



SlforAge: Deliverable D2.4

One Technology Experience Café organized in Germany

The SIFORAGE Consortium

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Table of Contents

1. EXECUTIVE SUMMARY	5
2. INTRODUCTION	6
3. EVENT OBJECTIVES	9
3.1 TARGET GROUPS	10
3.2 TECHNOLOGIES	10
3.3 OTHER STAKEHOLDERS.....	12
4. TEC PREPARATION ACTIVITIES	13
5. EVENT ORGANIZATION	14
5.1 EVENT STRUCTURE	14
5.2 ETHICAL/IPR ISSUES.....	15
5.3 INFRASTRUCTURE / FACILITIES	15
5.4 VENUE	15
6. USER EXPERIENCE SURVEY	17
6.1 SURVEY DESIGN	17
6.2 QUESTIONNAIRES	17
6.3 TEC FEEDBACK	21
6.3.1 Previous experience with technology	21
6.3.1.1 Use of technology	21
6.3.1.2 Types of devices used by direct users.....	21
2.3.1.2 Types of devices used by indirect users	22

Deliverable 2.4

6.3.2 TAM 2.....	23
7. RESOURCES EMPLOYED FOR THE TEC.....	32
8. IMPACT ASSESSMENT	33
9. ANNEXES	34
9.1 ANNEX 1. DOCUMENTS DEVELOPED AT THE EVENT PREPARATION STAGE.....	34
9.2 ANNEX 2. DOCUMENTS FOR THE USER EXPERIENCE SURVEY	38

1. Executive Summary

The current document provides a report on the Technology Experience Café (TEC) organized in the framework of the FP7 SiS project SlforAGE on February 3-4, 2015 in Saarbruecken, Germany.

This event was the last in the series of 4 TECs designed and organized by the SlforAGE project and brought together the largest group of older people – potential users of new technologies. The event organizer – the German Research Centre for Artificial Intelligence (DFKI), is a well-known applied research institute working in the variety of research fields related to Information and Communication Technologies based on Artificial Intelligence. One of the special areas of activities at DFKI, new ICT products and services for Ambient Assisted Living, was represented at the TEC4 event by 2 experimental technologies designed to improve quality of life of older persons in 2 different settings:

- Intelligent kitchen (Kochbot) enabling independent staying at home for older persons with mild physical and cognitive impairments. The technology using natural language interface and intelligent environment technology supports the process of cooking and facilitates healthy nutrition behaviour.
- In-door navigation system (Elena) supports in-door navigation of older persons in such complex and unfamiliar environments as large hospitals and public buildings, which older people have to visit without accompanying persons. Simple, speech-driven user interface, makes mobile devices equipped with Elena better accepted by the older users.

Both technologies are still in the experimental shape and one of the main goals of the TEC4 was to receive an important user experience feedback from potential users in order to enable further improvements in the research and technology development cycle.

The event was organized in cooperation with local older persons representative organizations, such as regional and local Councils of Older Persons, lasted 2 days and allowed more than 40 older persons to get acquainted with the new technologies. Importantly, the social atmosphere created at the venue allowed intensive exchange of opinions and encouraged the continuation of TEC activities outside of the scope of the SlforAGE project for the mutual benefits of technology developers and older users.

2. Introduction

The German Research Center for Artificial Intelligence, with sites in Kaiserslautern, Saarbrücken, Bremen (with an associated branch in Osnabrück) and a project office in Berlin, is the leading German research institute in the field of innovative software technology. In the international scientific community, DFKI ranks among the most recognized "Centers of Excellence" and currently is the biggest research center worldwide in the area of Artificial Intelligence and its application in terms of number of employees and the volume of external funds. DFKI was established by largest industries (Deutsche Telecom, BMW, Daimler, Microsoft, SAP, Intel, etc.) and public bodies as a private-public partnership and active in such areas of research in innovation as Software technologies, Robotics, Knowledge management, etc. DFKI is a home to the W3C headquarters for Germany, Austria, and Switzerland. DFKI received the German Innovation Prize for generating more than 100 high-tech spin-off companies, permanent participant of the CeBIT Exhibition.

