

## **REGIONAL DIMENSIONS AND SOCIO-ECONOMIC ASPECTS OF FUTURE ICT USE IN AN AGEING SOCIETY**

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### **1. INTRODUCTION**

The adoption of Information and communication technologies (ICTs) has spread rapidly over the last decades. In terms of economic significance and their potential to influence the daily routines in enterprises and households ICTs are among those technologies that have induced major changes to the economy and society worldwide. However, they still bear further potential, which depends on technological progress and on technology acceptance throughout society as a whole.

This paper presents results of research in the field of internet use and technology acceptance by older people, combined with some age specific results for the socio-economic implications of information technology realisation within the time-span until 2020. Those results are derived from FAZIT, a research project carried out by Fraunhofer ISI and two partners, commissioned by the State Ministry of the Federal State Baden-Wuerttemberg in Germany.

As an example for a growing ICT related market the first part of this paper gives a brief introduction of FAZIT. From a theoretical perspective FAZIT adopts a regional system of innovations approach to identify the key drivers for new ICT markets and innovations in Baden-Wuerttemberg. The project consists of two modules: monitoring of ICT diffusions in firms and foresight. The foresight approach in FAZIT provides an opportunity to combine and integrate various foresight methods, such as Delphi surveys, scenario analyses and road mapping. This methodologically challenging opportunity is valuable for methodological progress.

The second part deals with aspects of the internet use and technology tolerance among older people, with special focus on Baden-Wuerttemberg. This is a synopsis from a symposium 'Best Aged in the Information society', organised by Fraunhofer ISI within FAZIT, which brought together leading researchers and experts in that field and provides an overview of the state-of-the-art research in that context. What is known: The internet use differs in relation to socio-economic aspects like age, sex and income. However, the use of ICT could facilitate life, especially for older people.

The third part of this paper examines the answers given in the first FAZIT Delphi survey called "Man and ICT" analysed according to the age of the interviewed experts. Interesting results are provided by the Delphi questions concerning telecommuting, virtual museums, virtual contacts and the use of technology for health. Though the internet and technology diffusion among older people is significantly lower than among younger people, the Delphi results show differences between younger and older generations only in certain areas.

This paper concludes with a discussion about the implications of internet use and technology adoption on the economic and social development in regions. To emphasise the regional perspective this is done with regard to general trends in the socio-economic development in Baden-Wuerttemberg.

## **2. FAZIT**

FAZIT<sup>1</sup> is a non-profit research project carried out by the MFG Stiftung Baden-Württemberg, Stuttgart, as executing organisation, the Centre for European Economic Research (ZEW), Mannheim, and Fraunhofer Institute for Systems and Innovation Research (ISI), Karlsruhe, as partner organisations. The project is commissioned by the State Ministry of the Land Baden-Wuerttemberg and has a duration of four years, starting in 2005. The project explores present and future demand and applications for innovative information, communication and media technologies in Baden-Wuerttemberg. It has the overall goal to identify key drivers for new markets and innovations in the ICT sector, which might be important for further regional development.

The theoretical framework of the project is the regional systems of innovation approach. Innovations are an evolutionary and cumulative process with internal feedback loops, which can only be realised with the necessary economic and social interaction of different, but relevant, regional actors (Koschatzky, 2001). Results from this process are technological, organisational and social innovations. This underlines the significance of social aspects in the innovation process, especially through collective learning processes and integration of different actors in the region due to proximity.

Building on the regional innovations systems approach it becomes significantly clear that the future potential of the State of Baden-Wuerttemberg will crucially depend on the ability to generate new knowledge and transfer it through an innovation process into new products. However, decisive successful innovations in a regional context are institutionalized networks between industry, universities and governance as described in the triple helix approach (Etzkowitz, Leydesdorff, 2000). From the research on regional innovation systems a need for concentration on processes of regional self-organisation and regional governance can be derived. This should result in examinations of regional trajectories and the derivation of concrete measures for regional development, such as the creation of new jobs and stable and reliable networks.

In order to examine the interdependence of the present situation and the possible future development of the ICT sector in Baden-Wuerttemberg, FAZIT applies different methods. The project consists of: ICT-monitoring and a foresight process.

