.9	23.1	31.6	19.7	4.3	117	3.6	1.2
5.2 Communication: More communication	2.6	11.2	11.8	29.6	32.2	12.5	152	4.2	1.3									
5.3 Communication: Pictures increase	9.8	26.1	27.5	20.9	11.1	4.6	153	3.1	1.3	8.5	23.1	33.3	23.1	10.3	1.7	117	3.1	1.2
5.4 Communication: Social pressure	1.3	5.2	5.9	15.0	40.5	32.0	153	4.8	1.2	1.7	1.7	3.4	16.2	46.2	30.8	117	5.0	1.0
6.1 Children: Appropriate age							141	11.4	3.0									
6.2 Children: Lower average age	0.0	2.0	1.3	15.0	47.1	34.6	153	5.1	0.8									
6.3 Children: Media debate	0.7	2.6	5.3	20.4	40.1	30.9	152	4.9	1.0									
7.1 Minors: Erode protection	4.8	23.8	22.4	26.5	15.6	6.8	147	3.5	1.3	5.2	19.0	24.1	31.0	15.5	5.2	116	3.5	1.3
7.2 Minors: Stronger regulation	7.4	23.0	14.9	20.3	20.9	13.5	148	3.7	1.5	6.0	20.5	17.9	27.4	16.2	12.0	117	3.6	1.4
8.1 Family: Parents losing authority	9.9	31.1	25.2	22.5	7.9	3.3	151	3.0	1.2	11.2	30.2	31.9	19.8	5.2	1.7	116	2.8	1.1
8.2 Family: Closer relationships	2.0	14.5	12.5	30.9	28.9	11.2	152	4.0	1.3	0.9	9.4	18.8	37.6	25.6	7.7	117	4.0	1.1
8.3 Family: Social control	1.3	3.9	9.9	34.9	38.2	11.8	152	4.4	1.0									

	Wave 1									Wave 2								
	1	2	3	4	5	6	n	M	SD	1	2	3	4	5	6	n	M	SD
9.1 Peer: Teenage lifestyle	0.0	0.0	1.3	6.5	41.8	50.3	153	5.4	0.7									
9.2 Peer: Services and pressure	1.3	2.6	5.3	19.2	43.7	27.8	151	4.9	1.1									
10.1 Indebtedness: Increased spendings	0.7	2.6	5.9	27.0	38.8	25.0	152	4.8	1.0									
10.2 Indebtedness: Budget control	0.7	4.0	12.6	38.4	32.5	11.9	151	4.3	1.0	0.0	2.6	10.3	37.1	42.2	7.8	116	4.4	0.9
10.3 Indebtedness: Unclear tariffs	3.3	10.5	15.1	30.3	25.0	15.8	152	4.1	1.3	3.4	7.8	12.9	34.5	30.2	11.2	116	4.1	1.2
10.4 Indebtedness: Consumer protection	2.0	3.4	8.1	39.2	33.8	13.5	148	4.4	1.1									
11.1 Camera phones: Invade privacy	2.6	13.7	15.0	34.6	26.1	7.8	153	3.9	1.2	2.6	11.1	18.8	31.6	29.1	6.8	117	3.9	1.2
11.2 Camera phones: Rediscover surroundings	10.5	25.7	26.3	25.7	7.9	3.9	152	3.1	1.3	11.1	31.6	23.1	25.6	6.8	1.7	117	2.9	1.2
11.3 Camera phones: Governments	2.0	10.5	10.5	31.6	29.6	15.8	152	4.2	1.3									
12.1 Non-user: Information deficit	9.3	22.5	22.5	25.8	13.9	6.0	151	3.3	1.4	6.0	21.4	26.5	28.2	13.7	4.3	117	3.4	1.2
12.2 Non-user: Limitation of mobility	4.6	21.2	21.9	21.9	19.2	11.3	151	3.6	1.4	4.3	17.9	21.4	29.9	21.4	5.1	117	3.6	1.3
12.3 Non-user: Problems coordinating life	3.3	11.3	10.6	31.1	23.2	20.5	151	4.2	1.4	2.6	8.5	11.1	32.5	30.8	14.5	117	4.2	1.2
13.1 Writing: Young people	5.9	22.4	26.3	23.0	11.8	10.5	152	3.4	1.4									
13.2 Writing: Change language	2.6	10.5	16.4	34.2	25.0	11.2	152	4.0	1.2									
13.3 Writing: Reintroduce near-illiterate	11.4	20.8	34.2	22.8	8.1	2.7	149	3.0	1.2									
14.1 Data protection: Lose control	1.3	8.6	10.6	38.4	27.8	13.2	151	4.2	1.2	0.9	5.2	8.6	37.9	31.0	16.4	116	4.4	1.1
14.2 Data protection: Public debate	0.0	1.3	9.9	25.2	41.1	22.5	151	4.7	1.0	0.0	0.9	7.8	21.6	50.9	19.0	116	4.8	0.9
14.3 Data protection: Stronger regulation	3.3	2.0	12.7	24.0	37.3	20.7	150	4.5	1.2	2.6	0.9	12.2	24.3	40.0	20.0	115	4.6	1.1
15.1 Mobile spam: Increase	0.0	2.7	2.7	14.7	36.0	44.0	150	5.2	1.0									
15.2 Mobile spam: Media debate	0.0	0.7	4.0	15.2	38.4	41.7	151	5.2	0.9									
15.3 Mobile spam: Filters	1.3	1.3	5.3	21.2	37.1	33.8	151	4.9	1.0									
16.1 Life: Increase mobility	1.3	7.3	8.6	22.5	33.8	26.5	151	4.6	1.2									
16.2 Life: Increase accessibility	1.3	0.0	3.3	10.0	36.7	48.7	150	5.3	0.9									
16.3 Life: Lose leisure time	3.3	7.9	14.6	33.1	27.2	13.9	151	4.2	1.3	1.7	9.5	7.8	38.8	31.0	11.2	116	4.2	1.2
16.4 Life: Control leisure time	14.0	26.7	28.0	15.3	11.3	4.7	150	3.0	1.4	10.3	31.0	31.9	18.1	7.8	0.9	116	2.8	1.1
16.5 Life: Develop awareness	0.7	6.0	8.0	28.0	37.3	20.0	150	4.6	1.1	0.0	6.1	7.0	30.4	40.0	16.5	115	4.5	1.0
17.1 Wider effects: Everyday culture	0.0	2.7	4.7	24.0	42.7	26.0	150	4.9	1.0									
17.2 Wider effects: Telecommunications industry	18.1	38.2	27.1	8.3	4.2	4.2	144	2.6	1.2									