DFKI participates in the SiforAGE project with its Competence Center Ambient Assisted Living - CCAAL - a cross-project and cross-department virtual organization within the German Research Center for Artificial Intelligence coordinating and conducting research and development in the area of Ambient Assisted Living - AAL. It joins forces from the departments Intelligent User Interfaces (IUI), Cyber-Physical Systems (CPS), Agents and Simulated Reality (ASR), Institute for Information Systems (IWI), Augmented Vision (AV), Knowledge Management (KM) and Robotics Innovation Center (RIC) and thus offers competences in a wide range of areas within AAL. Following a holistic approach to AAL, the driving force for research and development are primarily users of the technology, society and business partners.

"Our long-term vision is to promote an accessible intelligent environment beyond today's state-of-the-art based on standards-based open architectures and innovative solutions where everyone can live a secure and autonomous life and thus play role in society. We do so by combining competences and cutting-edge results and assets from projects running in the participating research departments."

DFKI CCAAL implements projects supported by various stakeholders (EU, German National funding agencies, local government, industrial customers) and focused on development and validation of pre-commercial interactive technologies for older persons, people with special needs, mainstream customers preferring adaptive solutions, etc. Therefore, the accessibility, acceptance of its products/services by potential users is the key to success. Thus, DFKI widely uses effective methodologies for technology design enabling direct and close engagement with potential users on all stages of the RTD cycle. Such approach as Human-Centered Design for Interactive Systems (standard ISO 9241-210:2010, known also as User Centered Design, UCD) is the cornerstone of all CCAAL projects as it puts the user into the centre of an entire research and development cycle.

At the same time, the typical role of users involved in the development of new technologies is two-fold:

1. To provide their expectations about and requirements to a new technology
2. At the end of the development cycle to evaluate the resulting prototype in order to detect to what extent the solution can function and meet their requirements.

The typical aspects of user evaluation are e.g. ergonomics and usability, functional completeness, stability of operation, etc. All these issues are well known to technology developers and compulsory for any RTD project.

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At the same time, we can observe the phenomenon when innovative products/services built on the basis of deep research works, developed using the UCD methodology and successfully evaluated by potential users face significant difficulties while entering real markets and often fail in the course of commercialization. The recent technological policies of large commercial companies developing and producing interactive products and services, such as e.g. Apple, Google, Samsung, demonstrate that in the development of their products ahead of such aspects as functionality, costs, ergonomics, etc. the market champions pay attention to what is called “user experience”, the integral, often unconscious, feeling of a customer about the offered product/service (for instance “I like”, “I would buy it” in contrast to “I don’t like it”).

The international standard ISO 9241-210, defines user experience as "a person's perceptions and responses that result from the use or anticipated use of a product, system or service". According to the ISO definition, user experience includes all the users' emotions, beliefs, preferences, perceptions, physical and psychological responses, behaviors and accomplishments that occur before, during and after use. The ISO also list three factors that influence user experience: system, user and the context of use.

DFKI CCAAL realizes that using the methods of assessing user experience already inside the RTD cycle, ensures that the products and services built on the results of such research will have much better market prospects after their commercialization. This was the reason for DFKI to be extremely interested in the SiforAGE WP2 activities and obtaining unique expertise in user experience evaluation within the RTD cycle.

Therefore, DFKI’s vision of a TEC is the place where older people gain an insight into the future technologies; get an aspiration to engage with the technology world and socialize. At the same time, researcher and technology developers can get an important emotional feedback on their early prototypes to steer the further RTD activities. For its TEC DFKI selected two early prototypes of technologies specifically designed for older people in order to enable their independent and active life:

- Intelligent kitchen (Kochbot) enabling independent staying at home for older persons with mild physical and cognitive impairments. The technology using natural language interface and intelligent environment technology supports the process of cooking and facilitates healthy nutrition behaviour.
- In-door navigation system (Elena) supports in-door navigation of older persons in such complex and unfamiliar environments as large hospitals and public buildings, which older people have to visit without accompanying persons. Simple, speech-driven user interface, makes mobile devices equipped with Elena better accepted by the older users.

