LIFE*

01

Digital Living

René Obermann
Executive Board Chairman
Deutsche Telekom AG

From e-mail or text messaging to IPTV or social networks on the Internet, we cannot imagine life today without these digital media and services. In the future, they will make it even easier to stay in touch with friends, to use personalized services, and to access and distribute our own content – regardless of time or place. In this digital world, Deutsche Telekom wants to act as a partner to its customers, with broadband networks, services that can be used intuitively and first-class support. We are seeking to develop further and to position ourselves as a global market leader for "connected life and work".

Even looking back just ten years, it is clear to see how radically our sector has changed. And it will continue to undergo rapid change. This makes it all the more important for us to identify future trends and people's needs so that we can continue to offer services that are relevant to them. The "Life" study series will follow the rapid changes in the industry.

This initial "Digital Living" study describes the most important trends toward the digital world. Which services do people require in which areas of their lives? What are the requirements for successful services? What trends do the experts anticipate? This study, by Professor Thomas Hess, will provide answers to these questions. I wish you a stimulating and enlightening read.

Bonn, February 2009
René Obermann

Professor Hess, what information does the "LIFE – Digital Living" study provide?

PROFESSOR THOMAS HESS: The areas of life approach used in this study is highly innovative. The objective was to establish in which areas of life and for what purposes consumers use and intend to use digitization and networking. The study also shows just how far societies are networked and which areas have the greatest growth potential.

Mr. Schläffer, what does digital living mean to Deutsche Telekom?

CHRISTOPHER SCHLÄFFER: As Deutsche Telekom we want to become a leading provider of products and services for "connected life and work" – that is our vision. The aim is for our customers to be able to access the services and digital content they need anywhere, at any time, on any network – and, as far as possible, from any terminal, via mobile phone, laptop or even TV. An additional objective is for our customers to be able to use services simply and intuitively, as customer satisfaction with our products is our highest priority.

10,545 respondents surveyed in six countries and a Delphi survey of experts – what perspective does the study give of networked living?

PROFESSOR THOMAS HESS: By combining different perspectives we are able to reach a more valid assessment of future trends. The large number of consumers provides well-founded insight into the reality of networking. Looking at the behavior of the "digital avant-garde" allows us to extrapolate a sound indication of the behavior of all Internet users in the near future, as does the international comparison. The experts' perspective gives us a glimpse of what things could look like a few years later.

How important are research and development to Deutsche Telekom in general?

CHRISTOPHER SCHLÄFFER: Research and development are a central component of Deutsche Telekom's future success. At Deutsche Telekom's laboratories, high-caliber international teams are working on technologies and products which are likely to be introduced or to reach market-readiness in two to five years' time. To this end, the impressive study by Professor Hess shows us where the trends in everyday digital activities are leading.

What most interests you personally about the increase in networks?

PROFESSOR THOMAS HESS: The fact that this development will continue; we have by no means come to the end of this wave of IT and communication technology-driven innovation. Today's mobile phones have faster network access than the average Internet speed of landlines ten years ago. Also, we're seeing areas of life being networked that nobody would have dreamed of a few years back. Just think of all the social networks!

What are the highlights in this outlook for digital living?

CHRISTOPHER SCHLÄFFER: I find it especially remarkable that personal networking and the increasing digitization of content are becoming ever more indispensable in all areas of life. With modern information and communications services, we can make a significant contribution to increasing quality of life. At the same time, it is our clear aim to overcome the digital divide within society and to guide latecomers toward a digital future through products which can be used intuitively.

Prof. Dr. Thomas Hess is the director of the Institute for Information Systems and New Media at Munich's Ludwig Maximilian University. This study was designed and produced in cooperation with the strategic consultancy zehnvier.

Christopher Schläffer is Group Product and Innovation Officer at Deutsche Telekom AG. The publication of this study was sponsored by Deutsche Telekom AG.

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1.0 Review of findings

In many areas of life, digital networking is taken for granted and there is every sign that the importance of these technologies will continue to increase. The findings of a survey of 10,545 representative Internet users in Germany, France, Great Britain, Hungary, the United States and South Korea, and of a panel of 56 experts, pinpoint the key digital trends.

Access to digital media taken for granted – including mobile applications:

Around **85 PERCENT** of the German respondents state that the use of digital media has become a **NATURAL PART** of their lives. Over **50 PERCENT** use **MOBILE ACCESS** to their technical devices, as do **85 PERCENT** of the digital avant-garde.

Networking enhances quality of life, lifestyle is becoming more important:

64 PERCENT of the German respondents believe that today's Internet services and technical devices **ENHANCE THEIR QUALITY OF LIFE**. Owning a **STYLISH DEVICE** is important for **66 PERCENT** of the digital avant-garde, and **62 PERCENT** state that **DESIGN** is just as important as functionality.

Growth in broadband and mobile networking in Germany:

Experts forecast that broadband access in Germany will double to **36 MILLION** access points **BY 2015** and data transfer rates of **OVER 100 MBIT/S**. Experts also believe that the number of UMTS access points will double by 2010.

Increasing use of modern forms of communication:

50 PERCENT of the Germans surveyed belong to an **ONLINE SOCIAL NETWORK,** in Great Britain **61 PERCENT** are members, as are **68 PERCENT** of the digital avant-garde. Around one quarter of the German respondents who belong to a private social network use the network to share photos, as do **47 PERCENT** in South Korea and **48 PERCENT** of the digital avant-garde.

Consumers want easy-to-use, personalized services:

More than **56 PERCENT** of the Germans surveyed would like to have individualized services **TAILORED TO THEIR INTERESTS**, as would over **70 PERCENT** in South Korea and **84 PERCENT** of the digital avant-garde. Ease-of-use is an important aspect: **79 PERCENT** of Germans want **INTUITIVE SERVICES**.

Digital networking is increasing in all areas of life:

Experts and consumers expect digital networking to increase strongly, particularly in the areas family and friends, leisure and well-being, work and study, and material and financial matters. **65 PERCENT** of the Germans surveyed believe that there will be a particular increase in the area **FAMILY AND FRIENDS**.

Digital media plays a particularly important role in leisure activities:

72 PERCENT of the Germans surveyed could no longer envisage their leisure time without telecommunications and the Internet; in the digital avant-garde group this was **93 PERCENT**. In all of the countries surveyed, **ONLINE MUSIC** and **VIDEOS** and the ability to share **PHOTOS** were in the top five of the most popular services in this area.

Family and friends drive digital networking:

For **57 PERCENT** of the German respondents digital networking with family and friends plays an important role, rising to **69 PERCENT** in France and **88 PERCENT** of the digital avant-garde. **73 PERCENT** of the French respondents and **51 PERCENT** of the Germans would not be able to keep in touch with their **FRIENDS AND FAMILY** without the Internet and telecommunication.

Trend toward mobile, net-based working:

63 PERCENT of the German respondents rely on the Internet for their work; this rises to **81 PERCENT** for the digital avant-garde group. Services related to **MOBILE WORKING** or **WEB COLLABORATION** – i.e. distance teamwork – interest more than **60 PERCENT** of the German respondents.

Digital shopping has become commonplace:

70 PERCENT of the Germans surveyed buy **MORE ONLINE** than three years ago; this rises to **82 PERCENT** of the digital avant-garde. In almost all the countries over three-quarters of the respondents research online before actually buying. The respondents rated **ONLINE PRICE COMPARISONS** as one of the most interesting services in the material and financial sphere.

2.0 Digital Living – the study

The world of telecommunications is in constant flux, with fast, mobile networks enabling uninterrupted access to new Internet-based products and services. Digitization and networking ensure that anyone can stay in touch with the people and things that are of special personal importance to them at any time.

This study explores the influence of digitization and networking on various aspects of our lives and our lives in general. It is supported by Deutsche Telekom and at the same time marks the start of the "LIFE" series of studies, which will in future investigate further trends in telecommunications. The present study was conceived and carried out by Professor Dr. Thomas Hess, Director of the Institute for Information Systems and New Media at the Munich Ludwig-Maximilian University, in conjunction with the strategic consultancy zehnvier.

2.1 **Digitization and networking – today and tomorrow**

The world is full of theories as far as digitization and networking of life are concerned: the future of the Internet is mobile, people will organize their lives and work digitally, stylish devices are the prestige items of tomorrow. Individual technologies, applications, trends or aspects of life are usually examined in isolation.

Against this background, the "Digital Living" study aims to provide a structured and comprehensive overview of the way that people currently handle digital media. It intends to shed light on how networked consumers currently are in key areas of their own lives – such as leisure, work or exchanges with family and friends.

A further aim of the study is to examine and gauge various development prospects for networking and what consumers expect from future technologies and applications.

Within the scope of the study the following questions will therefore be explored in depth:
• How do consumers currently handle digital media? How much do we already take digital media for granted in our lives? What importance is currently attached to digitization and networking in various areas of life?
• What role will various communications media play in future – in both our personal lives and working environments? How will the degree of digitization and networking change in people's lives?
• How will technical infrastructures – broadband connections, transfer speeds, and mobile and stationary Internet – develop?
• Which services and applications will interest consumers in future? What ideas and needs and thus also

10,545 consumers from Germany, France, Great Britain, Hungary, the USA, and South Korea were questioned in the survey (December 2008).

**FIGURE 1: AN OVERVIEW OF THE METHODOLOGY.
THE STUDY COMPRISES THREE MODULES:**

1 | DESK RESEARCH

2 | DELPHI SURVEY IN TWO PHASES (EXPERTS' PERSPECTIVE)	3 | ONLINE SURVEY (CONSUMERS' PERSPECTIVE)
Two-phase Delphi survey with experts from the fields of technology, telecommunications and the Internet, as well as application specialists.	An Internet representative online survey of consumers from six countries (DE, GB, US, FR, HU, KR).
In the first survey, the experts were asked to assess the current situation, provide examples and outline future trends, developments and scenarios.	The survey comprised 10,545 consumers.
	Current situation from the consumers' perspective.
In the second survey the experts were asked to comment on and give further details about the findings of the first survey.	Evaluation of the trends and developments predicted by the experts.

"LIFE DIGITAL LIVING" – THE STUDY

requirements in terms of the organization of telecommunications services do consumers have?

• What developments can be observed internationally? Where does Germany stand according to international standards?

2.2 Study structure

A three-stage study structure was chosen to depict in a differentiated manner the role of information and communications technologies in people's daily lives today and how they will be used in future *(see Figure 1)*.

The foundations were laid by broadly based **SECONDARY RESEARCH** which evaluated existing studies on the topic of digitization and networking. In addition, the secondary research served to identify the structure of the lives of consumers and subdivide them into various spheres. These areas of life were then examined during the course of the study in a targeted manner with regard to networking.

Building on the secondary research, the further modules reveal the various prospects of digitization and networking. The **DELPHI SURVEY** assesses the current role and future potential of information technology, telecommunications and networking in various areas of life from the **PERSPECTIVE OF EXPERTS**. Within the Delphi survey, renowned experts from Europe and the USA were questioned in two successive surveys. The panel comprised 56 high-profile experts from various fields. Most of them work for companies engaged in IT and network technology, for providers of broadband services or at higher education institutions.

Finally, the broadly based **ONLINE SURVEY** was devoted to the **CONSUMERS' PERSPECTIVE**. It offered consumers from six countries – Germany, Great Britain, France, Hungary, the USA, and South Korea – the

chance to assess various trends and developments which were derived from the experts' survey and secondary research. The countries were selected to ensure that different regions worldwide were taken into account: Germany, France, and the UK represent typical EU markets, Hungary serves as an example of Eastern Europe, South Korea allows an Asian perspective, while the USA allows a look across the Atlantic. All in all, 10,545 consumers were questioned. **THE SURVEY WAS ORGANIZED IN SUCH A WAY THAT THE RESULTS ARE REPRESENTATIVE FOR THE INTERNET POPULATION OF THE RESPECTIVE COUNTRY.**[1]

The sample survey was conducted in the form of country-by-country sample surveys *(see Figure 2)*. This makes it possible to work out the differences between the countries examined and to take a closer look at those countries in particular where digitization and networking are more widespread. In addition, the large number of participants in Germany makes it possible to draw detailed conclusions on individual sectors of the population.

FIGURE 2: STRUCTURE OF THE SAMPLE SURVEY IN THE FORM OF COUNTRY-BY-COUNTRY SAMPLE SURVEYS (NUMBER OF CONSUMERS SURVEYED)

The 10,545 consumers surveyed overall are distributed among the six survey countries as follows:

1,081
GREAT BRITAIN

1,059
HUNGARY

1,054
USA

5,120
GERMANY

1,064
SOUTH KOREA

1,078
FRANCE
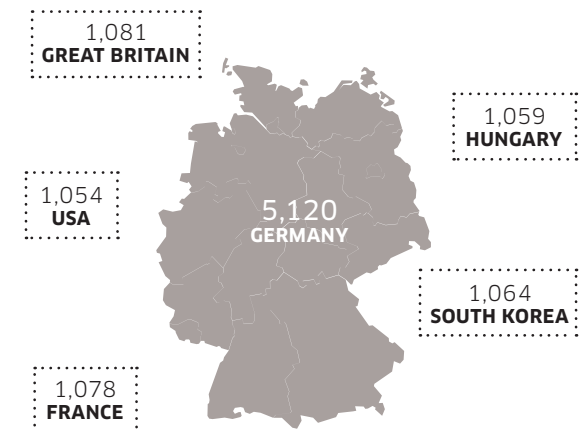
FIGURE 3: SHARE OF THREE CONSUMER GROUPS IN GER-MANY'S INTERNET POPULATION

Around 19 percent of German Internet users can be classed as belonging to the digital avant-garde.

Digital latecomers
33.4%

Digital avant-garde
18.9%

Digital mainstream
47.7%
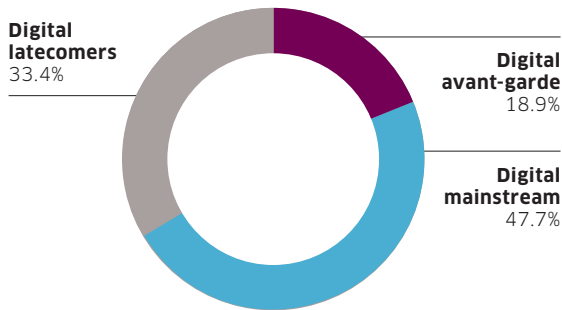
Consumer survey in Germany (n=5,120)

..………………………………………………………

DNAdigital – DIGITAL AVANT-GARDE IN GERMANY. The digital avant-garde are pioneers in networked living and working. But what are digital avant-garde members actually like and where are they to be found? A good example is the DNAdigital initiative under the auspices of Federal Chancellor Angela Merkel. On the dnadigital.de website, the Internet generation meets representatives of German business in order to debate jointly the changes arising through the Internet and the future of the world of work. The members of this website platform were also included in the study.

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2.3 A look into the future: the digital avant-garde

The "Digital Living" study offers various options for assessing future developments. Firstly, the study takes a look at countries where digitization and networking are already far advanced. Secondly, it is possible to look into the future by examining more closely those consumers who are already using digital media in a way that most consumers will only do in several years' time. This approach is consistent with the findings of diffusion research, which says that innovations initially spark the interest of a smaller number of people before they then spread further and are adopted by the majority.

How is it possible to identify those consumers whose behavior in terms of networking is trend-setting? This has been achieved with the help of cluster analysis. Based on different variables such as the role of digital media or the importance of innovative devices, consumers were subdivided into three distinct groups with regard to use of digital media: the digital avant-garde, the digital mainstream and the digital latecomers.[2]

The **DIGITAL AVANT-GARDE** with their digital lifestyle are pioneers in terms of networked living and working. For 95 percent of consumers in this group, handling digital media is an everyday matter, with 85 percent of them also frequently using their cell phone, iPod or PDA when on the move.[3] In addition, for two of every three members of the digital avant-garde, owning a stylish device (such as an iPhone) is an important factor. The lives of the digital avant-garde are already very networked: consumers were asked in the study what role digitization and networking currently play in seven different areas of their life. On average the German consumers surveyed regarded networking in 2.8 out of 7 areas of life as indispensable or of very high importance, whilst on average, the digital avant-garde would not like to have to live without networking in 5.1 areas of life. The digital avant-garde anticipates a further substantial increase in networking in all areas of life in the future.

In their communications with friends and acquaintances, the digital avant-garde already rely heavily on digital and new media: for 77 percent of them the cell phone is crucial or very important when it comes to communicating and remaining in contact with friends and acquaintances (the average of all German consum-

ers is 49 percent). As many as 56 percent attach great importance to instant messaging (average 20 percent), while almost half consider VoIP important (average 16 percent). 45 percent rely on blogs, contributions to forums or social networks (average 14 percent), and a quarter describe video telephony as crucial or very important (average 7 percent).

The digital avant-garde are very interested in the range of media services on offer. For 58 percent of consumers belonging to this group it is important, for example, to be able to retrieve content at any time, even when mobile. The digital avant-garde are also willing to pay a little extra for good quality communications technologies and media services.