1=Very unlikely, 2=Unlikely, 3=Somewhat unlikely, 4=Somewhat likely, 5=Likely, 6=Very likely, M=Mean, SD=Standard Deviation

List of participants

Delphi participants who agreed to be listed in the final report (114 out of 153 experts)

- Matthias Adam, Eventmanager, Deutsche Telekom Foundation, Germany
- Tomi Ahonen, Author and Consultant, associated with Oxford University, UK
- Jouko Ahvenainen, President, Xtract Ltd, Finland
- Mikael Anneroth, Manager Usability and Interaction Lab, Ericsson Research, Sweden
- Urs von Arx, Head of Section Mobile and Satellite Services, BAKOM, Switzerland
- John W. Bakke, Research Scientist, Telenor, Norway
- Alexandru Balog, Senior Researcher, National Institute for Research and Development in Informatics, Bucharest, Romania
- Boldur-Eugen Barbat, Professor, Lucian Blaga University, Romania
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- Genevieve Bell, Senior Researcher and Anthropologist, Intel Research, USA
- Steffen Binder, Research Director, Soreon Research, Switzerland
- Torsten Brodt, Researcher, University of St.Gallen, Switzerland
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- Günter Burkart, Professor, University of Lueneburg, Germany
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- Nick Foggin, Independent Consultant, Spain
- Leopoldina Fortunati, Professor, University of Udine, Italy

- Oliver Gerstheimer, Manager, Lecturer and Researcher, chilli mind GmbH, University of Kassel, Germany and HGK Zurich
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- Randy Giusto, Vice President, IDC, USA
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- Joachim R. Höflich, Professor, University of Erfurt, Germany
- Matthias Horx, Futurist, zukunftsinstitut, Austria
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- Christina James, Director, Tegic Communications, USA
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- Jane Vincent, Research Fellow, DWRC, University of Surrey, UK
- Roberto Vitalini, Conceptualist, Switzerland
- Yuichi Washida, Research Affiliate, The Comparative Media Studies at MIT, Japan
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- Barry Wellman, Professor, University of Toronto, Canada
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