If so, the selection of the TEC participants was based on the following criteria:

- Age group 65+ (pensioners, potential users/buyers of the target technologies)
- Gender balance (55%/45% female/male)
- Predominantly healthy and keen on living independently at home, without major mobility issues to independently visit public and other events/venues.
- Diverse educational and professional backgrounds

In order to achieve the desired target group composition, DFKI used the local organizations representing older persons (Seniorenbeirat) and other representatives, including local initiatives for older persons.

These links have been built through a series important national and international research and innovation projects, such as:

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- Mobia (mobility support services for older people). Funded by BMBF (German Ministry of Education and Science)
- I2home (Smart Home technologies for older persons enabling independent living). Funded by the EC (FP6)
- SmartSenoir (ICT support to older persons living independently). Funded by BMBF
- Other projects listed at the DFKI's CCAAL website <http://ccaal.dfki.de/projects>

All these projects have an element of user involvement, but for the first time it was organized in the form of the Technology Experience Café aiming at the user experience evaluation.

It is worth saying that using user experience, as a major steering mechanism for technology (product) development, is already a standard in the mainstream industries (e.g. Apple employs several hundreds of User Experience researchers). But, for RTD activities this is normally not used widely. At the same time, it is clear that user experience being integrated in the fundamentals of technology development will ensure its better acceptance further down the innovation cycle (e.g. at the product development stage). Thus, DFKI sees the TEC concept as an important innovation for its research methodology, which together with other methods (e.g. usability testing and evaluation, functionality testing, etc.) would guarantee high quality of the RTD results and their good prospects for technology transfer to the industry.

3. Event Objectives

The overall TEC4 objective was to demonstrate the applicability of the TEC concept developed by the project for the context of RTD activities and active involvement of older persons into the process of Ambient Assisted Living technologies development. In contrast to other 3 SiforAGE TECs, which concerned with early-on-the-market technologies (France and Denmark) and existing portal of public services (Italy), DFKI used the methodology to bring to the TEC research prototypes being still in the process of development.

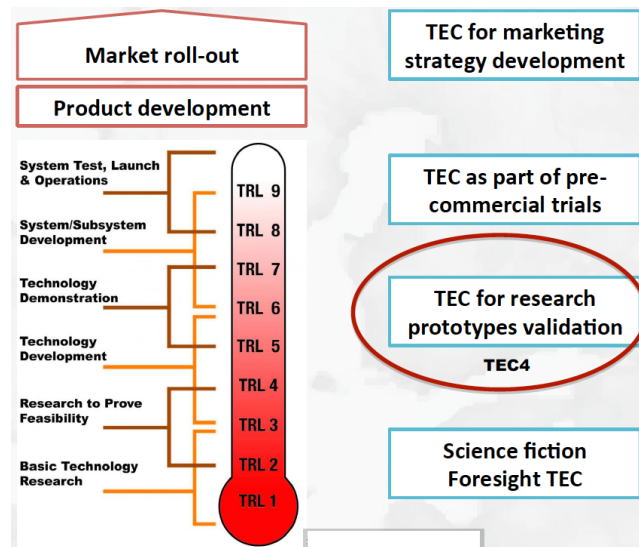


Fig 1. Positioning of TEC4 in Innovation cycle

User-centered design (UCD) is a research and development methodology that provides guidance through the design processes in which users' needs become the major influence in how a design of a product/service/system takes shape. Depending on the project at hand, there are different descriptions of the UCD methodology, but common for all of them is that they have shown to be advantageous when designing and developing Human-Machine Interfaces in general.