In Germany, currently 19 percent of the Internet population can be considered among the digital avant-garde *(see Figure 3)*. The cross-national survey shows that the other countries examined are somewhat ahead of Germany in this regard: in South Korea 31 percent of the Internet population already belong to the digital avant-garde, while this figure stands at 28 percent in the USA, 25 percent in Great Britain, and 24 percent in France. Only in Hungary, at 18 percent, is the proportion of digital avant-garde members lower than in Germany *(see Figure 4)*.

As expected, the digital avant-garde, with an average age of 34 years, is the youngest among the three consumer groups identified, with 41 percent of the consumers belonging to this group under the age of 30. Among the vanguard there are many more men (58 percent) than women (42 percent). They are well educated, with an above-average number of the digital avant-garde currently still at school or in higher education.

In contrast, most Internet users belong to the **DIGITAL MAINSTREAM**. In Germany, 48 percent of the Internet population belong to this group. Dealing with the digital media is already a daily experience for these consumers too – but they are not experts. The digital mainstream leads a selectively networked life: the consumers of this group would not like to live without networking in on average 2.9 out of 7 areas of life. As far as media services are concerned, short waiting times – for example when downloading a website page – are a primary concern for the digital mainstream. They also attach great importance to the simple and intuitive manageability of technical equipment. The digital mainstream is also very interested in Internet services and media content tailored to their personal interests. In socio-demographic terms (age, household situation, education and income) the digital mainstream is, as one would expect, around the average for the German Internet population.

The **DIGITAL LATECOMERS** form the third and final consumer group. In Germany, every third Internet user belongs to this segment. With an average age of 43, they are the oldest segment, with one-third over the age of 50. They are often married and live predominantly in two-person households. Pensioners and women are often disproportionately represented among the latecomers. In contrast to the two consumer groups outlined above, the latecomers' use of digital media, even today, is not yet on a daily basis. Correspondingly their lives are not so networked: digitization and networking are indispensable or of very high importance to them in on average just 1.3 of the 7 areas of life covered. For the future, however, even the group of latecomers expects an increase in networking in many areas of life.

Within the scope of this study, the digital avant-garde will be continually referred to as the reference group so as to show the direction in which life and work are likely to move under the influence of digitization and networking.

FIGURE 4: DIGITAL AVANT-GARDE'S SHARE OF THE INTERNET POPULATION OF THE RESPECTIVE COUNTRY

The cross-national comparison shows that the other countries studied – with the exception of Hungary – are ahead of Germany in terms of their digital avant-garde:

25.2%
GREAT BRITAIN

18.2%
HUNGARY

28.0%
USA

18.9%
GERMANY

31.3%
SOUTH KOREA

23.9%
FRANCE
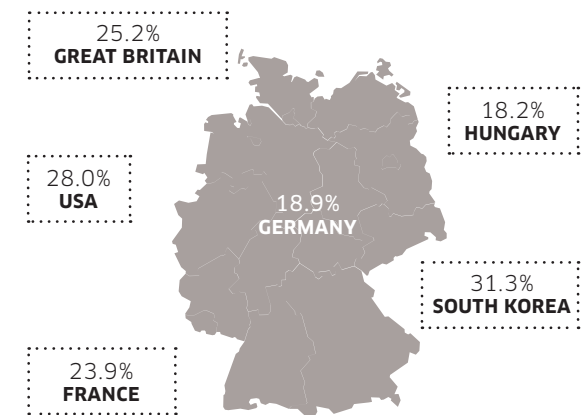
Consumer survey (n=1,054 – 5,120)

3.0 Digital media use

Using digital media is already a normal part of life for many Germans today. Experts predict that the future will bring further digitization and networking, with broader bandwidths, faster download speeds and more widespread use of mobile broadband connections further influencing and shaping the way we communicate. The survey also highlights the key issues for consumers today and in the future: superior data security, intuitive user interfaces, greater ease of use of consumer devices, and high-speed services.

3.1 **Device ownership and communications behavior**

The study shows that most of the consumers surveyed have long been comfortable with using digital media. Around 86 percent of Germans questioned stated that interacting with digital media was an important part of their daily life. As such, Germany ranks first among all the nations included in the study when it comes to digital media use. Hungary is in second place, with 85 percent, while the USA brings up the rear with 70 percent *(see Figure 5)*.

Mobile access is also important to Germans, with over half of the respondents (51 percent) using their devices on the move. This figure is even higher among the digital avant-garde, reaching 85 percent *(see Figure 6)*. The design of consumer devices appears to be gaining in importance. Although only just under a quarter of Germans agree with the statement "It is important that I own and use stylish consumer devices," at 42 percent nearly twice as many South Koreans attach importance to design. As a comparison, 66 percent of the digital avant-garde reference group believes it is important to own stylish devices, with 62 percent of the same group even saying that design was as important as technical functionality. As such, design is expected to increase in importance among the general German population over time *(see Figure 7)*.
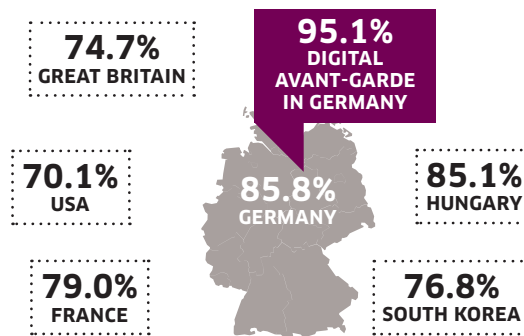
A further indication of today's high level of networking is the respondents' desire to be constantly contactable. Around 53 percent of all Germans surveyed said it was important or very important to always be available, while this figure was even higher in the remaining countries. For example, this opinion is shared by 85 percent of respondents in South Korea, and 75 percent in France.

64%
of the Germans surveyed believe that modern technical devices and Internet services make everyday life easier and improve their quality of life. What's more, these benefits are not just limited to younger target groups, with 54 percent of respondents thinking that the Internet also makes life easier for older people.

FIGURE 5: DIGITAL MEDIA USE

In the cross-country comparison, Germany comes out on top in terms of digital media use.

Agreement with the statement: Using digital media (the Internet, computers, cell phones, etc.) is a natural part of my everyday life.

74.7% GREAT BRITAIN	**95.1%** DIGITAL AVANT-GARDE IN GERMANY
70.1% USA	**85.8%** GERMANY — **85.1%** HUNGARY
79.0% FRANCE	**76.8%** SOUTH KOREA

Consumer survey (responses to top two options "fully agree"/"agree", no. of respondents=1,054 – 5,120)

FIGURE 6: MOBILE USE OF TECHNICAL DEVICES

Every second respondent uses technical devices on the move as well.

Agreement with the statement: I also often use technical devices when I am on the move.

68.3% GREAT BRITAIN	**85.4%** DIGITAL AVANT-GARDE IN GERMANY
68.4% USA	**51.3%** GERMANY — **49.1%** HUNGARY
65.0% FRANCE	**63.7%** SOUTH KOREA
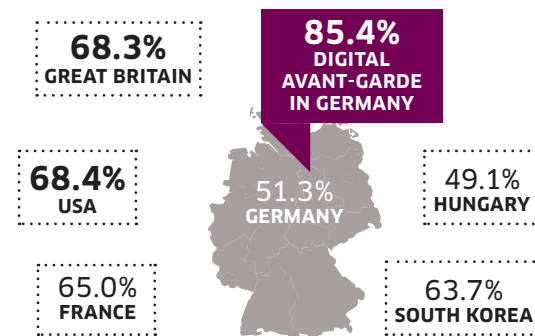
Consumer survey (responses to top two options "fully agree"/"agree", n=1,054 – 5,120)
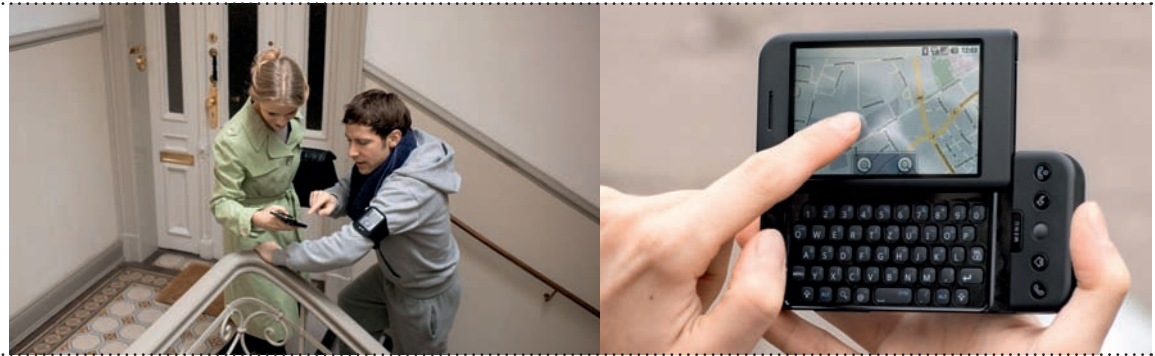
Looking at device ownership shows that mobile phones and desktop computers are already standard items in the home today: 96 percent of German respondents own a mobile phone, and 84 percent a PC. Around 68 percent own an MP3 player, 60 percent a laptop, and almost half of everyone surveyed had a games console at home or planned to buy one in the next 12 months. And the market for set-top boxes is another area where the future has already begun: in Great Britain, one in two respondents owns a set-top box, while in Germany the digital avant-garde give an indication of the future trend. 21 percent of this trend-setting group already own a set-top box, with a further 24 percent planning to buy one over the next 12 months. An additional indication for the increasing importance of networking is consumer willingness to spend money on quality: Around 68 percent of the digital avant-garde in Germany agree with the statement, "For good quality in communications technology and media services I am willing to pay a little more." *(see Figure 8).*

FIGURE 7: LIFESTYLE FOCUS OF THE DIGITAL AVANT-GARDE

In terms of lifestyle and design, South Korea and the digital avant-garde give a clear indication of future trends.

Agreement with the statement: It is important to me that I own and use stylish consumer devices.

33.5%
GREAT BRITAIN

65.6%
DIGITAL
AVANT-GARDE
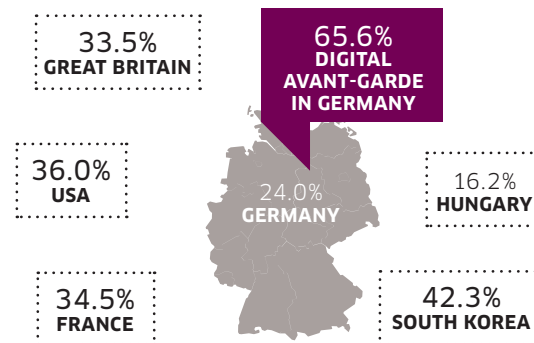IN GERMANY

36.0%
USA

24.0%
GERMANY

16.2%
HUNGARY

34.5%
FRANCE

42.3%
SOUTH KOREA

Consumer survey (responses to top two options "fully agree"/"agree", n=1,054–5,120)

FIGURE 8: WILLINGNESS TO PAY

The digital avant-garde in particular show high willingness to pay for high-quality services: roughly 68% are willing to pay a little more for good quality.

Agreement with the statement: For good quality in communications technology and media services I am willing to pay a little more.

46.7%
GREAT BRITAIN

67.5%
DIGITAL
AVANT-GARDE
IN GERMANY

50.5%
USA

40.0%
GERMANY

45.7%
HUNGARY

41.4%
FRANCE

43.5%
SOUTH KOREA
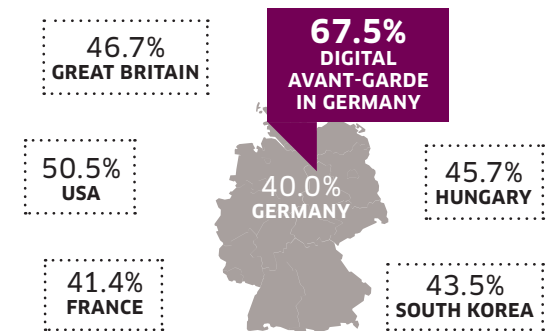
Consumer survey (responses to top two options "fully agree"/"agree", n=1,054–5,120)

FIGURE 9: THE IMPORTANCE OF THE INTERNET AND CELL PHONES IN PEOPLE'S PRIVATE LIVES

How important is the Internet in your private life?

| 77.3 |

Imagine you were choosing a new place to live: How important would it be that this new home had a broadband connection?

| 74.2 |

How important is a cell phone in your private life?

| 41.6 |

German consumer survey (5,120 respondents, responses in percent to top two options "crucial"/"very important")

3.2 The importance of cell phones and the Internet

The cell phone is now an essential companion in both our private and professional lives. The figures speak for themselves: in 1994 there were around 2.4 million cell phone connections in Germany, but by 2007, according to BITKOM, this figure had risen to a staggering 97.4 million. As such, there are now more cell phones in Germany than there are inhabitants. Worldwide, 2007 saw the number of cell phone connections reach the 3 billion mark *(source: BITKOM).*

Cell phones are a common feature of the urban landscape and shape our leisure time like no other technical device. For 42 percent of Germans surveyed, the cell phone plays either a "decisive" or "very important" role in their private lives. In terms of their professional lives, 35 percent of those surveyed said the cell phone was of decisive or very high importance. Thus, the cell phone today plays a more significant part in our private lives and leisure time than it does in our employment.

The Internet has become similarly important to us. Over the course of the last 15 years, the World Wide Web has opened a window on the world. The consumer survey shows that today in the personal lives of more than three quarters of Germans surveyed (77 percent) the Internet is of decisive or very high importance. The same number of respondents also stated that they use the Internet seven days a week for personal reasons. Even people's choice of accommodation is influenced by the Internet, with 74% of those surveyed claiming they would first check that their new home had a broadband connection before moving in *(see Figure 9).*

3.3 The importance of different communications media today and in the future

After face-to-face communication, e-mail, telephone and cell phone are the most important means of communication for the Germans surveyed to keep in contact with family and friends. SMS and MMS messaging are also either decisive or very important communications media for a good third of respondents, while as many as a fifth stated that instant messaging plays a decisive or very important role in communications.

A similar picture can be found in France, Great Britain and the USA, where the importance of cell phones is seen as even higher than in Germany. South Korea should also be mentioned here, with respondents stating that communicating via cell phone is actually more important than face-to-face communication.

If we change our focus from contemporary use of communications media toward that of the future, the survey shows that consumers expect a further significant increase in their importance over the next five or six years, especially for e-mail, voice over IP (VoIP) services, and for mobile and video telephony. Around 46 percent of German respondents believe each of these communication tools will become more significant. As for landline phones, 64 percent believe that the medium will retain its importance, meaning this traditional device will continue to play a clear role in the media mix of the future. The respondents similarly believe personal communications will not dwindle in importance: 61 percent believe this will remain as significant as it is today, while 32 percent of those surveyed predict an increase in the importance of personal communications. These figures are also very similar to the responses regarding the future importance of instant messaging and SMS *(see Figure 10).*

FIGURE 10: THE CHANGING IMPORTANCE OF DIFFERENT COMMUNICATIONS MEDIA (GERMANY)

Consumers believe that e-mail and VoIP, as well as mobile and video telephony, are most likely to gain in importance in the future. Landline phones and personal communications are expected to maintain their importance.

Response to the question: How do you think the importance of different communications media will change for you personally over the next 5-6 years?

	increase	stay the same	decrease
E-mail	47.0	50.3	2.7
VoIP	46.8	42.2	11.0
Cellular telephony	45.8	51.8	2.4
Video telephony	45.3	42.8	11.9
Personal communications	31.6	61.4	7.0
Instant messaging	30.1	56.9	13.1
SMS/MMS	28.1	62.8	9.1
Blogs/forums/social networks	26.3	60.0	13.8
Landline telephony	16.5	64.4	19.1

■ increase   ■ stay the same   ■ decrease
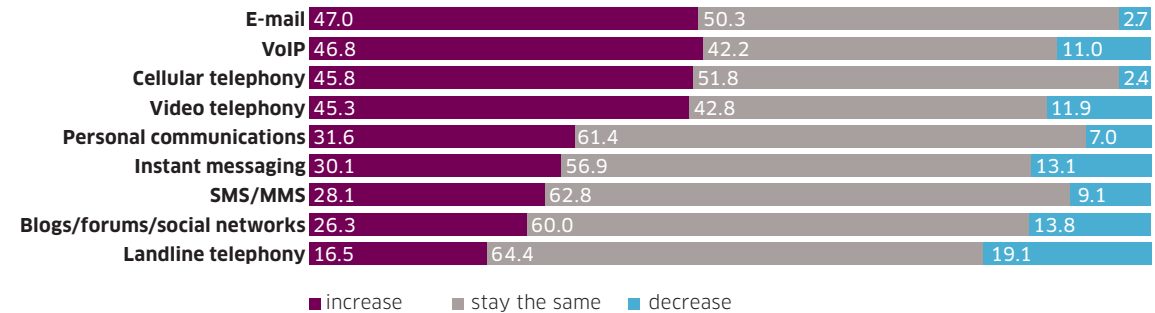
German consumer survey (no. of respondents=5,120, responses in percent)

Again, South Korea is also particularly interesting here. Although the cell phone is already by far the most important means of communication there today, 76 percent of those surveyed believe cellular telephony will continue to grow in importance over the next five or six years.