In the ICT-monitoring module, representative surveys of the IT and media sector and further branches of the manufacturing industries and the service sector in Baden-Wuerttemberg are carried out on a biannual basis. The general aim is the provision of up-to-date information on short- and mid-term developments in the local economy. The determinants, the extent and the economical effects of the use of IT and media technologies are subject to the survey. Market studies serve to deepen the understanding of selected markets which might be of high relevance to the regional economy, notably, with regard to the development of new markets. In a second step gaps in current research shall be raised and specific research should be identified. To reveal future trends, the ICT monitoring, Delphi studies, scenarios, case studies and scientific workshops are closely linked in the project.

Fraunhofer ISI conducts a multi-stage foresight process in order to identify relevant fields of research and future developments in the field of IT and media technologies that are vital for the region of Baden-Wuerttemberg. As technological, social and economical trends are in close interaction with each other, a combination of foresight methods is applied. The foresight process consists of three Delphi studies, a scenario process and a roadmap for future ICT developments. Each phase of the foresight process is closely linked with the ongoing ICT monitoring and the results of the research on market issues.

In a first step within the foresight process, Fraunhofer ISI carries out three Delphi studies. Each Delphi survey involves about 500 to 1.100 regional, national and international experts from the economy, science and society. The first Delphi study is about social aspects of ICT adoption, the latter two are about technological developments. Possible social and technical trends are examined and experts estimate the probability or the year of their occurrence. Regional stakeholders as well as international experts are involved in the research process to ensure that the most significant developments are covered.

The second part of the foresight process is dedicated to a scenario process which aims at the generation of a multi-dimensional picture of new markets arising through ICT in Baden-Wuerttemberg. During the time span of the project the content will be continuously supplemented. It is

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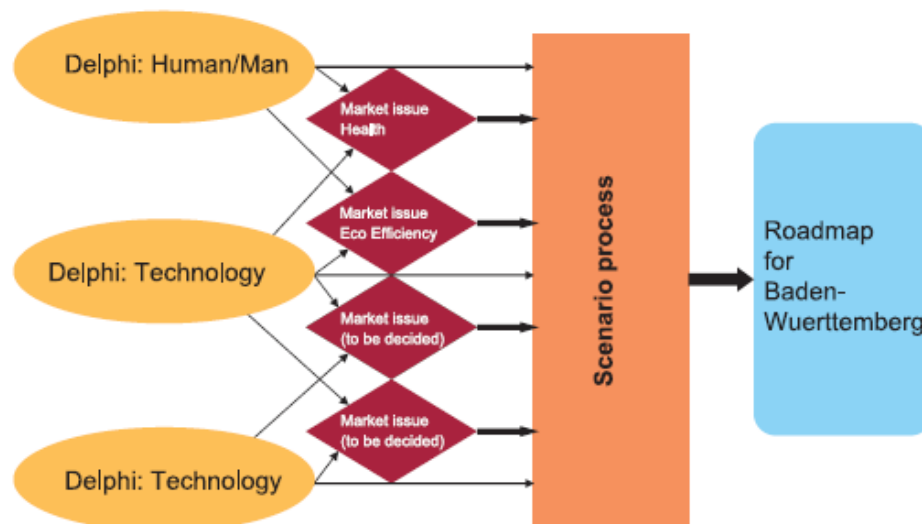
<sup>1</sup> [www.fazit-forschung.de](http://www.fazit-forschung.de)

of vital importance to the scenario process in FAZIT that the following questions are addressed: How will the field of IT and media in Baden-Wuerttemberg appear in the year 2020? Which issues and areas are of particular significance, which industries will be particularly affected by developments in ICT, and how does the situation in Baden-Wuerttemberg differ from those in other regions? It becomes necessary to link the results from the Delphi survey and the results from the market studies to the actual scenarios. The last step in the scenario process is the production of alternative models for future developments. Successive (partial) scenarios might be generated.

In a last step of the foresight activities a roadmap for Baden-Wuerttemberg till the year 2020 will be prepared. Road-mapping is a way of bridging the gap between today and the scenarios of the future. It indicates one or more ways in which the eventual targets could be reached. Vitally important to this is the identification of milestones and critical bottle-neck factors which require urgent action and which raise questions for further research. The results of the previous foresight modules are summarised and integrated into the roadmap.

The following figure presents foresight modules used in FAZIT. It shows how the modules are linked and combined for the preparation of the roadmap at the end of the project.