UCD contains several phases or steps. In some models, the cyclic methodology contains an initial step called "understanding" which is typically used to achieve a common ground between the project stakeholders. The first part of the methodology contains a holistic analysis of the user needs, the development of abstract yet concrete description of the users – persona – as well as formulations of scenarios allow different typically diverse project stakeholders to gather around a realistic descriptions of what should be achieved. Initial stages of the UCD methodology includes different light-weight that avoid creating complete functional systems including paper mockup and wizard-of-oz (WOZ) experiments.

The UCD cycle (See Figure 2) is iterative and repeated several times to improve aspects like usability or user experience. Hereby the results from the evaluation phase are taken into account for the requirement analysis of the next cycle.

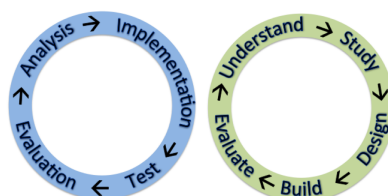


Fig 2. Cyclic User-Centred Design process

If usability, functionality and other kinds of testing and evaluation are common in RTD activities, evaluation of user experience, as defined by the standard ISO 9241-210, is not common. Moreover, very few (if any) references about applying the TEC concept for that purpose within the UCD cycle can be found. Therefore, the innovation of TEC4 is mainly related to the modification of UCD methodology by integrating the TEC activities in the UCD cycle for user experience evaluation.

3.1 Target groups

Users

Specifically, two types of users were identified:

- Direct users: people that will use in real life the technology presented (the one which action will generate first and compulsory electronic data for future use/interpretation)
- Indirect users: representatives from other entities that may influence on the acquisition and/or use of the data collected (e.g. representatives of care organizations, local networks of older people and all researchers/technology developers involved).

These two types of users were selected to reach our objectives of gathering the final users and stakeholders in a same place and allowed them to access technologies under development. This helped identifying potential needs and opportunities for answering the challenges of active and healthy ageing.

Description of the target groups

The TEC involved 41 participants in total: 25 direct users and 16 indirect users. The selection criteria are presented in section 2.

Direct users were older people with a mean age of 71.44 (SD = 5.15) with the youngest participant being 65 years old and the oldest 89 years old. 52% were female, living independently in the community (96%) and mostly with a marital partner (72%) or by themselves (24%). 87.5% were retired from work and the majority of them (96%) use a leisure center in a regular basis. They hold in mean 12.55 years of education (SD = 2.89) and the majority of them (78.2%) rated their health from good to very good.

Indirect users were representatives that may influence the acquisition and/or use of technology with a mean age of 56.13 (SD = 8.07) with the youngest participant being 35 years old and the oldest 64 years old. Half of the indirect users were male and the other half were female, all living independently in the community and mostly with a marital partner (75%) or with family or alone (18.8%). 53.3% were employed full time and 33.3% were retired from work. They hold in mean 15 years of education (SD = 2.61) and 53.4% rated their health from good to excellent.

3.2 Technologies

As indicated above DFKI has selected 2 assistive technologies from its portfolio using the following criteria:

- Market prospects as a product/service for older people enabling independent lifestyle
- Relevance to the daily needs of older persons
- Representative character (these technologies belong to a large group of assistive technologies of the same kind, therefore the user experience measurements and respective conclusions can be extended to a larger group of technologies)
- Suitable for a short time testing within the scope of a TEC (1-30 min is sufficient to

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implement a simple task with the technology)

- Technology readiness level (TRL) 6-7 to enable proper testing with direct participation of older persons

On the basis of these criteria two experimental technologies have been selected:

1. Intelligent kitchen equipped with speech interface
2. In-door navigation system allowing navigation in large unfamiliar buildings

For each of the technologies the testing scenario was developed in order to demonstrate major functionalities within 20-30 min. in a realistic setting.

Intelligent Kitchen “Kochbot”

The introduced demonstrator *Kochbot in the intelligent kitchen* was build as an outlook on how speech control might be used in the future to assist people while cooking and exposed for the first time at CeBIT 2014. With the fully controllable kitchen environment consisting of induction hob, extractor hood and tap, all connected by the URC-technology, a person can be supported during the whole process of cooking. The speech control was added via the Kochbot app that is already available as a stand-alone application and can also be used without an intelligent kitchen.