3.4 The use of social networks

Private so-called social networks (Internet-based platforms for uploading and sharing digital content) are very popular with German Internet users. Around 50 percent of participants in the study are members of on average 2.7 of these networks. In the reference group of the digital avant-garde, 68 percent reported membership in a private social network. In the cross-country comparison, Great Britain comes out on top, where 61 percent of all those surveyed are members of a private social network (see Figure 11).

The main reasons for respondents joining private social networks are perhaps unsurprising: 78 percent of those surveyed said they registered because their friends were also members. Accordingly, the second most important reason for membership given by 65 percent of the respondents was the wish to stay in contact with friends. This was followed by 60 percent saying they use the sites as a means of entertainment and passing time. Around 41 percent registered out of pure curiosity, while a further 40 percent access the platforms as a means of exchanging and sharing content with friends (see Figure 12).

FIGURE 11: MEMBERSHIP IN PRIVATE SOCIAL NETWORKS

In Germany, 50 percent of the Internet users surveyed are members of at least one social network. In the cross-country comparison, Great Britain leads the field here, with around 61 percent of those surveyed being members of a social network. The digital avant-garde: 68 percent.

Response to the questions: Are you a member of a private social network / a platform to upload and share digital content? (If yes :) How many of these networks are you a (private) member of?
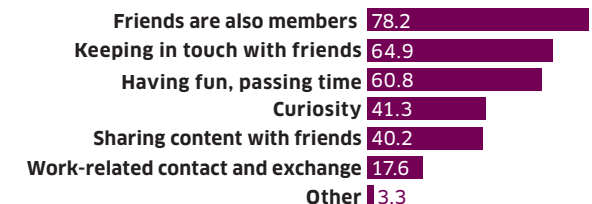
DAV	67.9	ø=3.0
GB	61.0	ø=2.2
US	53.8	ø=2.1
DE	49.8	ø=2.7
FR	49.5	ø=2.5
KR	40.3	ø=4.4
HU	39.7	ø=3.0
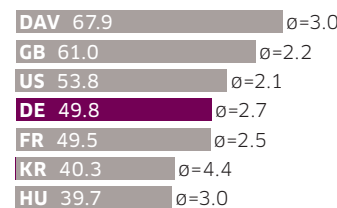
ø Number of networks

Consumer survey ("yes" answers in percent, average number). n=1,054 – 5,120, DAV=digital avant-garde in Germany

FIGURE 12: REASONS FOR MEMBERSHIP IN PRIVATE SOCIAL NETWORKS (GERMANY)

The main reason given for membership in a private social network: friends are there as well (network effect). Accordingly, keeping in touch with friends is the second most important reason given.

Response to the question: What are the main reasons for you being a member of one or more private social networks?

Friends are also members	78.2
Keeping in touch with friends	64.9
Having fun, passing time	60.8
Curiosity	41.3
Sharing content with friends	40.2
Work-related contact and exchange	17.6
Other	3.3

Consumer survey Germany (2,549 respondents who are members of a private social network. Figures in percent, multiple answers possible).

FIGURE 13: FUNCTIONS USED IN PRIVATE SOCIAL NETWORK (GERMANY)

Social networks primarily serve to maintain communication with friends. Functions for uploading and sharing content have been until now more sparingly used.

Answer to the question: Think of the private social network you prefer to use – which of the following functions do you make use of?

Function	Percent
Chatting	46.4
Poking friends / Wall	33.5
Commenting on posts	31.4
Writing something about yourself	28.7
Writing posts/Blogging	27.1
Uploading/Sharing photos	25.4
Uploading/Sharing other content	12.6
Uploading/Sharing videos	10.1
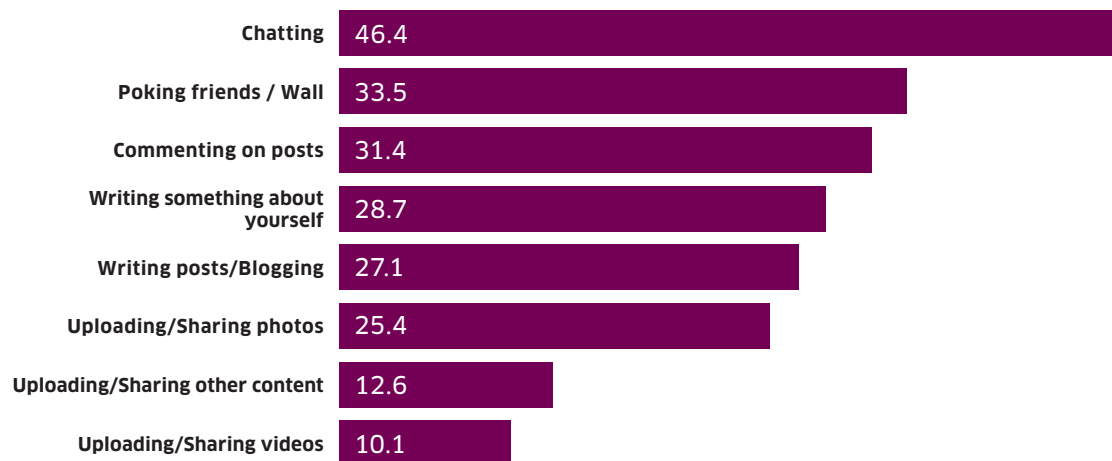
Consumer survey in Germany of 2,549 consumers who are members of a private social network. Responses in percent to top two options "frequently"/"regularly". Statements partially shortened.

As an example of this, every fourth user uploads photos to these platforms "frequently" or "regularly" *(see Figure 13)*. Video content is placed online more rarely, however, with just 10 percent of German users doing so regularly. The cross-country comparison suggests that particularly uploading and sharing photos will increase in the future: in France, almost 40 percent of users currently do so, while in the USA 45 percent already do this and in South Korea and the digital avant-garde group this figure even reaches 47 percent, so almost every second user regularly or frequently uploads photos and shares them with their friends *(see Figure 14)*.

Overall, the most popular social networking functions being used are those that are used to communicate, i.e. chat tools, writing on friends' walls, and commenting on other people's contributions.

Social networks are also employed in the professional sphere: in Germany almost 16 percent of respondents are members of on average 1.4 business social networks. In the digital avant-garde cluster, around 26 percent, already more than one in four, stay in contact with business associates through these networks. In the cross-country comparison, Great Britain once again heads the international league table, with 22 percent of those surveyed stating that they are members of business networks. Each of these users is a member of on average 2.5 networks.
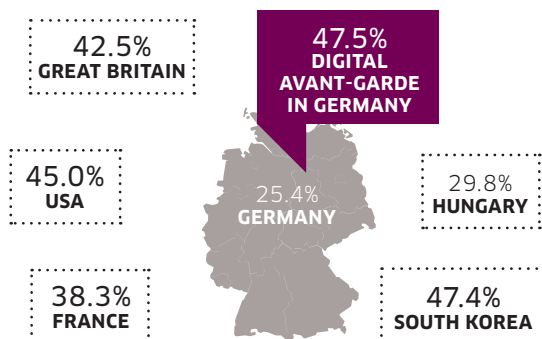
Social networks are also employed in the professional sphere: In Germany, nearly 16 percent of respondents are members of business social networks, in the digital avant-garde group this is 26 percent.

FIGURE 14: SHARING PHOTOS IN SOCIAL NETWORKS

Those surveyed in South Korea, the USA and Great Britain in particular, as well as the avant-garde, regularly use social networks to share photos with friends.

I use functions for uploading and sharing photos "frequently" or "regularly":

42.5% GREAT BRITAIN	**47.5%** DIGITAL AVANT-GARDE IN GERMANY	
45.0% USA	**25.4%** GERMANY	**29.8%** HUNGARY
38.3% FRANCE		**47.4%** SOUTH KOREA

Consumer survey of 421 – 2,549 consumers who are members of a private social network. Responses in percent to top two options "frequently"/"regularly".

FIGURE 15: PREDICTED DEVELOPMENT OF STATIONARY BROADBAND CONNECTIONS IN GERMANY

The experts expect the number of stationary broadband Internet connections in Germany to reach 36 million (thus almost doubling) by 2015.

Response to the questions: How do you think the number of broadband Internet connections in Germany will develop in the future? Which figures do you expect to see in 2010 and 2015?

BROADBAND INTERNET CONNECTIONS IN GERMANY, IN MILLIONS

2007 18.7
2010 25.0
2015 36.0

■ 2007 figures according to the Federal Network Agency (2007) http://www.bundesnetzagentur.de/media/archive/12186.pdf
■ Delphi survey experts' predictions for 2010 and 2015

FIGURE 16: PREDICTED DEVELOPMENT OF UMTS CELL PHONE CONNECTIONS IN GERMANY

The experts predict the number of cell phone connections in Germany to reach 114 million by 2015, with 41 million of these being UMTS connections.

Response to the questions: How do you think the number of cell phone connections in Germany will develop in the future? Which figures do you expect to see in 2010 and 2015?

UMTS CONNECTIONS IN GERMANY, IN MILLIONS

2007 10.4
2010 20.0
2015 41.0

■ 2007 figures according to BITKOM, adapted from Federal Ministry for Business and Technology (ed.): "Breitband der Zukunft: Strategiepapier Breitband der Zukunft für Deutschland. Arbeitsgruppe 2: Konvergenz der Medien" (2008)
■ Delphi survey experts' predictions for 2010 and 2015

3.5 The development of digitization and networking – what the experts think

For the future, the Delphi survey experts expect a further rise in the number of broadband Internet connections in Germany. In real terms, they see the number of broadband connections rising from today's figure of 18.7 million to 25 million by 2010. By 2015, the experts surveyed predict a total of 36 million broadband connections *(see Figure 15)*.

The majority of experts also predict transfer rates of well over 50 Mbps in urban areas, and of over 100 Mbps for premium rate connections by 2015. The mobile Internet is set to grow in importance considerably, according to the experts, with the number of UMTS mobile telecoms connections rising to 20 million by 2010, around double the 2007 figure *(see Figure 16)*.

This means in terms of infrastructure that there is nothing standing in the way of further digitization and networking: if the experts are proved right, the next two to five years will see a clear leap forward toward a digital society. Stationary and mobile Internet will continue to complement each other to an increasingly greater extent, with broader and more stable band connections and faster transfer rates.

Which trends in telecommunications are thus to be expected? The experts envisage above all the following seven main developments:

A MOBILE WORLD. The classical distinction between mobile and landline networks will no longer be made. All the relevant services and content will be available on the move. Mobile Internet will become a mass phenomenon.

ALL OVER IP. The world of telecommunications will be based completely on Internet Protocol, and voice over IP (VoIP) will reach an ever-wider market.

USER DEVICES. Today's smartphones will be transformed into high-performance all-rounders, with extremely simple and intuitive interfaces. These devices will enable people to be constantly online, to remotely manage a range of different services, and access and enjoy all media in mobile use.

ALWAYS ON. With networks available wherever we go and high-performance devices, everyone will be online all of the time.

CONVERGENCE. Different industries will increasingly merge together and offer a packaged service – the clear divisions between network operators, service providers, media content suppliers, and device manufacturers will cease to exist.

MOBILE PAYMENT. Purchase and payment processes will increasingly be carried out via mobile devices.

MOBILE WORKFORCES. Staff structures will increasingly be shaped by remote working and working in virtual teams, while mobile access to virtual storage will become an everyday part of life. Overall, the working world will be far more networked than it already is today.

3.6 Consumers' expectations of increasing digitization and networking

The consumers surveyed stated that they believed increasing digitization and networking would **SIMPLIFY THEIR DAILY LIVES**, particularly in terms of their work and their dealings with the authorities, as well as in their private lives (such as when shopping).

Furthermore, German Internet users expect this increased digitization and networking to bring about an **IMPROVEMENT IN THE EXCHANGE OF INFORMATION**, with the Internet today already offering easy access to information of all types at any time of the day. The increasing availability of mobile Internet should mean that news portals, online encyclopedias and dictionaries, electronic books, and digital libraries, etc. will be accessible not only any time, but also anywhere.

In addition, consumers envisage that increasing digitization and networking in their everyday lives will make it easier to **MAKE AND MANAGE PRIVATE AND PROFESSIONAL CONTACTS**, lead to improvements in **AVAILABILITY**, enable **TIME SAVING** and, through that, **INCREASE OVERALL LEISURE TIME**.

At the same time, consumers naturally have some concerns, principally regarding the issues of data secu-rity, protection against the misuse of data, and privacy. Some of those surveyed also fear that increasing digitization could lead to greater alienation and isolation, while others worry that being constantly contactable will actually result in higher and not lower stress levels for the majority. Finally, some respondents highlighted their worries that people will become overly dependent on technology and its functioning.

3.7 Consumer demands on devices and services

Suppliers of broadband services, as well as manufacturers of Internet and telecommunications devices, are faced with the challenge of tailoring their services to meet the needs of consumers. The results of the survey show what consumers value most:

SIMPLE AND INTUITIVE DEVICES AND SERVICES. Of the 5,120 German Internet users surveyed, around 79 percent agreed with the statement: "Technical devices and Internet services must above all be simple and intuitive to use". This desire for simplicity is not at all due to a lack of technical understanding on the part of users, but rather a result of consumers' increased self-confidence toward their suppliers. A look at the reference group of the digital avant-garde highlights this: although the individuals that make up this group are very technically well versed, they are actually more demanding than average users when it comes to simplicity, with 81 percent agreeing with the statement. The French are even less prepared to put up with compli-cated interfaces and poor operability, with 87 percent of respondents agreeing with the statement.

When designing devices and services to be as easy to use as possible, it would also seem worthwhile to focus more on the operating instructions of new devices, as German users in particular are very unwilling to read these. Just 37 percent of respondents in Germany agreed with the statement "When I unpack a new device, the first thing I do is read the instructions." In other words, around 63 percent of Internet users in Germany start using their new technical devices without reading the instructions first. In the cross-country comparison, the German users were the least likely to read the instruc-tions. The figures in the remaining countries in the survey are a little higher, with the percentage of those in France that read the instructions standing at 44 percent, compared to 47 percent for Great Britain, 55 percent for

Hungary, and 52 percent for both the USA and South Korea. However, even here, around half of the respondents trust in their own technological understanding and the intuitive operation of their new device.

SPEED. This is a similarly important aspect for consumers. Long waiting times, such as when loading a website, are totally unacceptable for around three quarters of the respondents in Germany (78 percent), while as many as 84 percent of the digital avant-garde reference group are not prepared to wait around for a website to load. Those surveyed in France are similarly impatient (81 percent). Only those surveyed in South Korea are a little more relaxed (70 percent).

PERSONALIZED CONTENT. The general trend in society for individualization is also reflected on the Internet and in telecommunications. 56 percent of those surveyed in Germany stated that they were interested in customized or customizable content and services.

Similar numbers of Internet users in Great Britain (56 percent) and the USA (55 percent) also agreed with this statement. The importance of personalization and individualization in the future is indicated by the digital avant-garde respondents in Germany: As many as 84 percent of those surveyed expressed a preference for the kind of services that are tailored to their own specific interests. In South Korea – which is in many respects a pioneer in terms of digitization and networking – at 71 percent the demand for customizable services is also significantly more pronounced than in any of the other countries involved in the survey *(see Figures 17 and 18)*.
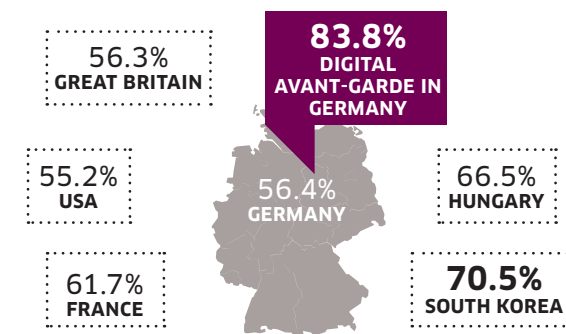
HIGH DATA SECURITY. Around half of all those surveyed in Germany (50 percent) stated that they often worried that their private data could fall into the wrong hands online. This figure was even higher for the digital avant-garde reference group, standing at 57 percent, and thus at a similar level to the other countries. The respondents in South Korea were most worried about the misuse of their private data (60 percent), while respondents in Hungary were least concerned (42 percent).