**The foresight process in FAZIT**



**Figure 1:** The foresight process in FAZIT, ISI modules

The methodological challenge consists in the integration of the various methods. Notably, the design of the questions in the first Delphi was a challenge. Instead of the conduction of a survey with a strong technology focus, as is usual for Delphi surveys, the questions had to cover social and demand side aspects, with regard to general trends such as the demographic development in Baden-Wuerttemberg. A full discussion of the method applied will be presented in chapter 4.

The Fraunhofer ISI team has completed the first Delphi survey and a symposium on ICT use by older people. The team currently works on the second Delphi and on a market study concerning IT-based services in the health sector of Baden-Wuerttemberg. The second market study and the scenario process will start in the second half of 2006.

### 3. DIMENSIONS OF ICT SECTOR DEVELOPMENT IN BADEN-WUERTTEMBERG

By now, the ICT and media sector became one of the growth engines of Baden-Wuerttemberg. It has steadily gained significance and offers even more economic and social potential for the regional development. However, the ICT sector, as well as society as a whole, will face the challenges of an ageing society during the next decades. Starting from a description of the ICT and media sector today,

this chapter will discuss the challenges raised by the demographic development in Baden-Wuerttemberg and an ageing society. In the third part it explains briefly, which socio-structural factors determine ICT adoption and how technology tolerance among older people can be fostered. The last part of the chapter will highlight some future ICT applications designed especially for older citizens. This chapter presents a synopsis from the symposium 'Best Agers in the Information society'<sup>2</sup>, organised by Fraunhofer ISI within FAZIT.

### **3.1. The ICT and Media Sector in Baden-Wuerttemberg**

With regard to high-technology and knowledge intensive exports the economic performance of Baden-Wuerttemberg is very high. Baden-Wuerttemberg contributes approximately 2 % to the worldwide share of exports. This equals the share of countries such as Spain, Austria, Switzerland or Sweden (Statistisches Landesamt Baden-Württemberg, 2005:11). Besides traditionally strong sectors such as the mechanical engineering and automobile sector, the development of a strong ICT sector ensured the economic success of Baden-Wuerttemberg.

The economic structure of the region can be divided into three, almost equally weighted sectors: consumer-oriented services, industry and business-related services. For the latter two information- and communication services are very important, next to R&D and consulting and financial services (Wirtschaftsministerium Baden-Württemberg 2005:8). Considering the supply side of the ICT sector, the importance of that sector is likewise very high. In some respects it has already surpassed the significance of the mechanical engineering sector. At present 35,000 enterprises in the IT and media sector employ more than 300,000 people. This is more than the traditionally strong sector of mechanical engineering.

Baden-Wuerttemberg has several clusters which relate to the ICT and media sector. Those are namely the branches of business software and software services and the telemedia sector. Those branches show an economic performance which is much more vital than the economic performance of Baden-Wuerttemberg in total.

To ensure further economic success, the federal government identified the access to broadband technologies for enterprises as vital. Particularly in this respect, small and medium local enterprises are still at miss. In 2004 only 58 % of the enterprises in Baden-Wuerttemberg had a high-speed internet access, whereas 61 % of the enterprises in the EU 15 had access to broadband connections. (Statistisches Landesamt 2005:121) In other dimensions such as the usage of computer and the provision of business web pages enterprises from Baden-Wuerttemberg show significantly higher implementation than the EU 15 average.

The IT and media sector holds a share of 8.5 % of all enterprises in Baden-Württemberg and consists mostly of SMEs. This sector contributes 6.8 % to the overall turn-over of Baden-Wuerttemberg (Bertschek et. al. 2005) and has typical mix of large cooperations operating on a worldwide level (SAP, IBM, HP). It has a range of strong and innovative SMEs, which are the spine to the success of the economy and ensure the needed flexibility to meet future demands.

### **3.2. Demographic Development in Germany and Baden-Wuerttemberg**

After the brief reflection of the supply side of the IT and media sector the following part will focus on the development of the demand side, notably, on the individual consumer. ICT adoption depends on several socio-economic factors, such as age, education, income, gender and geographical location. Therefore, the demographic development is of major importance to ICT demand, especially if it is changing dramatically towards obsolescence.