The kitchen uses the database of recipes consists of approx 32,000 recipes in German from “Ulrikes Rezeptesammlung”.



Fig. 3 Kochbot in Intelligent Kitchen at CeBIT2014

The testing scenario consisted of 3 major steps:

Search view. Recipes can be chosen either by browsing through categories and ingredients, by textual search in a text input field, or by voice commands such as *Ich mo'chte Canneloni al forno kochen* ('I'd like to make Canneloni al forno'). Once a search was successful, the user can select a found recipe (using voice commands or touch), and then sees an overview screen for the chosen recipe.

Recipe overview. The recipe overview shows general information about the recipe, a list of ingredients and a list of cooking instructions. Ingredients as well as the cooking instructions can be viewed or read out loud by the text-to-speech module.

Step-by-step view. In the step-by-step view, each cooking step is read out loud and the user can interact with the app by using wipe gestures or voice commands to go to the next or

previous step, or initiate a question dialog.

For the sake of simplicity, the test was about cooking a pumpkin soup (cooking time ca. 20 min). Additional reasons: simple set of ingredients, no complex manipulations with ingredients, healthy food.

The technology allows assisted cooking and tolerates/prevents errors caused by mild dementia and frailty of older persons (clear repeated instructions, automatic reactions of devices such as tap and hob on erroneous actions of a person, automatic provision of water in needed volume and temperature, etc.).

In-door navigation Elena

The in-door navigation system is needed to find particular locations and the way to them in large unfamiliar buildings (such as hospitals, public buildings, stations, airports, etc.) as long as traditional positioning (e.g. GPS) does not work inside buildings. This technology allows older persons independently travel and lead social life even having mild dementia.

Similarly to Kochbot, the system runs on mobile devices (smartphones, tablets) and equipped with speech interface easing its use by older persons. The scenario is presented in section 5.1.

3.3 Other stakeholders

The event organized in DFKI supported the following organizations:

- Council of older people (Seniorenbeirat, <http://www.st-ingbert.de/166.0.html>) of St. Ingbert (town adjacent to the DFKI's location)
- Council of older people (Seniorenbeirat, http://www.saarbruecken.de/leben_in_saarbruecken/familie_und_soziales/seniorinnen_und_senioren/seniorenbeirat) of Saarbruecken
- AWO Saarland (<http://www.awo-saarland.de/index.php?id=55>), NGO providing social support to various groups of population, including older people

Their support was critically important to select the target group for the TEC, as well as to guarantee wide publicity, which resulted in the interest to repeat such activities (TECs) outside of the scope of SiforAGE.

The representatives of these bodies participated in the opening session of the TEC and provided their support to DFKI's activities in the area of Technology Development for Ambient Assisted Living of older persons.

4. TEC preparation activities

TEC preparation actively started ca. 6 months ahead of the event with

- Selecting technologies to be tested (criteria for selection are outlined in section 3.2)
- Designing the event scenario and planning the venue
- Designing and producing promotional materials (see Annex 1)

The promotional materials have been distributed through the network of the DFKI supporters (see the section 3.3). The registration started in early December 2014 and was mainly done via telephone and email. Note! The registration list includes 43 names and available on demand. It is not included into this public deliverable for the sake of privacy of the participants.

All participants have been briefed about the scope of the event and implications of the participation (e.g. handling the collected data).

Meanwhile, DFKI selected and appointed 4 moderators to support testing and evaluation. All of them participated in the development of testing sites and testing scenarios. Also, the event was promoted inside DFKI to inform the researchers about this methodology and added-value of user experience evaluation inside RTD cycle.

Additionally, the preparation to the event included the following activities:

- Development of presentations to be used for plenary sessions
- Development of the scripts for moderated discussions for the groups waiting for the tests (see the section 5.1). This was considered as an important element to obtain a qualitative feedback and wider opinions of older people about modern technologies, user needs and perceptions.
- Dry-run activities in order to ensure smooth run of real tests
- Organization of logistics and catering, arranging the venue, etc.