HIGH CONVENIENCE. 50 percent of those surveyed believe it would be a good thing if they did not have to log in separately for each individual service on the Internet, with even 68 percent of the digital avant-garde sharing this opinion. Around a third of the respondents in Germany (34 percent) and around 48 percent of the digital avant-garde state that they occasionally lose track of all the different passwords and PINs they have to remember. In Germany, 56 percent of Internet users overall, and around three quarters of the digital avant-garde, would like to have one single number or address that they could be contacted on for all media (telephone, e-mail, etc). 80 percent of respondents find services such as synchronizing contacts and address books on all devices interesting or very interesting. All this shows that services which help keep technological diversity manageable and make existing services simpler, easier and more straightforward are highly sought after among consumers.

FIGURE 17: THE TREND FOR PERSONALIZED CONTENT

The importance of individualization and customization.

Agreement with the statement: I am particularly interested in services (e.g. Internet services, media content, etc.) that are specially tailored to my personal interests.

56.3% GREAT BRITAIN

83.8% DIGITAL AVANT-GARDE IN GERMANY

55.2% USA

56.4% GERMANY

66.5% HUNGARY

61.7% FRANCE

70.5% SOUTH KOREA

Consumer survey of 1,054 – 5,120 respondents (responses in percent to top two options "fully agree"/"agree")

FIGURE 18: CONSUMER DEMANDS ON DEVICES AND SERVICES (GERMANY)

INTUITIVE USABILITY 79.3*

SPEED 77.5**

PERSONALIZATION 56.4***
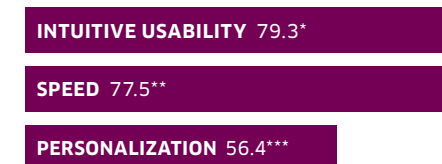
* Technical devices and Internet services must primarily be easily and intuitively usable.

** Long waiting times (e.g. when a website is loading) are unacceptable to me.

*** I am particularly interested in personalized services (e.g. Internet services, media content, etc.)

Consumer survey Germany (n=5.120, agreement in percent with top two options "Fully agree"/"Agree"

4.0 Digitization and networking in various areas of life

This study deals with the impact digitization and networking have on our lives. But what does "our lives" mean? International research on quality of life and satisfaction with life shows that – despite vastly differing life plans and circumstances – people's lifeworlds can ultimately be divided neatly into seven areas of life. Life consists of interaction with family and friends, leisure and well-being, work and study, material and financial matters, health, society and community life, and the topic of security with all its facets.[4] The results of the study show that digitization and networking are already a daily feature in many of these areas. At the same time, the results indicate that these trends will extend further still in the years ahead.

4.01 **The extent of networking in our lives today**

Cell phones are being used increasingly as surfing plat-forms. New cars are equipped with web access. Thanks to sensors in their running shoes, athletes can transmit their running speed, distance or calorie consumption directly to an online platform and thus analyze their training results. Or they can challenge friends to con-tests and find running partners in their neighborhood. Yet some trend researchers speak of the new-found appeal of being non-contactable. Just how networked are our lives right now?

In the study consumers were asked what role digiti-zation and networking currently play for them person-ally in the various areas of their lives. It was shown that digitization and networking are already an everyday phenomenon for consumers in many areas of their lives *(see Figure 19)*.

In Germany consumers are particularly networked in the area of family and friends. For 57 percent of Internet users in Germany, digitization and network-ing are indispensable or of very high importance for staying in touch with friends and family – be it through e-mail or sharing photos on the Internet. In the digital avant-garde reference group, the figure is even as high as 88 percent. Digitization and networking are also an everyday feature in material and financial matters, as well as in work and study: 48 percent of Internet users in Germany cannot imagine life without online shopping, online auctions and online banking, while in the digital avant-garde reference group, this figure is almost twice as high (81 percent). Just over 79 percent of the digital avant-garde are expanding on working from home, on working in decentralized networked teams, or on e-learning (figure for all Germans surveyed: 44 percent). At 79 percent, networking in the sphere of leisure and
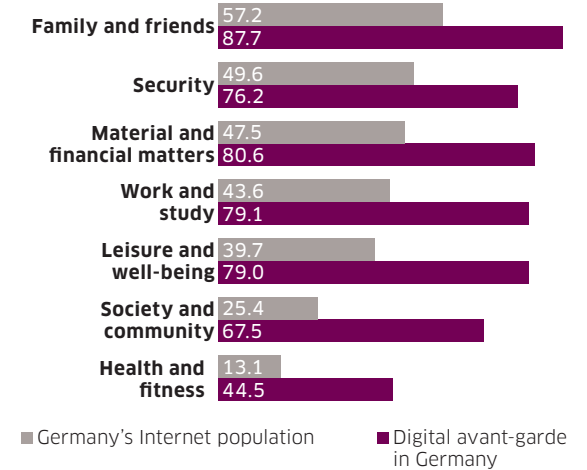
well-being is almost as important to the digital avant-garde. Digitization and networking are also of great importance to German Internet users with regard to security. This means not only personal safety (e.g. being able to call for help on a cell phone) but also the security of personal property or data (e.g. in the form of secure online payment transactions).

How do the results for Germany compare interna-tionally? A look at the other countries surveyed shows that digitization and networking play a more important role in those countries than in Germany in some areas. In France, for example, 69 percent of Internet users regard digitization and networking as indispensable or very important for staying in touch with friends and family compared with 66 percent in the USA *(see Figure 20)*. And whereas in Germany today 40 percent of the consumers surveyed regard digitization and networking as very important in terms of leisure and well-being, in South Korea this figure is as high as 58 percent. The cross-country comparison and the high agreement rates in the digital avant-garde reference group suggest that digitization and networking will gain further in importance for Germany in the future.

FIGURE 19: DIGITIZATION AND NETWORKING TODAY

Digitization and networking are already an everyday feature in many areas of life.

Response to the question: What role do digitization and networking play today – for you personally – in the different areas of your life?

	Germany's Internet population	Digital avant-garde in Germany
Family and friends	57.2	87.7
Security	49.6	76.2
Material and financial matters	47.5	80.6
Work and study	43.6	79.1
Leisure and well-being	39.7	79.0
Society and community	25.4	67.5
Health and fitness	13.1	44.5

■ Germany's Internet population ■ Digital avant-garde in Germany

Consumer survey Germany (responses in percent to top two options "indispensable"/"very high importance", n=5,120 respondents in total, n=969 digital avant-garde). For further details of the services, see page 52.

FIGURE 20: DIGITIZATION AND NETWORKING TODAY, FAMILY AND FRIENDS, COUNTRY COMPARISON

In the area of family and friends, digitization and network-ing play a greater role in other countries than in Germany in some respects.

Response to the question: What role do digitization and networking play today – for you personally – in the differ-ent areas of your life? / Area of family and friends
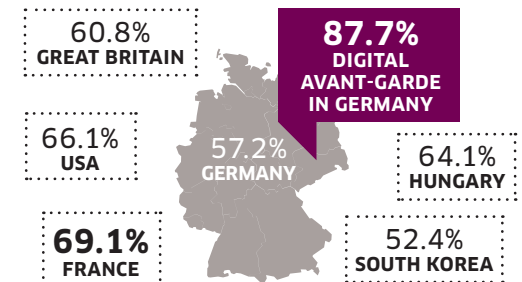
60.8% GREAT BRITAIN
66.1% USA
69.1% FRANCE
57.2% GERMANY
87.7% DIGITAL AVANT-GARDE IN GERMANY
64.1% HUNGARY
52.4% SOUTH KOREA

Consumer survey (responses in percent to top two options "indispensable"/"very high importance", n=1,054–5,120)

4.02 The extent of networking in our lives tomorrow

Digitization and networking already form a part of many – if not all – areas of our lives. But what does the future hold? Experts and consumers agree that the degree of digitization and networking will increase further in all areas of life. The experts assume an even greater increase overall than consumers do. Both agree, however, that the biggest increases are to be expected in the areas of leisure and well-being, family and friends, work and study, and material and financial matters – and the smallest for heath and fitness *(see Figures 21 and 22).*

For example, 93 percent of the experts and 59 percent of Internet users in Germany assume that people's **LEISURE ACTIVITIES** will be influenced even more strongly by digitization and networking in future. It will become an increasingly common aspect of leisure activities to listening to music or the radio over the Internet, access videos at any time or fill in waiting times playing games on mobile handsets. Internet users in South Korea are even more convinced of this trend than German consumers, with 73 percent anticipating greater networking in the leisure and well-being category.

In terms of **FAMILY AND FRIENDS**, 90 percent of the experts expect further growth in networking. From the perspective of the German Internet population, digitization will increase most in this area of life – with 65 percent of Internet users anticipating further growth. It will therefore be even more natural in future to keep in touch with people through the Internet, to share photos online with friends and family, or to exchange views on specific topics with like-minded people on the Internet. And this applies by no means only to Germany: as many as 74 percent of Internet users in France and 73 percent of Internet users in South Korea expect increased networking with family and friends.

In **WORK AND STUDY**, too – the classical area of networking – 79 percent of the experts and 64 percent of German consumers predict an increase in the level of digitization and networking. They are convinced that in future far more than today people will be able to work at any time and anywhere and that learning will become a daily activity with the help of digital media and mobile access to online databases and encyclopedias.
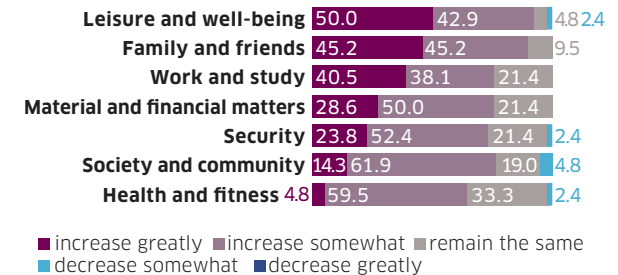
The survey of the current state of networking in the different areas of life has shown that online shopping, online auctions and online banking are already very popular. Nevertheless, experts and consumers agree that the level of digitization and networking will increase further in **MATERIAL AND FINANCIAL MATTERS**: 79 percent of the experts and 62 percent of the German Internet population believe that digitization and networking will increase in importance in the area of material and financial matters.

It is also interesting in terms of future prospects to take a closer look at the different consumer groups in Germany. The digital avant-garde, for example, despite already leading a very networked life, assume that digitization and networking will increase further in all areas of life. This also applies to the otherwise comparatively conservative assessment of the area of health and fitness.

FIGURE 21: INCREASE IN DIGITIZATION AND NETWORKING – EXPERTS' VIEW

According to the experts, the importance of digitization and networking will grow in all areas of life.

Response to the question: To what extent in your view will the importance of digitization and networking in individual areas of life change in future?

Area	increase greatly	increase somewhat	remain the same	decrease somewhat	decrease greatly
Leisure and well-being	50.0	42.9		4.8	2.4
Family and friends	45.2	45.2	9.5		
Work and study	40.5	38.1	21.4		
Material and financial matters	28.6	50.0	21.4		
Security	23.8	52.4	21.4	2.4	
Society and community	14.3	61.9	19.0	4.8	
Health and fitness	4.8	59.5	33.3	2.4	

■ increase greatly ■ increase somewhat ■ remain the same
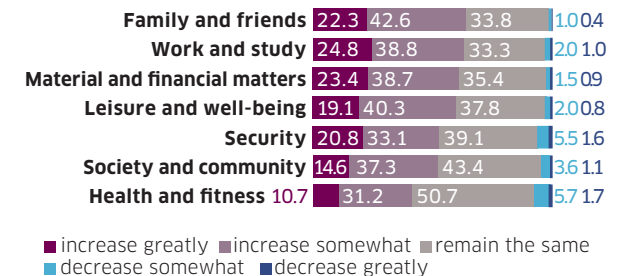■ decrease somewhat ■ decrease greatly

Delphi survey (responses in percent to top two options, n=42).
For further details of the services, see page 52.

FIGURE 22: INCREASE IN DIGITIZATION AND NETWORKING – CONSUMERS' VIEW

Consumers see the biggest increase in the importance of digitalization and networking in the areas of family and friends, work and study, material and financial matters, and leisure and well-being.

Response to the question: To what extent in your view will the importance of digitization and networking in individual areas of life change in future?

Area	increase greatly	increase somewhat	remain the same	decrease somewhat	decrease greatly
Family and friends	22.3	42.6	33.8	1.00	0.4
Work and study	24.8	38.8	33.3	2.0	1.0
Material and financial matters	23.4	38.7	35.4	1.5	0.9
Leisure and well-being	19.1	40.3	37.8	2.0	0.8
Security	20.8	33.1	39.1	5.5	1.6
Society and community	14.6	37.3	43.4	3.6	1.1
Health and fitness	10.7	31.2	50.7	5.7	1.7

■ increase greatly ■ increase somewhat ■ remain the same
■ decrease somewhat ■ decrease greatly

Consumer survey Germany (responses in percent to top two options, n=5,120). For further details of the services, see page 52.

4.1 Leisure and well-being

Entertainment, hobbies, travel, music and culture – all these topics are already characterized by digitization and networking today. Already for 72 percent of the German Internet users surveyed, life would be unimaginable without digital media as far as the organization of leisure activities is concerned. Nevertheless, both experts and consumers agree that life in the area of leisure and well-being is set to become even more networked in future. A total of 93 percent of the experts and 59 percent of the consumers surveyed in Germany expect leisure activities to become increasingly digitized and networked. But which services and applications are of specific interest to Internet users? And which aspects have to be fulfilled so that the relevant services are actually used by consumers?

4.11 **Leisure and well-being: the importance of the Internet and telecommunications**

Today, already 72 percent of the German Internet population surveyed – and 93 percent of the digital avant-garde – can no longer imagine organizing their leisure activities without the Internet and telecommunications. German users already attach more importance to the Internet and mobile telephony in organizing their leisure activities than Internet users in most other countries *(see Figure 23)*. Only the French (78%) would find it harder than the Germans to do without cell phones and the Internet. The digital media are just as important to South Koreans as to Germans – where again 72 percent of Internet users cannot imagine organizing their leisure activities without the Internet and telecommunications.

The high importance of the digital media in the area of leisure and well-being is not only attributable to activities in cyberspace. On the contrary, the online and offline worlds are closely interwoven. 72 percent of German Internet users use the Internet to prepare for "offline" activities. The consumer survey shows that this aspect of Internet use is of high importance even to the digital latecomers consumer group, for whom the use of digital media is not yet a natural everyday activity: 59 percent of latecomers fully agree or agree with the statement that they frequently prepare offline activities online.
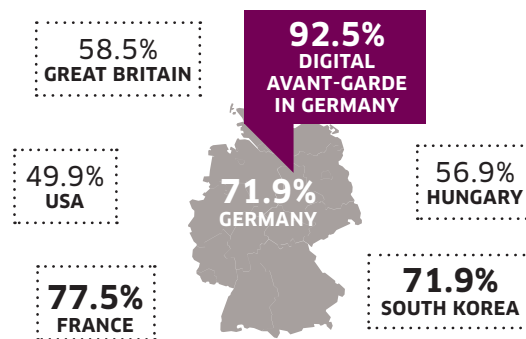
4.12 **Leisure and well-being: which services interest consumers**

Leisure, Internet and telecommunications are therefore closely interlinked. But what is the actual benefit to consumers? Which **APPLICATIONS AND SERVICES** do Internet users find interesting? The experts surveyed assume that for consumers, location-based services in particular – e.g. pedestrian sat-nav systems, information on the surrounding area via cell phone or buddy lists with friends in the neighborhood – and online music are useful. Equally high in favor with consumers are online TV, online video, and photo sharing. The responses from the consumers themselves reveal in particular a high interest in online music. Also popular among consumers are online TV, online videos and photo sharing
(see Figure 24).

FIGURE 23: IMPORTANCE OF THE INTERNET AND TELE-COMMUNICATIONS IN THE ORGANIZATION OF LEISURE ACTIVIITES

72 percent of German Internet users can no longer imagine organizing their spare time activities without the use of the Internet and telecommunications. Among the digital avant-garde, this figure is even as high as 93 percent.

Agreement with the statement: I cannot imagine organizing my leisure activities without the Internet and telecommunications.
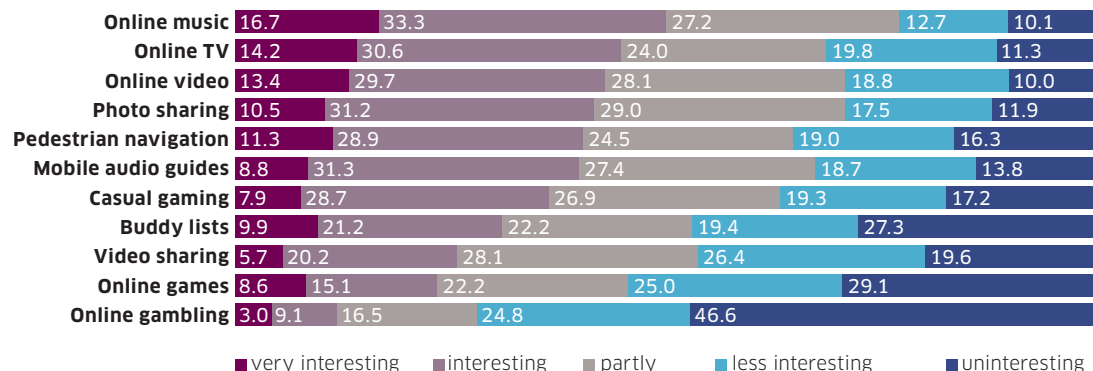

58.5% GREAT BRITAIN

92.5% DIGITAL AVANT-GARDE IN GERMANY

49.9% USA

71.9% GERMANY

56.9% HUNGARY

77.5% FRANCE

71.9% SOUTH KOREA

Consumer survey of 253 – 1,425 respondents (responses in percent to top two options "fully agree"/"agree")

FIGURE 24: EVALUATION OF DIFFERENT SERVICES IN THE AREA OF LEISURE AND WELL-BEING (CONSUMERS' VIEW)

Top services in the area of leisure and well-being: online music (50 percent of top two options), online TV, online video and photo sharing.