An ageing society has various dimensions. Besides a shrinking population due to a low fertility rate which cannot be compensated by migration, it is characterized by a displacement in the age structure of the population, reflecting a process of ageing. The population dynamics of Germany and Baden-Wuerttemberg, namely the present situation and the future development until the year 2050, with regard to the dimensions mentioned above, will be subject of this chapter.

Concerning the demand side, Germany and Baden-Wuerttemberg will undergo distinct changes: Germany has currently approximately 82.5 Mio. inhabitants. The number will rise to 83 Mio. until the year 2013. From this year the German population will shrink to 75 Mio. in 2050 according to

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<sup>2</sup> "Best Agers" in der Informationsgesellschaft – Mit IT in die 2. Lebenshälfte, 10.10.2005, Haus der Wirtschaft, Stuttgart, Germany.

the national statistical bureau of Germany. Due to the strong economy the demographical changes in Baden-Wuerttemberg will be less distinct. After a short increase in the number of inhabitants, the population size will fall back to the currently counting 10.7 Mio. inhabitants by the year 2050. However, the average age in Baden-Wuerttemberg will increase sharply from 41.2 in the year 2005 to 48.9 in 2050. The meaning of an ageing society is clearly stated by the following table, which shows the effects of the demographic development on the age structure of the population Baden-Wuerttemberg.

### **Age structure of the population in Baden-Wuerttemberg**

**Table 1:** Age structure in Baden-Wuerttemberg, adopted from the Federal Statistical Office Baden-Wuerttemberg, 2005

<b>Year</b>	<b>population &lt; 20 in %</b>	<b>population 20 – 60 in %</b>	<b>population &gt; 60 in %</b>
<b>2005</b>	21	55	23
<b>2020</b>	18	54	27
<b>2050</b>	16	47	36

### ***3.3. ICT Adoption and Technology Tolerance among older People***

The ability to use technical devices is an important precondition in the modern knowledge based society which ensures certain autonomy and secures societal participation (Mollenkopf 2006). This applies especially to older people, who often experience a decrease in physical and sensory capabilities. ICTs can in this respect secure a certain degree of independence and support the organisation of every day life. However, technology tolerance and ICT adoption depend on socio-economic factors like age, income, education, gender, the former or actual employment situation and the household and family status. This applies for society as a whole but also for the specific user segment of older people.

This age group is by no means homogenous. Due to the increase of life-expectancy and an early retirement age in Baden-Wuerttemberg the socio-demographic group of older people is very heterogeneous. The representatives of this group easily differ in age up to thirty years. Therefore, technology acceptance differs enormously and depends in addition to the mentioned factors above on personal experiences of technology use. Each generation has diverse experiences with technology adoption which is closely linked to the availability of technology during their life. This results in individual histories of technology acceptance.

Technology assessment of older people is composed by two components: a rational and an emotional component. From a combination of the two dimensions four kinds of technology acceptance can be derived: an approving, a rational, a sceptical and a critical technology assessment (Mollenkopf 2006).

Technology acceptance among older people is positively influenced by a permanent availability of technical devices (either at home or in the job) over the whole life. Further, it is negatively influenced by age, education and income. Similarly, men adopt technology more often than women, due to experiences in their jobs and education.

The group of older people is not only heterogeneous in terms of technology acceptance, but also with regard to the use of technology. Some people tend towards household applications, others to applications concerning mobility or communication. What they have in common is the need for a design which is suitable for the specific needs of the older generation.

### ***3.4. Designs for ICTs and related Technologies to meet the Needs of an Ageing Society***

At the symposium, it became clear that products with ICT components have to be designed in a way that suits the physical as well as intellectual needs of all citizens to foster a higher ICT adoption in an ageing society. Age specific problems have to be considered at a very early stage of product design.

On the one hand older people experience limitations to their senses such as hearing, balance and sight as well as limitations to mobility. This can cause problems in the handling of products. On

the other hand problems with regard to the intellectual capabilities occur. This is due to a change in the components of mental capabilities during life. In young years the fluid intelligence dominates the mental abilities, which ensures a fast processing of new information, creativity and a strong memory. It decreases from the age of twenty. The fluid intelligence is complemented by the crystalline intelligence, which increases during life. The crystalline intelligence is based on experience, social competence and the ability to solve complex problems due to experience (Kirchmair 2006). Changes in the composition of intelligence ask for specific products designs. Notably, the lack of understanding is a hindering factor to a more intensive ICT use among older people.