5. Event Organization

5.1 Event Structure

The event was organized in 2 days (see Annex I for the Programme). Each day 21-22 older people followed the same track presented below. They were broken into 3 groups (6-8 persons each).

The technologies to be experienced:

- Smartphone In-Door Navigation app (IDN)
- Intelligent Speaking Kitchen (ISK)

The ultimate goal is to involve older potential users into the process of technology development and obtain their early feedback on the research ideas and potential application areas/scenarios to incorporate it into User Centered Design methodology (Standard ISO 9241-210, 2010). As a secondary goal – to inform older people of the future technologies designed to improve their quality of life.

Event scenario:

- 14:00 Arrival to DFKI, welcome coffee
- 14:15 Brief introduction in SiforAGE, including TEC activity ()
- 14:30 Presentation of the TEC process
- 14:45 Filling in Pre-test questionnaire and Informed Consent Form
- 15:00 Group 1 tests Smart Kitchen (see ISK scenario)
Group 2 tests in-door navigation (see IDN scenario)
Group 3 waits in the café
- 15:40 Group 1 tests in-door navigation
Group 2 waits in the café
Group 3 tests Smart Kitchen
- 16:20 Group 1 waits in the café
Group 2 tests Smart Kitchen
Group 3 tests in-door navigation
- 17:00 Final conclusions, appreciations
- 17:30 The End

ISK Scenario:

The experience session is moderated by the moderator. The session is aimed at joint cooking a simple dish (e.g. soup, etc.), which can be done in 15-20 min. For potential application and functions of the kitchen see here <https://www.youtube.com/watch?v=hJmrlz3j1E8>. All ingredients are provided.

- 5 min. Brief introduction about the kitchen and its functions
- 20 min. Collaborative moderated cooking
- 5 min. Q&A, Self-try, tasting the result.
- 10 min. Filling in post-test questionnaires. Moving back to the waiting area.

IDN Scenario:

The moderator hands out 5 mobile devices (smartphones and/or tablets) with the app. The task is to get from the point A to the point B inside the connected DFKI buildings (distance of

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ca. 10 min walk using elevators and stairs).

- 5 min. Brief introduction about the app and its functions
- 15 min. Navigated trip, assistance is provided
- 5 min. Q&A.
- 15 min. Moving back to the waiting area. Filling in post-test questionnaires.

5.2 Ethical/IPR issues

The TEC organizers used standard arrangements to protect privacy and personal data of all participants. This included:

- Participation was voluntarily, every participant was informed upfront about the scope, goals and activities of the TEC, as well as how the data collected at the event will be used. For that reason the plenary session opening the event had the special presentation after which all participants were asked to give their consent (the Inform Consent form in German is in Annex I).
- All documents used at the event for data gathering were anonymous, the link between the data and the personal data (like name, demographics, contact details, etc.) was provided through the personal participant number kept in secret and used only for the data processing.
- Participants explicitly allowed audio/photo/video recording at the event with subsequent use for reporting and promotion purposes.

As all participants were healthy adults, no special arrangements apart of informed consent were necessary.

5.3 Infrastructure / Facilities

DFKI buildings are fully equipped with communication facilities including broadband Wi-Fi connectivity necessary for the technology demonstration. Also, all other technical services and facilities necessary for events such TEC were in place. The area where the even was organized has also an exhibition corner with the examples of technologies developed by DFKI through its research and industrial projects (e.g. shopping area of the future, multimodal personal assistant, in-car intelligent systems, etc.). All participants had a chance to get exposed to a wider range of technologies.

5.4 Venue

DFKI organized the event in its main building (D3.2) on the Saarbruecken site (the campus of the University of Saarland)



Fig 4. DFKI building D3.2

3 premises have been used:

- Meeting room Reuse (HG -2.17). Large room for 50-150 people (depending on arrangement), with 2 overhead projectors, sound and other equipment. The room was used for presentations and café catering
- Catering kitchen for hosting Kochbot testing site.