Response to the question: Please evaluate the Internet and telecommunications services listed below according to how interesting you find them.

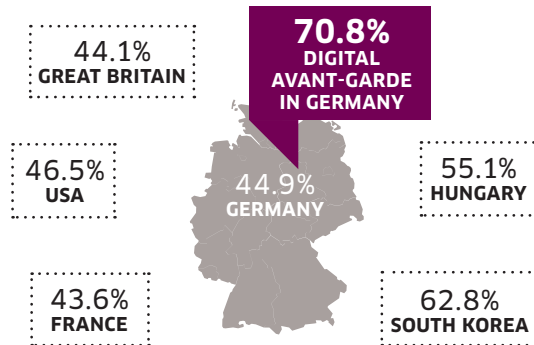| Service	very interesting	interesting	partly	less interesting	uninteresting
Online music	16.7	33.3	27.2	12.7	10.1
Online TV	14.2	30.6	24.0	19.8	11.3
Online video	13.4	29.7	28.1	18.8	10.0
Photo sharing	10.5	31.2	29.0	17.5	11.9
Pedestrian navigation	11.3	28.9	24.5	19.0	16.3
Mobile audio guides	8.8	31.3	27.4	18.7	13.8
Casual gaming	7.9	28.7	26.9	19.3	17.2
Buddy lists	9.9	21.2	22.2	19.4	27.3
Video sharing	5.7	20.2	28.1	26.4	19.6
Online games	8.6	15.1	22.2	25.0	29.1
Online gambling	3.0	9.1	16.5	24.8	46.6

Consumer survey Germany in the area of leisure and well-being, min. 1,446 respondents. Figures in percent. Statements shortened. For explanation of services, see p. 52.

FIGURE 25: APPEAL OF ONLINE TV

45 percent of German Internet users find the delivery of TV content via the Internet appealing – whereas in South Korea this figure even rises to 63 percent.

Please evaluate the Internet and telecommunications services listed below according to how interesting you find them./Evaluation of online TV
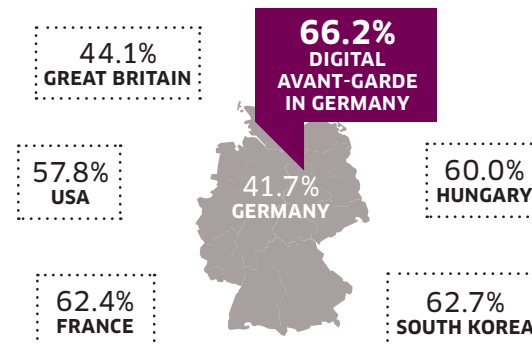
44.1%
GREAT BRITAIN

70.8%
DIGITAL AVANT-GARDE IN GERMANY

46.5%
USA

44.9%
GERMANY

55.1%
HUNGARY

43.6%
FRANCE

62.8%
SOUTH KOREA

Consumer survey (responses in percent to top two options "very interesting"/"interesting", n=285 – 1,446)

FIGURE 26: APPEAL OF PHOTO SHARING

42 percent of German Internet users are interested in uploading photos onto the Internet and sharing them with friends – whereas in South Korea this figure rises to 63 percent.

Please evaluate the Internet and telecommunications services listed below according to how interesting you find them. / Uploading and sharing of photos
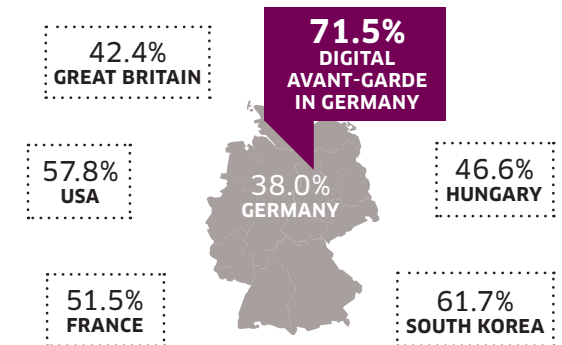
44.1%
GREAT BRITAIN

66.2%
DIGITAL AVANT-GARDE IN GERMANY

57.8%
USA

41.7%
GERMANY

60.0%
HUNGARY

62.4%
FRANCE

62.7%
SOUTH KOREA

Consumer survey (responses in percent to top two options "very interesting"/"interesting", n=285 – 1,446)

FIGURE 27: THE IMPORTANCE OF MOBILE ACCESS IN THE AREA OF LEISURE AND WELL-BEING

38 percent of the Germans surveyed regard it as crucial or very important that services in the area of leisure and well-being can also be utilized through a cell phone with Internet access. This rises to 72 percent among the digital avant-garde.

Response to the question: From your point of view, how important will it be in future that such leisure and well-being services can be utilized at any time and anywhere, including by cell phone with Internet access?

42.4%
GREAT BRITAIN

71.5%
DIGITAL AVANT-GARDE IN GERMANY

57.8%
USA

38.0%
GERMANY

46.6%
HUNGARY

51.5%
FRANCE

61.7%
SOUTH KOREA

Consumer survey (responses in percent to top two options "crucial"/"very important", n=285 – 1,446)

Half of the German Internet population are interested in services which allow them to listen to music and the radio via the Internet, search for music or buy and download songs. Audiovisual services are almost as popular: the delivery of TV content via the Internet to a TV set is appealing to 45 percent of the consumers surveyed, while access at any time to video content via the Internet, e.g. via video-on-demand platforms, is of interest to 43 percent of consumers. 42 percent of German Internet users are interested in uploading photos to the Internet and sharing them in online photo albums or on platforms with friends.

The country comparison demonstrates that the interests of consumers in the countries surveyed are basically similar – at least as far as the order of interest is concerned. It is striking, however, that South Korean Internet users are much more receptive to most services than German Internet users *(see Figures 25 and 26)*.

In each case, 63 percent of South Koreans surveyed regard online TV and photo sharing as interesting,

while for 56 percent, access to video content via the Internet at any time is appealing. Online games are also very popular in South Korea: whereas online games with several players – such as role play games – do not yet represent a mass phenomenon in Germany, half of the South Koreans surveyed were already interested in this. Future developments in Germany can be forecast by casting a glance at the digital avant-garde, among whom 72 percent are already interested in online video, 71 percent in online TV and 66 percent in uploading and sharing photos.

The consumer survey did not only focus on the services of interest to Internet users. It also examined how important it will be in the future to be able to use such services at any time and anywhere. The study shows that many German Internet users would like to see this now: 38 percent regard it as crucial or very important to be able to utilize leisure and well-being services from a cell phone with Internet access. It is to be expected that this need for mobility will increase even further in future:

Already 52 percent in France and as many as 62 percent in South Korea regard mobile access as crucial, not to mention the digital avant-garde, of whom as many as 72 percent attach importance to mobile access *(see Figure 27)*.

The consumers surveyed also regard data security, a reputable provider and a fair price as important. Another factor is intuitively easy use, which for almost one-third of German Internet users is a prerequisite for them to choose the relevant service. In addition, about one in five of those surveyed pays attention to whether most of their friends and acquaintances use the same service.

4.2 Family and friends

Finding old school friends, making new friendships through shared interests, staying in touch with friends and acquaintances, or maintaining strong family ties, the Internet and telecommunications can be a great help. Whether it is a quick chat with friends via a private social network, or sharing photos of a family party online with relatives, digitization and networking plays a significant role in the area of "family and friends" for 57 percent of all Germans surveyed. 51 percent of German Internet users even go as far as to say that without the Internet and tele-communications they would be unable to maintain their friendships and family relationships.
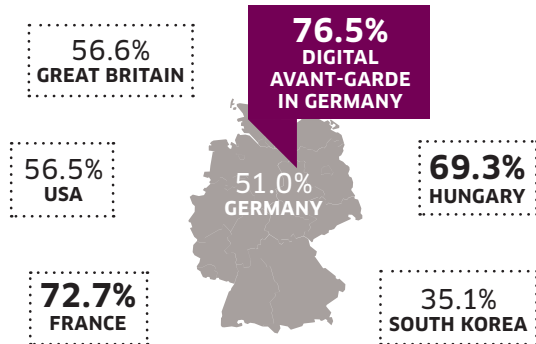
FIGURE 28: THE IMPORTANCE OF THE INTERNET AND TELECOMMUNICATIONS FOR CONTACT WITH FAMILY AND FRIENDS

51 percent of German Internet users state that without the Internet and telecoms, they would be unable to maintain friendships and good family relations. Among the digital avant-garde, this number rises as high as 77 percent.
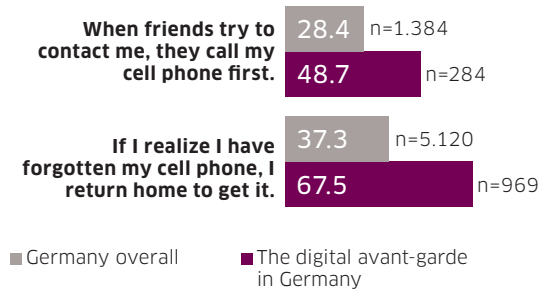
Agreement with the statement: Without the Internet and telecommunications, I could not maintain friendships/good relations with my family.

56.6%
GREAT BRITAIN

76.5%
DIGITAL AVANT-GARDE IN GERMANY

56.5%
USA

51.0%
GERMANY

69.3%
HUNGARY

72.7%
FRANCE

35.1%
SOUTH KOREA

Consumer survey (responses in percent to top two options "fully agree"/"agree", n=248–1,384)

FIGURE 29: THE CELL PHONE AS AN IMPORTANT CONTACT POINT FOR FRIENDS AND FAMILY

For the digital avant-garde, the cell phone is an important contact point for friends and family: the friends of around one in two will first attempt to get hold of them via their cell phone. In order to remain contactable, 68 percent of the digital avant-garde will return home if they realize they have forgotten their cell phone.
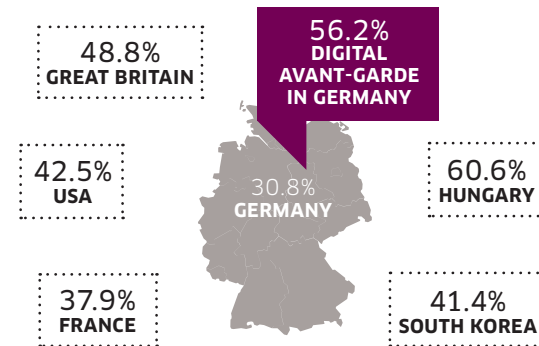
When friends try to contact me, they call my cell phone first.
28.4   n=1.384
48.7   n=284

If I realize I have forgotten my cell phone, I return home to get it.
37.3   n=5.120
67.5   n=969

■ Germany overall   ■ The digital avant-garde in Germany

Consumer survey Germany (responses in percent to top two options "fully agree"/"agree", n=248–5,120)
DAV=digital avant-garde in Germany

FIGURE 30: GETTING BACK IN TOUCH WITH OLD FRIENDS

The Internet is also very important for reconnecting with old friends: almost one in three Germans surveyed and one in two Britons has found old friends again via the web. That figure is even higher for Hungary.

Agreement with the statement: I found many of my old friends again (e.g. from school) via the Internet.

48.8%
GREAT BRITAIN

56.2%
DIGITAL AVANT-GARDE IN GERMANY

42.5%
USA

30.8%
GERMANY

60.6%
HUNGARY

37.9%
FRANCE

41.4%
SOUTH KOREA

Consumer survey (responses in percent to top two options "fully agree"/"agree", n=248–1,384)

4.21 Family and friends: the importance of the Internet and telecommunications

Contact with family and friends is one of the most important things in life for many of us. The Internet and telecommunications help us stay in contact with people and to maintain close relationships, even over long distances. The extent of this is shown, among other things, by the level of agreement with the statement, "Without the Internet and telecommunications, I could not maintain friendships/good relations with my family."

51 percent of those surveyed in Germany agreed (fully) with this, while 57 percent of respondents in both the USA and Great Britain felt the same, and 69 percent in Hungary. The Internet and telecommunications are even more important for staying in contact with friends and family in France, where 73 percent of respondents agreed with the statement. Agreement among the digital avant-garde group was highest of all, at just under 77 percent (see Figure 28).

For respondents in many countries, the cell phone has become the most important tool for communicat-

ing with family and friends. Agreement or full agreement with the statement "When friends try to contact me, they call my cell phone first", stood at 81 percent in Hungary and 73 percent in South Korea, indicating the increasingly mobile lifestyle and importance of being contactable in these countries. By contrast, a first glance at the figures in Germany suggests quite the opposite, with an overall level of agreement of around 28 percent. However, a detailed breakdown of this into the three cluster areas reveals the direction Germany is also likely to take. While just 17 percent of the digital latecomers state that their friends would first try to contact them by cell phone, this figure rises to 29 percent for the digital mainstream, and then 49 percent for the digital avant-garde.
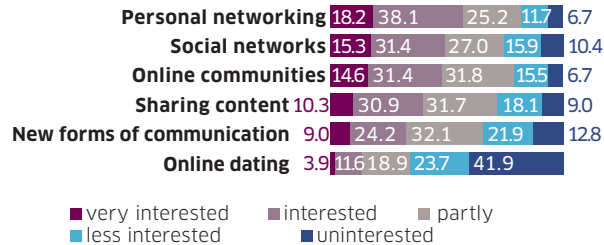
Another figure reveals the importance the cell phone already has today: to ensure they could be contacted at all times, one in three of the Germans surveyed stated that if they forgot their cell phone, they would return home to get it. Among the digital avant-garde, this figure rises to 68 percent, which is roughly the average level in the other countries surveyed (see Figure 29).

A further important aspect in the area of "family and friends" is making new friendships and reconnecting with old friends. The Internet is a particularly big help here, with 31 percent of German Internet users stating that they found many old friends again (such as from school) through the Internet. This compares to 56 percent of the digital avant-garde. The Internet plays a particularly important role in locating old friends in Hungary, where the figure stands at 61 percent (see Figure 30).

FIGURE 31: EVALUATING DIFFERENT SERVICES IN THE AREA OF FAMILY AND FRIENDS (CONSUMER PERSPECTIVE)

German Internet users are particularly interested in services that automatically synchronize address books and contacts across all devices (personal networking) as well as in social networks and online communities.

Response to the question: Please state how interested you are in the Internet and telecommunications services listed below.

	very interested	interested	partly	less interested	uninterested
Personal networking	18.2	38.1	25.2	11.7	6.7
Social networks	15.3	31.4	27.0	15.9	10.4
Online communities	14.6	31.4	31.8	15.5	6.7
Sharing content	10.3	30.9	31.7	18.1	9.0
New forms of communication	9.0	24.2	32.1	21.9	12.8
Online dating	3.9	11.6	18.9	23.7	41.9

■ very interested ■ interested ■ partly
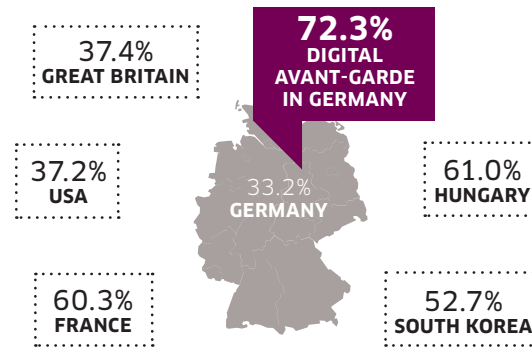■ less interested ■ uninterested

Consumer survey Germany (n=1,380 surveyed in the family and friends sphere, figures in percent, sorted according to the top two responses). For further details of the services, see page 52.

FIGURE 32: INTEREST IN NEW FORMS OF COMMUNICATION

In particular respondents in Hungary, France and South Korea are interested in new ways of communicating.