To solve the intellectual challenge induced by an ageing society, instructions should be written in a way which makes them easy to understand, they should be logically sound and without difficult technical terms. Figures should be drawn to scale and be of low complexity. This, however, facilitates all users (Kirchmair, 2006). Further on, the handling of products should be of reduced complexity. Even if a product needs some simple programming before it could be used, this might be too much for technical-inexpert users.

To meet physical difficulties occurring with age, specific demands on the design of products need to be fulfilled. Letters on displays for example should be easy to read. Keys and switches of technical devices should be easy to find and should be big enough for an easy operation.

In summary: to prepare for an ageing society and still foster technology adoption, products should be designed in a functional way. That means the styling and design of a product have to be subdued to their original purpose in order to keep the device simple and foster its handling.

#### **4. DELPHI SURVEY: "MAN AND ICT" IN THE YEAR 2020**

ICTs induced some major changes to the society in Baden-Wuerttemberg during the last decades. In order to achieve a better understanding of future ICT adoption, a demand oriented Delphi survey was carried out in the second half of 2005 within the FAZIT project. The overall goal of the survey was the identification of demand for and application of innovative ICTs in Baden-Wuerttemberg until the year 2020. The survey was designed to paint a valid picture of the user side, with regard to general societal trends. This chapter will therefore highlight the survey design and some methodological aspects. Selected results concerning technology acceptance in Baden-Wuerttemberg in the year 2020 are presented in the second part of this chapter.

##### **4.1. Survey Design "Man and ICT"**

Foresight-processes allow a view into the future. The future is unknown, but the general directions can be guessed, if reasonable methods are applied (Cuhls, 2003). The Delphi approach was originally developed by the RAND cooperation (Santa Monica, California) in the 1950s. The basic idea of a Delphi survey is to interview experts on selected, future-oriented topics. At least two rounds of interviews shall ensure that the experts could react to the general opinion of the peers. Each topic consists of a set of theses, with related questions, such as the estimated degree of importance, probability of realisation, the expected time of realization, influencing and impact factors, etc. The results of the first phase are fed back to the experts during a second round, in order to provide them with the ability to change their original opinion (Cuhls 2003). The Delphi method is an established tool in foresight processes, which is continually improved.

The presented Delphi survey combines technological and social aspects with the intention to explore ICT use and its acceptance until 2020 in Baden-Wuerttemberg. The present set of theses has been generated through literature reviews, analyses of databases and expert interviews on the selected topics. The theses were generated and selected due to several dimensions: an unsure realisation, a connection to ICTs and Baden-Wuerttemberg and focus on the individual user.

The questionnaire covers seven topics: working, spare-time activities, social contacts, medical care, mobility, education and security. The experts received a questionnaire with a set of theses to each topic and had to answer on the probability of occurrence of the theses. To complement the set of questions they were asked to answer on the importance of influencing factors, such as the development in R&D, regulation, marketing etc. In third step they had to judge on the impacts the realisation of the theses could have. In addition to that the questionnaire provided an empty space for further comments at the end of each topic.

The Delphi survey was conducted by a team of researchers<sup>3</sup> from Fraunhofer ISI in the second half of 2005. Altogether 1089 experts from science, society and the economic sector were addressed. Due to the nature of a Delphi survey the sample consists only of experts from the selected topics. Therefore, it is not representative in a statistical sense. Table 2 gives an overview of the sample structure.