Please state how interested you are in the following list of Internet and telecommunications services/new forms of communication (instant messaging, blogs, video telephony, RSS feeds) listed below.
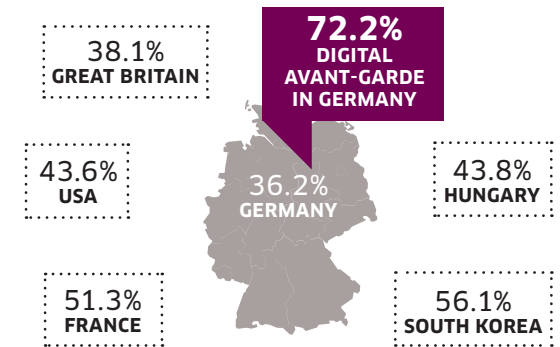
72.3% DIGITAL AVANT-GARDE IN GERMANY

37.4% GREAT BRITAIN

37.2% USA

33.2% GERMANY

61.0% HUNGARY

60.3% FRANCE

52.7% SOUTH KOREA

Consumer survey (responses in percent to top two options "fully agree"/"agree", n=248–1,384)

FIGURE 33: THE IMPORTANCE OF MOBILE ACCESS

In particular respondents in Hungary, France and South Korea, as well as the digital avant-garde, value mobile access to services for the area of family and friends.

Response to question: How important do you think it will be in future that services relating to family and friends be able to be used at any time and anywhere (thus also, for instance, via cell phone with Internet access, or similar)?

72.2% DIGITAL AVANT-GARDE IN GERMANY

38.1% GREAT BRITAIN

43.6% USA

36.2% GERMANY

43.8% HUNGARY

51.3% FRANCE

56.1% SOUTH KOREA

Consumer survey (n=248–1,384 surveyed in the family and friends sphere. Responses in percent to top two options "crucial"/"very important").

4.22 Family and friends: which services interest consumers

56 percent of German web users are very interested in services relating to "personal networking." These are services that provide a better overview of contacts and addresses, by automatically synchronizing and updating address data, calendars, phone numbers, etc., across a selection of different devices. There is similarly large interest among Germans in social networks, which are platforms where users set up personal profiles and interact with friends. Some of the better-known examples of this type of service are MySpace, Facebook and StudiVZ. 47 percent of the Germans surveyed registered a very high or high interest in such platforms.

The respondents were also almost as interested in Internet communities as they were in social networks. These services focus less on personal contact, and much more on discussing specific topics. Examples here would be online fan clubs or online communities for certain brands, products or topics (46%). Four out of ten Germans surveyed (41%) also showed a very high or

high interest in services that allow users to share digital content, such as photo and video platforms, online photo albums, etc. One third of all German respondents (33%) are interested in new forms of communication (e.g. instant messaging, video telephony, RSS feeds and blogs), while 16 percent of those surveyed stated an interest in online dating and flirting (see Figure 31).

The cross-country comparison shows that, the South Koreans in particular, though also the French, show much more of an interest in the majority of these services. The Hungarian respondents are also very open to the different services cited. For example, 61 percent of Hungarian, 60 percent of French and 53 percent of South Korean Internet users are interested in new ways of staying in contact with friends and family. The German digital avant-garde (72 percent) is also very interested in video telephony, blogs, and instant messaging, etc. (see Figure 32).

In France, Hungary and South Korea, mobile access is also highly important. For 56 percent of South Koreans surveyed, having access at any time and anywhere to services related to friends and family is crucial or

very important. This compares to 51 percent of French respondents, and 44 percent of the Hungarians. In Germany today, 36 percent of Internet users value mobile access, though a look at the digital avant-garde suggests that this figure will rise in the future. Around 72 percent of this group considers mobile access to services related to friends and family important (see Figure 33).
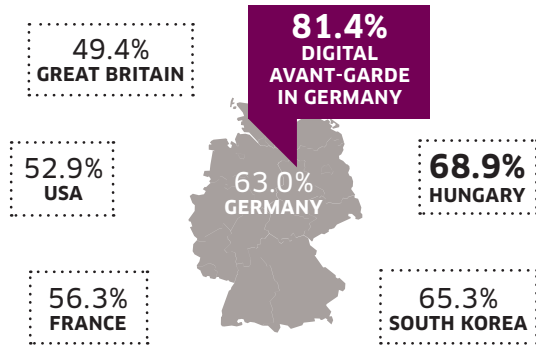
4.3 Work and study

Whether working from home or on the move, working on shared documents stored online, taking part in video conferences, using online encyclopedias or e-learning, it is impossible to imagine the way we work and study today without the Internet or telecommunications. 43 percent of the Germans surveyed believe that digitization and networking are an essential or very important part of this area of our lives, while 79 percent of experts and 64 percent of the consumers surveyed in Germany believe the importance of digitization in this field is set to grow.

FIGURE 34: THE IMPORTANCE OF THE INTERNET AND TELECOMMUNICATIONS FOR WORK AND STUDY

The digital avant-garde above all relies on the Internet and telecommunications for their professional occupations.

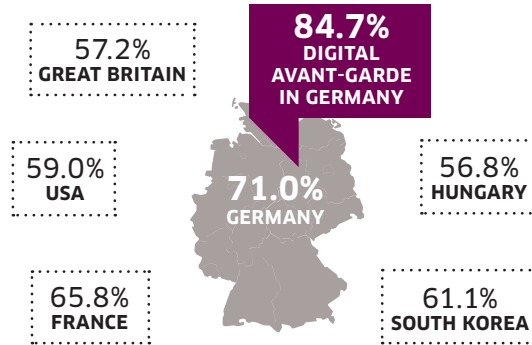Agreement with the statement: In my current work, I rely on the Internet and telecommunications.

49.4%
GREAT BRITAIN

81.4%
DIGITAL AVANT-GARDE IN GERMANY

52.9%
USA

63.0%
GERMANY

68.9%
HUNGARY

56.3%
FRANCE

65.3%
SOUTH KOREA

Consumer survey (responses in percent to top two options
"fully agree"/"agree", n=258–1.462)

FIGURE 35: THE USE OF THE INTERNET AS A SOURCE OF INFORMATION

The Internet has already become an important source of information for German Internet users in particular.

Agreement with the statement: Online knowledge bases and encyclopedias (e.g. Wikipedia) have become an important source of information for me.
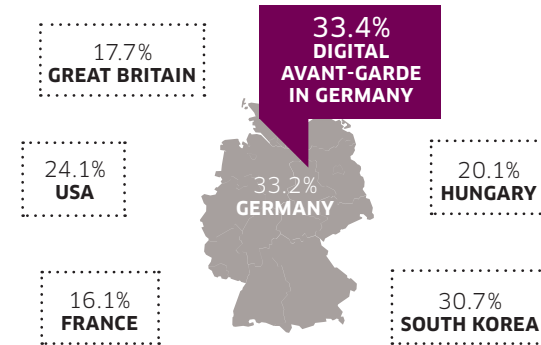
57.2%
GREAT BRITAIN

84.7%
DIGITAL AVANT-GARDE IN GERMANY

59.0%
USA

71.0%
GERMANY

56.8%
HUNGARY

65.8%
FRANCE

61.1%
SOUTH KOREA

Consumer survey (responses in percent to top two options
"fully agree"/"agree", n=258–1.462)

FIGURE 36: MOBILE WORK AND STUDY

South Korea leads the field in mobile working. A look at the digital avant-garde in Germany, however, shows that Germans are also moving in this direction. At present, every third digital avant-garde member works in public places.

Agreement with the statement: I regularly work/learn/study in public places (e.g. in airports, trains, cafés, etc.).

17.7%
GREAT BRITAIN

33.4%
DIGITAL AVANT-GARDE IN GERMANY

24.1%
USA

33.2%
GERMANY

20.1%
HUNGARY

16.1%
FRANCE

30.7%
SOUTH KOREA

Consumer survey (responses in percent to top two options
"fully agree"/"agree", n=253–1.425)

4.31 Work and study: the importance of the Internet and telecommunications today

The German digital avant-garde in particular is reliant on digitization and networking when it comes to their professional lives: 81 percent of those surveyed stated that they simply could not carry out their work without the support of the Internet and telecommunications, while 63 percent of German Internet users overall said the same thing. This places Germany in the mid to upper range of the cross-country comparison, with only Hungary (69 percent) and South Korea (65 percent) more dependent on this technology in the workplace *(see Figure 34)*.

Access to information on the Internet is particularly important to the German respondents, with 71 percent of them stating that online knowledge bases and encyclopedias have become important information sources. This places Germany ahead of all the other countries in the study in terms of knowledge acquisition through the Internet. In second place is France, where 66 percent of

respondents use the Internet to gather knowledge, while this figure in South Korea is 61 percent. 59 percent of Americans use the information sources available on the Internet, as do 57 percent of both the Hungarians and Britons surveyed. Online knowledge bases and encyclopedias are particularly popular among the digital avant-garde, with 85 percent of this group describing them as an important source of information *(see Figure 35)*.

In contrast, South Korea leads the way in terms of mobile working, with around 31 percent of those surveyed frequently working (or studying) on the move, such as in airports, trains, and cafés. Germany's digital avant-garde are similarly flexible in where they work, with a third of respondents saying that they not only work at their desks but also in public places, too. In the USA, around a quarter of those surveyed did the same, with the figures a little lower for the other countries surveyed: 20 percent for Hungary, 18 percent for Great Britain, 16 percent for France and 13 percent for Germany *(see Figure 36)*.

4.32 Work and study: which services interest consumers

62 percent of the German Internet users surveyed would like to work flexibly (i.e. whenever and wherever they wanted) if they were supported, for example, by remote access solutions that ensured the security of computers networked over the Internet. Almost as many, 61 percent, would be interested in web collaboration solutions that allow teams to work together on the same document, even if the members are based in separate locations, and that can host virtual project rooms and meetings. There is also a similar interest in e-learning, characterized by computer-based training courses, distance learning, virtual classrooms, and remote teaching. Around 56 percent of respondents expressed an interest in this type of digital media knowledge transfer. There is also considerable interest in more playful learning activities, known as "edutainment". Among German Internet users, one in two respondents (52%) said that they were very interested or interested in this type of service. Around 38 percent of those surveyed said they could

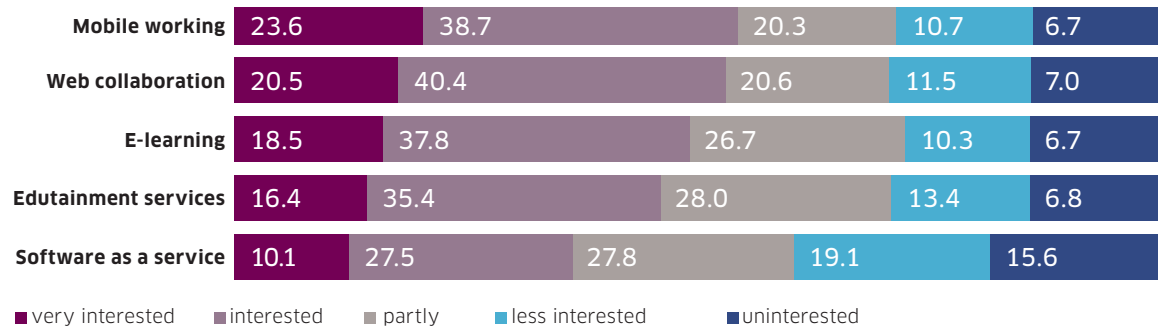imagine renting software for a limited time, rather than buying it *(see Figure 37)*.

The cross-country comparison shows that in particular those surveyed in France are the most interested in all of the work and study-related solutions cited. 77 percent of respondents there are very interested or interested in "Working whenever and wherever you like." Indeed, only the digital avant-garde in Germany shows a greater interest in mobile working, with 85 percent of this group responding favorably *(see Figure 38)*.

Around 43 percent of those surveyed in Germany believe it is important that different services can be used at any time and in any place, for example, from a cell phone with Internet access. In Great Britain, however, this figure is only 37 percent, while it is 48 percent for Hungary and 49 percent for the USA. The French and South Koreans again lead the way in mobile use of work and study solutions, with 66 and 63 percent of respondents respectively stating that mobile access to these services is crucial or very important. Assuming the behavior of the digital avant-garde will be reflected among the general German population in the future, mobile access there is set to gain in importance considerably. 71 percent of the digital avant-garde group said it was important that they could access work and study services wherever and whenever they liked *(see Figure 39)*.

FIGURE 37: EVALUATING DIFFERENT SERVICES IN THE AREA OF WORK AND STUDY (GERMANY)

The two most popular solutions among German consumers are "Working wherever and whenever you like," and "Working together in a team on the same document."

Response to the question: Please state how interested you are in the Internet and telecommunications services listed below.

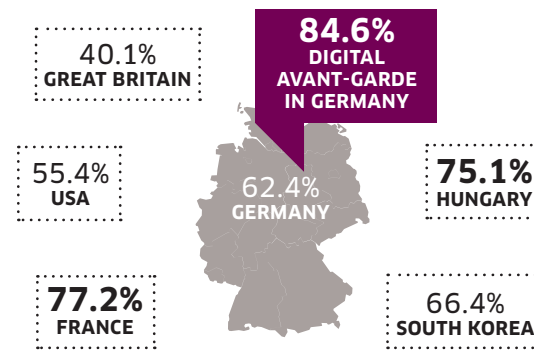|	very interested	interested	partly	less interested	uninterested
Mobile working	23.6	38.7	20.3	10.7	6.7
Web collaboration	20.5	40.4	20.6	11.5	7.0
E-learning	18.5	37.8	26.7	10.3	6.7
Edutainment services	16.4	35.4	28.0	13.4	6.8
Software as a service	10.1	27.5	27.8	19.1	15.6

Consumer survey in Germany of min. 1,470 respondents in the area of work and study (responses in percent to top two options). For an explanation of the services, see p. 52.

FIGURE 38: INTEREST IN MOBILE WORK SOLUTIONS

77 percent of French respondents were very interested or interested in "Working wherever and whenever you like", with only the digital avant-garde in Germany showing an even greater interest in mobile working.

Response to the question: Please state how interested you are in the Internet and telecommunications services listed below. / Mobile working
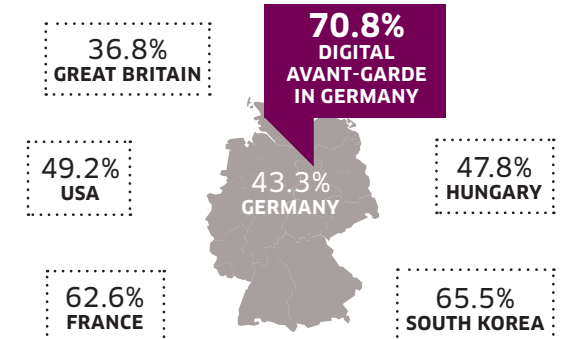
84.6% DIGITAL AVANT-GARDE IN GERMANY

40.1% GREAT BRITAIN

55.4% USA

62.4% GERMANY

75.1% HUNGARY

77.2% FRANCE

66.4% SOUTH KOREA

Consumer survey (responses in percent to top two options "very interested"/"interested", n=255 – 1,470)

FIGURE 39: THE IMPORTANCE OF MOBILE ACCESS IN THE AREA OF WORK AND STUDY

In particular the South Koreans, the French, and the German digital avant-garde value solutions that allow them to work and study in public places.

Response to the question: How important do you think it will be that in the future these work and study-related services be available for use at any time and anywhere (i.e. thus also available via a cell phone with Internet access, or similar)?

70.8% DIGITAL AVANT-GARDE IN GERMANY

36.8% GREAT BRITAIN

49.2% USA

43.3% GERMANY

47.8% HUNGARY

62.6% FRANCE

65.5% SOUTH KOREA

Consumer survey (responses in percent to top two options "crucial"/"very important", n=255 – 1,470)

4.4 Material and financial matters

The area of material and financial matters includes topics such as e-commerce, finance, assets, accommodation, and cars. 48 percent of the Germans surveyed consider digitization and networking an indispensable or very important part of this aspect of their life. Digitization is more important only in South Korea and Great Britain, where 53 and 52 percent of the respective populations are already highly networked in material and financial matters. However, digital solutions in the material and financial area are most popular among the digital avant-garde, at around 81 percent. Despite what is already a high level of acceptance, 79 percent of the experts surveyed and 62 percent of German Internet users expect digitization to grow further in importance in this area of life.
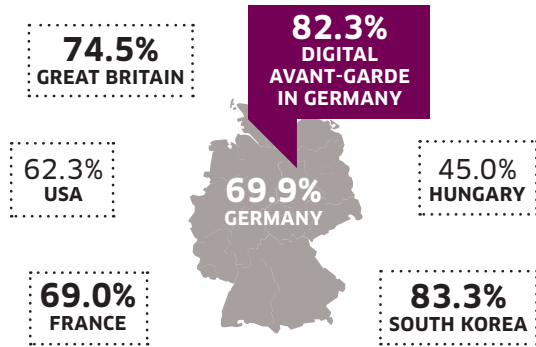
FIGURE 40: SHOPPING ONLINE

70 percent of German Internet users state that they now buy much more over the Internet than they did three years ago. The comparative figure for the UK is 75 percent, while in South Korea it is even 83 percent.

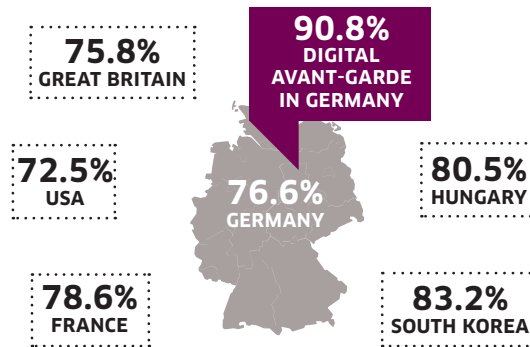Agreement with the statement: I now buy much more over the Internet than I did three years ago.

74.5% GREAT BRITAIN

82.3% DIGITAL AVANT-GARDE IN GERMANY

62.3% USA

69.9% GERMANY

45.0% HUNGARY

69.0% FRANCE

83.3% SOUTH KOREA

Consumer survey (responses in percent to top two options "fully agree"/"agree", n=276 – 1,481)

FIGURE 41: PRE-PURCHASE INFORMATION

In almost every country surveyed, over three quarters of respondents gather information from the Internet before buying a new product.

Agreement with the statement: Before I buy a new product, I usually gather information from the Internet, reading customer reviews, comparing prices, etc.
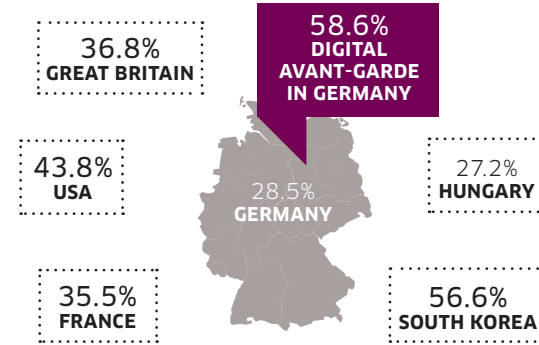
75.8% GREAT BRITAIN

90.8% DIGITAL AVANT-GARDE IN GERMANY

72.5% USA

76.6% GERMANY

80.5% HUNGARY

78.6% FRANCE

83.2% SOUTH KOREA

Consumer survey (responses in percent to top two options "fully agree"/"agree", n=258 – 1,462)

FIGURE 42: EXCHANGE WITH OTHER USERS

Members of the digital avant-garde in particular share their experiences of products and services over the Internet. As such, they shape the opinions of other users.

Agreement with the statement: I share my experiences of products and services with others over the Internet.

36.8% GREAT BRITAIN

58.6% DIGITAL AVANT-GARDE IN GERMANY

43.8% USA

28.5% GERMANY

27.2% HUNGARY

35.5% FRANCE

56.6% SOUTH KOREA

Consumer survey (responses in percent to top two options "fully agree"/"agree", n=276 – 1,481)

4.41 The Internet: an important shopping tool and indispensable source of information

The study shows that the Internet has grown in importance considerably over the last few years within the material and financial sphere. It has become an everyday – and extremely helpful – part of the shopping patterns of respondents in most countries. The results of the study are particularly clear: 70 percent of the German Internet users surveyed say they now buy far more online than they did three years ago. In terms of acceptance of the Internet as a shopping tool, this places Germany in third place, behind only Great Britain and South Korea. Three quarters of British respondents (75 percent) stated that they now buy much more online than three years ago, while 83 percent of South Korean respondents said the same. The shopping behavior of the digital avant-garde has been transformed to a similar extent, with the figure standing at 82 percent *(see Figure 40)*.

Within the material and financial sphere, however, the Internet is not just important as a sales/purchasing tool, but also acts as an information medium. In almost all of the countries in the study, over three quarters of respondents state that they use the Internet to gather information before buying a new product, either checking other customers' reviews, or comparing prices. In Hungary and South Korea, over 80 percent of those surveyed use the Internet before making a purchase, while 90 percent of the digital avant-garde do likewise *(see Figure 41)*.
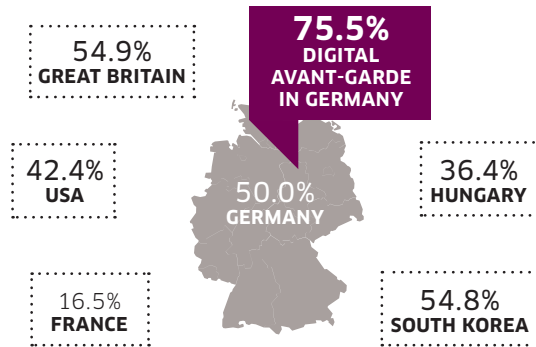
Of particular interest here is the fact that 44 percent of the Germans surveyed (and more among the respondents in the other countries), believe information posted by users is more credible than that which is circulated by the manufacturer. 29 percent of respondents in Germany personally share their experiences of products and services with other users via the Internet. This figure is far higher among the digital avant-garde, with almost twice as many (59 percent) posting product reviews online. As such, the digital avant-garde is shaping the opinions of other Internet users *(see Figure 42)*.

The Internet is an important source of information not only when purchasing material goods, but also when managing financial matters. 55 percent of those surveyed in both Great Britain and South Korea state that the Internet is indispensable when it comes to investment matters. In Germany, one in two of all respondents would not want to do without the Internet when gathering information about financial products, looking for investment tips, or carrying out banking transactions. Within the digital avant-garde group, this figure stands as high as 76 percent *(see Figure 43)*.

FIGURE 43: THE INTERNET AND INVESTING

For half of all Germans surveyed, the Internet is indispensable or very important when it comes to finance and investments.

Agreement with the statement: The Internet is indispensable for me in investment matters (e.g. online banking, information on financial products, reading investment tips, etc.)
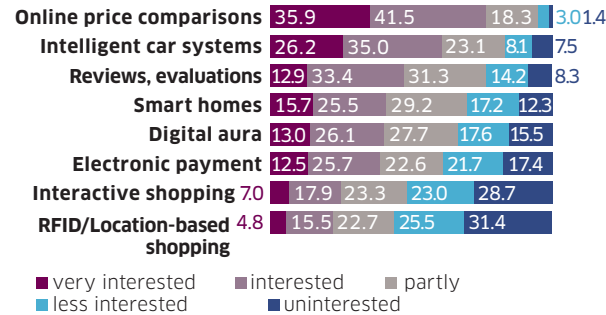
75.5%
DIGITAL AVANT-GARDE IN GERMANY

54.9%
GREAT BRITAIN

42.4%
USA

50.0%
GERMANY

36.4%
HUNGARY

16.5%
FRANCE

54.8%
SOUTH KOREA

Consumer survey (responses in percent to top two options "fully agree"/"agree", n=276–1,481)

FIGURE 44: EVALUATING DIFFERENT MATERIAL AND FINANCIAL SERVICES

The most popular solutions among German consumers are "online price comparisons," "intelligent car systems;" and "information exchange" (forming opinions from reviews, product evaluations, etc.)

Response to the question: Please state how interested you are in the material and financial services listed below.

Service	very interested	interested	partly	less interested	uninterested
Online price comparisons	35.9	41.5	18.3	3.0	1.4
Intelligent car systems	26.2	35.0	23.1	8.1	7.5
Reviews, evaluations	12.9	33.4	31.3	14.2	8.3
Smart homes	15.7	25.5	29.2	17.2	12.3
Digital aura	13.0	26.1	27.7	17.6	15.5
Electronic payment	12.5	25.7	22.6	21.7	17.4
Interactive shopping	7.0	17.9	23.3	23.0	28.7
RFID/Location-based shopping	4.8	15.5	22.7	25.5	31.4

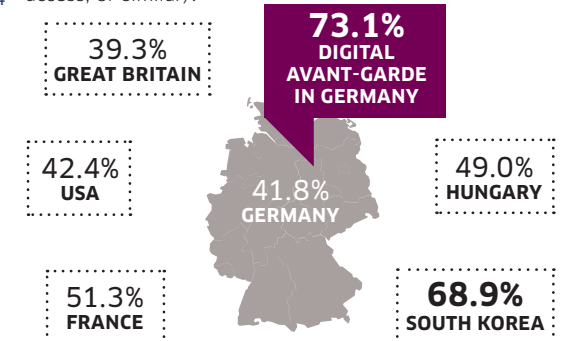■ very interested ■ interested ■ partly
■ less interested ■ uninterested

Consumer survey of min. 1,470 respondents surveyed in material and financial sphere (responses in percent to top two options). For an explanation of the services, see p. 52

FIGURE 45: THE IMPORTANCE OF MOBILE ACCESS IN MATERIAL AND FINANCIAL MATTERS

Having mobile access to material and financial services is most important not only to the digital avant-garde, but also to respondents in South Korea and France.

Response to the question: How important do you think it will be that in the future these material and financial-related services be available for use at any time and anywhere (thus, for example, also via a cell phone with Internet access, or similar)?

73.1%
DIGITAL AVANT-GARDE IN GERMANY

39.3%
GREAT BRITAIN

42.4%
USA

41.8%
GERMANY

49.0%
HUNGARY

51.3%
FRANCE

68.9%
SOUTH KOREA

Consumer survey (responses in percent to top two options "fully agree"/"agree", n=276–1,481)

4.42 Material and financial matters: which services interest consumers

77 percent of German Internet users state that before they make a purchase, they go online to gather information *(see Figure 41)*, while just as many are "very interested" or "interested" in online price comparison services.

Looking toward the future, 61 percent of those surveyed said they would be (very) interested in so-called "intelligent car systems," which independently link cars together. In the future, these systems may enable vehicles to, for instance, automatically maintain a set distance from other vehicles and recommend diversions based on the current traffic flow. 41 percent of respondents were interested in the subject of smart homes, which includes intelligent household appliances and networked homes. Over a third of all participants in Germany (39 percent) said they were "very interested" or "interested" in "digital aura" solutions. As soon as certain items come in contact with the digital aura surrounding a person or object, they can link up inde-

pendently – cars could thus find vacant parking spaces themselves, and washing machines could separate shirts according to the temperature they should be washed at. Services related to electronic payments, such as making small payments via cell phone, would interest 38 percent of German Internet users, while new shopping opportunities would also be of interest *(see Figure 44)*.

Looking at the other countries in the study shows that respondents in France and South Korea have the greatest interest in the solutions cited: French Internet users are particularly interested in online price comparisons, smart homes, and intelligent car systems, while South Koreans favor user reviews, digital auras, electronic payments, and new ways of shopping interactively.

The respondents in these two countries also considered it most important that material and financial services should be accessible at any time and in any place: 51 percent of those surveyed in France and as many as 69 percent of those in South Korea believe mobile access to be very important or even crucial for the use of such solutions. Ready availability of the ser-

vices is also important to Hungarians, with nearly one in two respondents stating that it is very important that the services mentioned be accessible from, for example, web-enabled cell phones. The figure for Germany is a little lower, with 42 percent of respondents valuing mobile accessibility, though once again, a look at the digital avant-garde shows the direction the country is moving in: within this reference group, the figure stands at 73 percent *(see Figure 45)*.

4.5 Security, society and communities, health and fitness
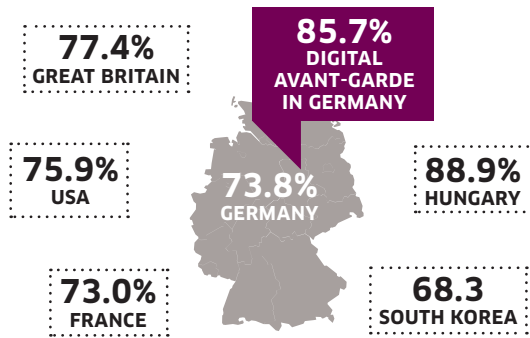
Security is an area of life that is already highly networked. One in two Germans surveyed (50 percent) stated that digitization and networking in security was indispensable or very important for them personally. Digitization in this area was exceeded only by Great Britain (54 percent) and the United States (57 percent). In the areas society and community, and health and fitness, digitization and networking is very important for 25 percent and 13 percent respectively of the German Internet population. In health and fitness, other countries are far ahead of Germany: both in the United States and South Korea 26 percent of the respondents – or twice as many as in Germany – considered digitization and networking in this area indispensable or very important.

FIGURE 46: MOBILE PHONES PROVIDE A SENSE OF SECURITY

74% of the respondents in Germany feel more secure if they have their mobile phone with them.

Agreement with the statement: My mobile phone gives me a sense of security (e.g. because I can use it to call for help if I am on my own).
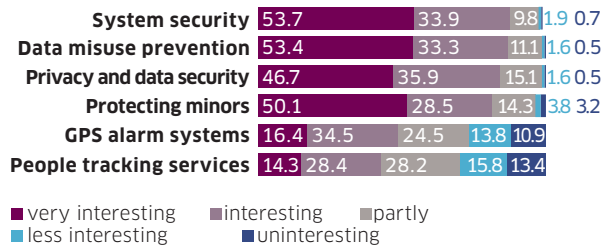
77.4%
GREAT BRITAIN

85.7%
DIGITAL AVANT-GARDE IN GERMANY

75.9%
USA

73.8%
GERMANY

88.9%
HUNGARY

73.0%
FRANCE

68.3
SOUTH KOREA

Consumer survey (responses in percent to the top two options "fully agree"/"agree", n=283 – 1,355)

FIGURE 47: THE IMPORTANCE OF DIFFERENT SECURITY SERVICES

Top three most interesting services: system protection (anti-virus services), data protection services, privacy services.

Response to the question: Please rate how interesting the following Internet and communication services are for you.

	very interesting	interesting	partly	less interesting	uninteresting
System security	53.7	33.9	9.8	1.9	0.7
Data misuse prevention	53.4	33.3	11.1	1.6	0.5
Privacy and data security	46.7	35.9	15.1	1.6	0.5
Protecting minors	50.1	28.5	14.3	3.8	3.2
GPS alarm systems	16.4	34.5	24.5	13.8	10.9
People tracking services	14.3	28.4	28.2	15.8	13.4

■ very interesting   ■ interesting   ■ partly
■ less interesting   ■ uninteresting

Consumer survey in Germany (n=1,351 respondents in the area Security, responses in percent sorted according to the top two options). For further details of the services, see page 52.

4.51 Security: Key results

More than half of the respondents in Germany and over three-quarters of the experts surveyed believe that the level of digitization in security will continue to rise even further, despite the very high initial level. It is important to bear in mind that this area of life comprises two different aspects.

Firstly, there is personal sense of security, which is heightened considerably by carrying a mobile phone. 74 percent of German Internet users stated that their mobile phone gives them a sense of security (e.g. because they could use it to call for help when they are on their own).

This mobile phone function is even more important in the United States (76%), in Great Britain (77%) and especially in Hungary (89%). 86 percent of respondents in the digital avant-garde group also rated this aspect very highly *(see Figure 46)*.

The area security not only covers personal security, but also the important issue of securing privacy on the Internet. The study shows that this is an aspect that consumers consider very important. Around 86 percent of German Internet users believe that children and young people should be taught at school how to use the Internet responsibly, as do 90 percent of the digital avant-garde group.

83 percent of the respondents in Germany stated that they were (very) interested in services relating to online privacy and data security, i.e. services which protect online privacy. 79 percent were interested in services for the protection of minors.

Other important issues connected with security are the issues of system security and data security. 88 percent of Internet users in Germany expressed an interest in services relating to system security. These include anti-virus and anti-spam protection services. Around 87 percent were interested in services aimed at preventing the misuse of data (e.g. in e-banking and online shopping) *(see Figure 47)*. In all the countries surveyed, around half of the respondents stated that they often worried whether their payment transactions were secure when shopping online.

4.52 Society and communities: Key results

One in two respondents in Germany and Great Britain (both 51%) enjoyed communicating with other people who live far away, but who share the same interests. In the United States, 55 percent of those surveyed expressed an interest in these online communities, as did 56 percent in Hungary, 67 percent in France and 76 percent in South Korea.
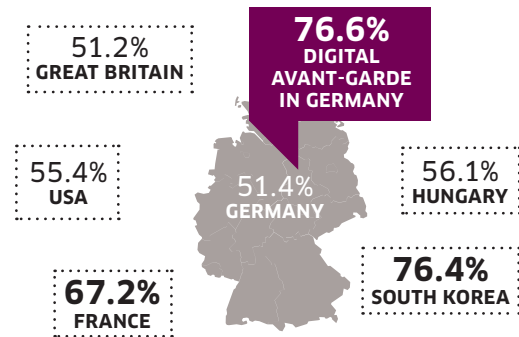
An equal number of respondents in the digital avant-garde group enjoy communicating online with people with similar interests *(see Figure 48)*. The Internet creates links between people and opens doors to other countries. It enables people to set up clubs and communities that are not based on geographic location, but focus instead on mutual interests, with membership open to anyone who shares these interests, regardless of where he or she happens to live. Around one third of the respondents in Germany, Hungary and Great Britain are interested in these virtual clubs and communities. In France, around one half and in the United States a fifth of those surveyed are interested.