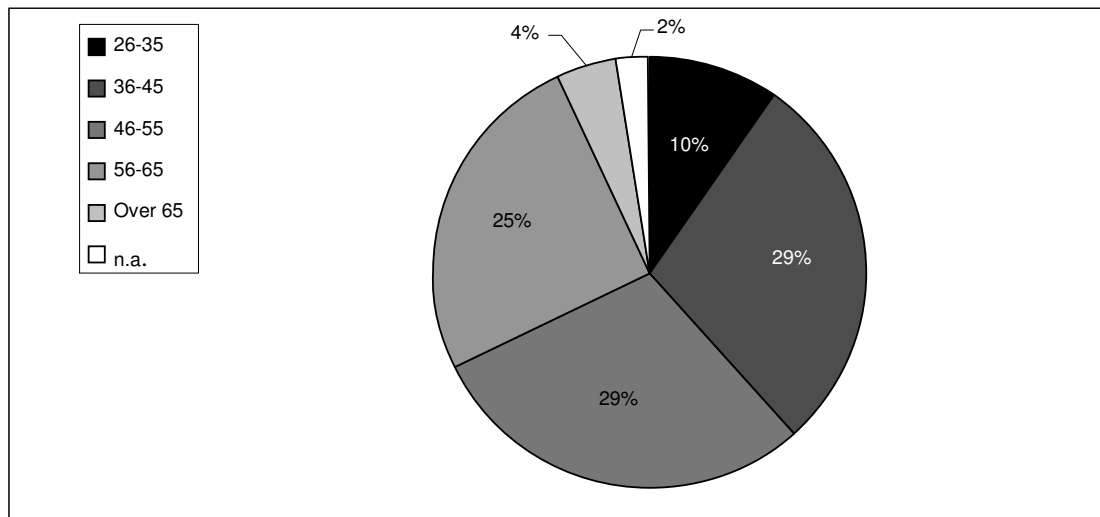
**Structure of the sample by profession**

**Table 2:** Structure of the sample, adopted from von Oertzen et al. 2006, p. 22

	<b>Plan: N = 1.000</b>	<b>Addressed: N = 1.089</b>	<b>Participants in 2. round: N = 245</b>
<b>Science</b>	<b>33 %</b>	<b>40 %</b>	<b>47 %</b>
<b>Society</b>	<b>33 %</b>	<b>31 %</b>	<b>22 %</b>
<b>Economic sector</b>	<b>33 %</b>	<b>27 %</b>	<b>29 %</b>

An overview of the age structure of the sample is provided in figure 2 below. Approximately, a third is between 26 and 45, a third between 46 and 55, and the last third is older than 55. This allows for a separate evaluation of the answers from these groups.

**Structure of the sample by age**



**Figure 2:** Structure of the sample by age, adopted from von Oertzen et al 2006, p. 23

To derive some meaningful results it was necessary to assign percentage quotations to the answers on the probability of realisation (see table 3). This was a necessary step, which enabled the calculation of the mean and the standard deviation. The results are virtual percentage quotations, which provide a good idea how realistic the implementation of the theses seems to be.

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**Assignment of percentage quotations to the answers**

**Table 3:** Assignment of percentage quotations to the answers (adapted from von Oertzen et. al. p. 24)

Answer category concerning the probability of realisation until 2020	percentage quotation
very high	80 %
high	60 %
low	40 %
very low	20 %
later or never	0 %

**4.2. Selected Results**

This part will present results from the Delphi survey "Man and ICT". The survey consists of 44 theses covering seven topics. Due to the complexity and length of the survey only the most interesting results will be highlighted in this chapter, coming from the topics of working and spare-time activities. To identify some consequences the demographic development could have on ICT adoption, results from an analysis according to the age of the respondents are presented. To give an idea of the theses a paragraph with selected theses is presented before the actual discussion of the results.

**Working in 2020**

The theses from topic of working included some statements on the generational differences. Therefore we considered this topic as important and would like to present its results. The theses, which are presented in the following paragraph, were selected due to two criteria. Either age specific aspects had to appear in the thesis itself or there had to be a significant difference in the answering behaviour of the respondents, when analysed according to age.

**Selected theses from the topic of working**

<p>Virtual working environments are geared to the reality of the 50-plus-generation instead of the youth culture. (Probability 48 %)</p> <p>For more and more even simple jobs very good IT skills are essential. Employees without IT skills will experience a drop out from the job market. (Probability 61 %)</p> <p>It is common practice to meet with business partner virtual. Therefore, business trips are mostly abandoned. (Probability 38 %)</p>
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Most of the ICT induced changes will be realised until the year 2020, for example:

- Telecommuting will prevail and co-exist with conventional forms of working.
- Due to virtual cooperation processes in enterprises and resembling organisations will become more efficient and innovative.
- IT skills are more and more important, even for simple jobs (see probability of theses: 61 %). Therefore, ICT pervasiveness will cause major changes in education. Taking into account, the rapid ageing of society, life-long learning becomes an essential factor in the qualification of employees.