The Internet also plays an important role for society and communities on a local and regional level. For instance, users are increasingly using the Internet to find out about events taking place in their city. In the United States, 55 percent, and in South Korea, 68 percent of the respondents use the Internet as their prime

FIGURE 48: INTEREST IN COMMUNICATING WITH PEOPLE WITH SIMILAR INTERESTS

One in two respondents in Germany likes communicating with people who share the same interests but who live far away.

Agreement with the statement: I like communicating with people who live far away but who share my interests.
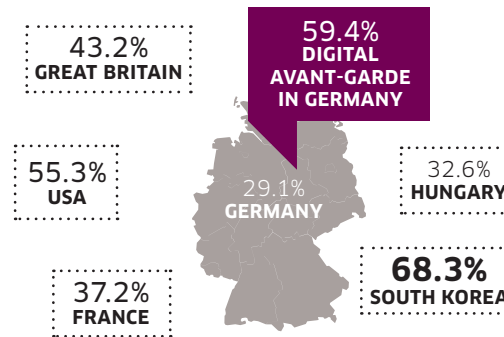
51.2% GREAT BRITAIN

76.6% DIGITAL AVANT-GARDE IN GERMANY

55.4% USA

51.4% GERMANY

56.1% HUNGARY

67.2% FRANCE

76.4% SOUTH KOREA

Consumer survey (responses in percent to the top two options "fully agree"/"agree", n=272 – 1,382)

FIGURE 49: INFORMATION ABOUT WHAT'S ON IN THE CITY

In the US, 55% of respondents and 68% in South Korea use the Internet as their prime source of information about events and entertainment in their city.

Agreement with the statement: I use the Internet as my prime source of information to find about what's on in my city.
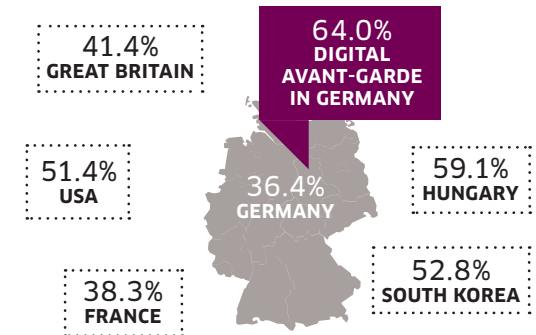
43.2% GREAT BRITAIN

59.4% DIGITAL AVANT-GARDE IN GERMANY

55.3% USA

29.1% GERMANY

32.6% HUNGARY

37.2% FRANCE

68.3% SOUTH KOREA

Consumer survey (responses in percent to the top two options "fully agree"/"agree", n=272 – 1,382)

FIGURE 50: INTEREST IN MOBILE HEALTH MONITORING

Over a third of those surveyed in Germany are interested in mobile health monitoring.

Please rate how interesting the following Internet and telecommunications services are for you. / Evaluation of mobile health monitoring.

41.4% GREAT BRITAIN

64.0% DIGITAL AVANT-GARDE IN GERMANY

51.4% USA

36.4% GERMANY

59.1% HUNGARY

38.3% FRANCE

52.8% SOUTH KOREA

Consumer survey (responses in percent to the top two options "fully agree"/"agree", n=260 – 1,434)
For further details of the services, see page 52.

source of information for what is on in their city. This also applies to 59 percent of the respondents in the digital avant-garde group in Germany *(see Figure 49).*

Naturally, the Internet plays an increasingly important role in politics. According to political experts, the US elections in 2008 were the first elections ever to be decided on the Internet.[5]

4.53 **Health and fitness: Key results**

31 percent of those surveyed in Germany stated that they researched their symptoms online before seeking help from a medical practitioner. After visiting a doctor, 36 percent of the German Internet users surveyed read up on their doctor's diagnosis on the Internet. The respondents in the United States were most likely to do this: 70 percent stated that they researched their diagnosis online. In Great Britain, 60 percent read about their diagnosis online as do 50 percent in South Korea. The Internet is not only used by respondents to research existing symptoms; it is also used as a source

of information about preventive medicine. 40 percent of German respondents regularly do an online health check, for example calculating their body-mass index, completing a nutrition check, a vitamin check or a risk factor check. The Germans were surpassed only by the Hungarians, with 45 percent of respondents in Hungary stating that they use the Internet for online health checks. In an international comparison, the Hungarians had the highest interest in health and fitness related services: 59 percent rated mobile health monitoring services very interesting or interesting. The services grouped under this heading are services that monitor key health indicators (e.g. breath rate, pulse, blood levels) with a mobile diagnosis device which can transmit the values to a health center or physician if necessary. In comparison: in Germany 36 percent of all respondents were interested in this type of service, with the figure rising to 64 percent for the digital avant-garde group. *(see Figure 50).*

5.0 Conclusion

This study shows that our lives are already decisively shaped by digital networking. In nearly all the areas of life examined, digitization and networking play a very important role. In all areas – and particularly in the areas leisure and well-being – online and offline activities are very closely intermeshed. Despite the high degree of digitization, both experts and consumers expect the importance of digitization and networking in all areas of life to increase still further.

5.1 **The future of digital living**

Technical progress, increasing levels of network coverage, greater bandwidths with higher data speeds are factors which will expedite the progress of digitization and networking. The strong interest of consumers in the broad range of services presented here indicates quite clearly that they are ready for the next step toward a digital future.

What shape that this digital future could take becomes clearer if one takes a look at the digital avant-garde. The way this group of consumers - early adopters and technical pioneers - use digital media shows how the mainstream will be using them in the near future. The avant-garde already live a digital lifestyle, a networked life that obviously simplifies their everyday lives, enables them to exchange information more easily and makes it easier to keep up with friends, family and business contacts. The analyses show that the digital avant-garde are significantly more satisfied with their lives than other, less networked consumer groups. 81 percent of the digital avant-garde fully agree or agree with the statement, "All things considered, I am very satisfied with my life," in contrast to only 71 percent of the digital mainstream and only 66 percent of the digital latecomers *(see Figure 51).*

Although satisfaction with life is determined by several factors, and although this survey draws no conclusions about the relationship between cause and effect, the conspicuous and statistically significant variances in satisfaction in the different consumer groups would appear to suggest that the perceived degree of satisfaction with life is in fact related to the subject's participation in digitization and networking.

This is further backed up by the fact that 64 percent of the German respondents agreed with the statement, "Today's Internet services and technical devices

The digital avant-garde already lives a digital life, enjoying a networked lifestyle which clearly simplifies their everyday lives, enables them to exchange information more easily and makes it easier to keep in touch with friends, family and business contacts.

FIGURE 51: NETWORKING AND SATISFACTION WITH LIFE

Agreement with the statement: All things considered, I am very satisfied with my life.

DIGITAL AVANT-GARDE 81.4	
DIGITAL MAINSTREAM 70.6	
DIGITAL LATECOMERS 66.3	
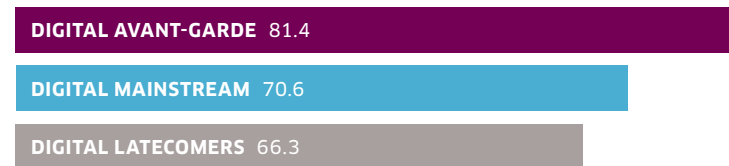
Consumer survey Germany. n (digital avant-garde)=999 / n (digital mainstream)=2,443 / n (digital latecomers)=1,710, responses in percent to the top two options "fully agree"/"agree". Figure for Germany as a while: 71.2 percent

enhance my quality of life." Agreement with this statement is found in all three consumer groups: digital avant-garde, digital mainstream and digital latecomers all perceive digitization and networking as positive factors.

An interesting indication of what our digital future could look like can be extrapolated from the analysis of the digital avant-garde, the two other consumer groups and a cross-country comparison. Germany, France, and Great Britain represent typical European markets in this study, while Hungary represents eastern Europe. The findings from South Korea give us insight into the behavior of Asian users and the United States provides a glimpse across the Atlantic.

In some of these countries there is a much higher degree of digitization and networking than in Germany. Of course, due to cultural and infrastructure differences, the findings of the international comparison cannot be directly applied to Germany and its future, but they do serve to pinpoint specific trends.

SOUTH KOREA takes the top spot in many areas of life. A variety of applications and services, e.g. uploading and sharing videos on the Internet, are already used with far greater frequency and more naturally than in Europe. The trend toward mobile working is also far more widespread in South Korea than here. Design and lifestyle, and particularly on-trend devices, are very important for South Korean consumers. **FRANCE** also has a high degree of digitization, particularly in the areas leisure and well-being. France has the highest number of games consoles. For 76 percent of the French respondents, Internet and telecommunications are essential and indispensable for organizing their leisure activities, more than in any other country. In **HUNGARY**, digitization is especially important in the areas work and study. 69 percent of those surveyed stated that they depended on the Internet and telecommunications

in their work. In no other country were the Internet and telecommunications so important for work and study. **GREAT BRITAIN** leads the field in terms of social networking, with around 61 percent of the respondents belonging to a social network. The **UNITED STATES** is the frontrunner in terms of mobile use of technical devices: 68 percent of the respondents here use their devices when on the move. The realization that the Internet can make life easier for older citizens is also most widespread in the United States: 64 percent of the respondents agreed with this statement, significantly more than in the other countries.

So what kind of services will be part of our digital future? One of the key findings of this study is that these services must fulfill specific requirements: they must be intuitive and easy to use, fast and secure. They must be convenient and also offer personalized content. Data security and a trusted service provider are more important for consumers than price.

This coincides with the vision of the future sketched by the experts, who see the following challenges as being crucial for tomorrow's digital services: intuitive usability, seamless integration, personalized, context sensitive user interfaces and data security.

Let us look forward with anticipation to what the future of digital living holds.

Explanations of the services discussed in the survey

The seven areas of life

AREA OF LIFE	INCLUDES TOPICS SUCH AS …
Leisure and well-being	Entertainment, hobbies, travel, religion, spirituality, music, culture, going out
Family and friends	Family and children, friends, partners, dating
Work and study	Jobs, school, university, education, private further education
Material and financial matters	Shopping, finance, assets, accommodation, cars
Security	Personal safety, financial security, data security
Society and community	Clubs, associations, non-profit organizations, neighborhoods, city life, politics
Health and fitness	Practicing sport, medicine, fitness, wellness

Leisure and well-being

SERVICES	DESCRIPTION IN SURVEY:
Online TV	Online TV (televisual content relayed to the TV via the Internet)
Online video	Online video (video content accessible at any time over the Internet, e.g. via video-on-demand platforms)
Casual gaming	Small games (e.g. Tetris) on mobile devices, for instance to pass short periods of time
Online games	Online games with several players, e.g. role plays games such as World of Warcraft
Online gambling	Online gambling, e.g. online poker and online roulette
Online music	Online music: listening to music and radio over the Internet, searching for music, purchasing and downloading tracks
Photo sharing	Uploading photos to the Internet to share with friends in online albums and on certain platforms
Video sharing	Uploading videos to the Internet to share with friends on certain platforms
Pedestrian navigation	Sat-nav systems for pedestrians
Mobile audio guides	Mobile audio guides (e.g. city tours, guided museum tours or local information downloaded onto cell phones via the Internet)
Buddy lists	Cell phones that show which friends are currently nearby

Family and friends

SERVICES	DESCRIPTION IN SURVEY:
Personal networking	Automatic synchronizing and updating of all address data, calendars, etc. across all devices (e.g. cell phones, PCs and laptops)
Social networks	Making new personal contacts and keeping in touch with existing friends over the Internet, e.g. via platforms such as MySpace, Facebook, StudiVZ, etc.
Sharing content	Uploading photos and other digital content to the Internet to share with family members and friends (e.g. photo albums, photo platforms such as Flickr, etc.)
Online communities	Discussing certain topics over the Internet with like-minded people (e.g. fan clubs, special platforms for certain subjects, products, brands, etc.)
New forms of communication	New forms of communication such as instant messaging, video telephony, RSS feeds and blogs
Online dating	Looking for partners and flirting over the Internet

Work and study

SERVICES	DESCRIPTION IN SURVEY:
Mobile working	Working wherever and whenever you like, supported by such things as remote access solutions that ensure security of computers networked over the Internet
Web collaboration	Working together on the same document as a team, even if the members are based in separate locations, facilitated by tools such as virtual project rooms and virtual meetings
E-learning	Learning with the help of digital media, e.g. computer-based training courses, distance learning, virtual class-rooms, remote teaching, etc.
Edutainment services	Edutainment: playful, entertaining learning activities, e.g. via TV, computer/video games, and multimedia software
Software as a service	Renting software for a fixed period of time, rather than buying it

Material and financial matters

SERVICES	DESCRIPTION IN SURVEY:
Electronic payment	Electronic payment: making smaller payments via cell phone, with the amount added to the phone bill
Digital aura	A "digital cloak" surrounds individual people and objects, and when two come into contact, they can then exchange data: cars find parking spaces themselves, shirts tell washing machines at which temperature they should be washed
Interactive shopping	Interactive shopping on TV (e.g. buying the jacket a certain actress is wearing directly online)
RFID/Location-based shopping	Billboards transfer information to cell phones, which navigates users to shops of interest
Reviews, evaluations	Discussions with other consumers regarding certain products, forming opinions through user reviews and product evaluations
Online price comparisons	Compare prices online.
Smart homes	Smart homes: intelligent household appliances, networked homes, etc.
Intelligent car systems	Intelligent car systems: communicate with other vehicles to automatically stay a set distance apart and obtain precise information on traffic jams, potential danger spots, etc.

Security

SERVICES	DESCRIPTION IN SURVEY:
GPS alarm systems	Systems that trigger alarms when people (e.g. children or older individuals) move outside of or approach certain areas
Personal localization services	Locate the position of individuals
Prevention of data misuse	Services to prevent data misuse, e.g. for e-banking, e-commerce, etc., prevention of phishing, identity theft, etc.
System security	System security: virus protection, prevention of spam calls (e.g. when using VoIP services)
Privacy and data security	Privacy and data security: services that generally protect people's online privacy
Protection of minors	Protection of minors: services that prevent minors from accessing adult content online, and from making dubious contacts

Society and community

SERVICES	DESCRIPTION IN SURVEY:
E-government	E-government, e.g. voting online, online election campaigns, etc.
E-administration	E-administration: completing government paperwork over the Internet (e.g. tax returns, address changes, passport extensions, etc.)
Virtual clubs and associations	Virtual clubs and associations
Political opinion-forming online	Political opinion-forming online: e.g. political blogs, fact checks, fund-raising campaigns, petitions, etc.

Health and fitness

SERVICES	DESCRIPTION IN SURVEY:
Mobile health monitoring	Monitoring key health indicators (e.g. health, breathing, blood count) via a mobile diagnosis device, with the data then transferred to a health center or family doctor
Global fitness communities	Global fitness communities: e.g. made up of people in different locations, each brought together by the Internet and working to a common goal
E-patient records	Electronic patient records (all health data stored and managed electronically)

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[1] All figures cited in this report from the consumer survey refer to Internet users of the following countries and age groups: Germany, 14 to 65 years old; France, 15 and over; Hungary, 16 to 74, Great Britain (no age limits), the USA (no age limits), and South Korea (no age limits).

[2] Using a cluster analysis, the 10,545 consumers surveyed were divided into separate groups ("clusters") of individuals, which as groups were as homogenous as possible but within the groups as heterogeneous as possible. These consumer groups were based on various aspects that reflect the different facets of a networked lifestyle and approach to work. These include the role of the digital media overall, the importance of innovative communications media, the status of innovative user devices, and contemporary networking in a range of different spheres of life. Cluster center analysis was carried out via the k-means algorithm. As with all partitioning cluster processes, at the start of the process, a certain number k of clusters was defined. Due to theoretical considerations (diffusion research), three clusters were defined. To check the quality of the results, the F value was calculated. This shows that the group mean values for all cluster variables are clearly different from one another. The values of the relevant variables within a single cluster are much more similar than those of other clusters.

[3] These and the following figures relate to the relevant consumer groups in Germany.

[4] The classification scheme using seven areas of life is taken from the work of Australian quality of life researcher, Robert A. Cummins. These areas were identified as part of a comprehensive meta study, and take 137 individual aspects into consideration.

[5] See, for instance, Moorstedt, Tobias: Jeffersons Erben – Wie die digitalen Medien die Politik verändern. Suhrkamp publishers, Frankfurt am Main 2008.

CREDITS

The "LIFE – Digital Living" study offers both a survey and summary of expert and consumer opinions. It was designed and produced by Professor Dr. Thomas Hess, Director of the Institute for Information Systems and New Media at Munich's Ludwig Maximilian University in conjunction with the strategic consultancy zehnvier. In total, 56 experts and more than 10,545 consumers from six countries were surveyed.

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