However, there are also some limits to the adoption of ICTs. The respondents have major doubts about the capability of ICTs, namely virtual meeting rooms in order to substitute business trips. The probability of occurrence for the theses is with 38 % the lowest in this topic and altogether 15 % of the experts are convinced that this will never occur.

Among the factors that will influence ICT penetration in a positive way are R&D, user-friendliness and cost cutting measures. At least 96 % of the respondents considered these factors as important in a positive way.

According to the answers of the respondents the adoption of ICTs in working life will mostly cause positive impacts. 90 % of the respondents expect a positive impact on the economic



development, 79 % expect positive impacts on science and 62 % on the environment. However, 40 % of the respondents expect negative impacts with regard to security. Concerning the impacts on society, the answers of the experts differ greatly. On the one hand 45 % expect negative impacts and on the other hand 40 % assume that the impacts will be positive. With regard to the age the results show that respondents over 55 years are much more sceptical about the impacts of ICT diffusion on society and security than the average. They are, however, more optimistic when it comes to the impacts ICT diffusion will have on the economy.

#### **Spare-time activities in 2020**

We considered the topic of spare-time activities important in the context of this paper, because the answering behaviour revealed explicit differences when analysed according to age. Especially, the answers concerning the impacts the realisation could have showed major differences.

#### **Selected theses from the topic of spare-time activities**

More than half the people pursue virtual spare-time activities more intensive than those in the physical world. (Probability: 39 %)

More than half the people rather visit virtual than physical museums, look at exhibits in virtual rooms or get historical situations auditioned audio-visually. (Probability: 36 %)

This is the area where changes due to the adoption of ICTs are obvious to most people. The market for computer games is very strong and notably young people spend a large amount of their spare-time with computer games. Considering the importance of the gaming sector today, experts still have doubts, whether virtual activities will substitute physical spare-time activities by large until 2020. The results state: if an extensive virtualisation of our society with regard to spare-time activities becomes viable, then only after 2020. The experts still doubt, the acceptance of virtual worlds "more than half the people". These doubts are reflected by the results. The probability of realisation of the proposed theses lies with 39 % and 36 % way behind if compared with the results from other topics.

A closer look at the factors that influence ICT adoption with regard to spare-time activities reveals that the development of user-friendliness and R&D has a strong positive influence. 97 % and 89 % of the respondents agree to that. Marketing and societal developments will also influence ICT dominated spare-time activities in a positive way.

Positive impacts of ICT diffusion are expected with regard to the economic development (49 %) and science (33 %). Only 10 % and 2 % respectively anticipate negative impacts in these dimensions. Concerning societal developments the respondents are very sceptical. 75 % expect negative impacts, compared to 14 % who are optimistic.

We received a lot of comments on this topic. Respondent were expressing their doubts with regard to the virtualisation of spare-time activities. Possible isolation, a strong virtual divide and the use of virtual worlds as resort from economic and social reality were among them. The respondents over 55 expect more positive impacts of the realisations of the theses on the development of science, than experts below 45. However, the impacts on society and security were assessed in a more negative manner by the age group over 55. In general, respondents over 55 were more sceptical about the social consequences than the average, which even holds for all topics in the Delphi survey

## **5. CONCLUSION**

The FAZIT project aims at the identification of actual and future innovative and potential markets for the ICT sector in Baden-Wuerttemberg. With the results from the symposium "Best Aged in the Information society" and the results from the Delphi survey "Man and ICT" we clearly identified that ICT products and related services for older people is an emerging market.. The group of older people bears significant potential for the application and use of ICTs. This is especially important, because the ICT sector in Baden-Wuerttemberg is one of the growth engines for the regional economy, which could ensure further economic development not only within the ICT sector itself but also in other sectors which integrate ICT in their business processes, products and services.

Due to the demographic development in Baden-Wuerttemberg the number of users from the group of older people will sharply increase during the next years and it is an extremely heterogenous target group for new services and products. Therefore it will become an economic and societal necessity to foster ICT adoption among this group, even though its representatives are more sceptical when it comes to ICT use, as our Delphi results show. However, this might be due to the fact, that until now, virtual and ICT devices are not geared to the needs of the 50-plus-generation. And even the view into the future reveals that this will not change until 2020. Therefore, the market for ICTs reveals further potential with regard to this age specific user group.

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