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- Entrance hall with the reception desk as a starting point for the in-door navigation system testing



Fig 5. Reuse room



Fig 6. Catering kitchen



Fig 7. Entrance hall

6. User experience survey

6.1 Survey design

In order to evaluate the results of the TEC, two types of strategies were used:

- **Post evaluation (n=41):** to evaluate the efficacy of the TEC for influencing attitudes and behaviours toward the use of technologies, we applied a post-questionnaire to both direct and indirect users. All participants were asked to fill a questionnaire after (post-questionnaire – see Annex 2) attending the TEC. The post questionnaire also included some questions addressing the reactions regarding the TEC.
- **Evaluation of the technologies during the TEC (n = 40):** participants were also asked to fill a brief questionnaire (see Annex 2) regarding each of the technologies they tested.

6.2 Questionnaires

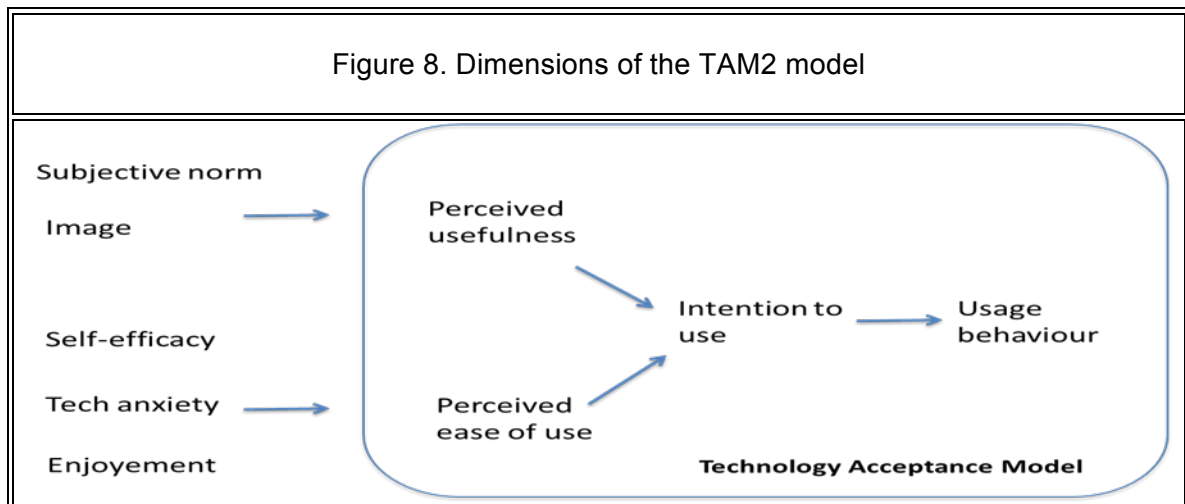
Two questionnaires were created to evaluate attitudes and motivations regarding the use of technology (one for the post evaluation and one for the evaluations of each technology during the TEC). These questionnaires shared a similar conceptual background, although the questionnaire used during the session was considerably smaller than the pre-post questionnaire.

The questionnaires were based on the **Technology Acceptance Model (TAM)** introduced by Davis (1986), which is one of the most widely accepted information technology (IT) models. This model theorizes that an individual's behaviour intention to use a system is determined by two beliefs:

- perceived usefulness, defined as the extent to which a person believes that using the system will enhance his or her performance, and
- perceived ease of use, defined as the extent to which a person believes that using the system will be free of effort.

Recently TAM was theoretical extended by Venkatesh & Davis (2000), to explain perceived usefulness and usage intentions in terms of social influence and cognitive instrumental processes. TAM-2 includes additional key determinants of TAM's perceived usefulness and usage intention constructs, and to understand how the effects of these determinants change with increasing user experience over time with the target system. These authors have developed an instrument to measure these variables. Later, a Modified version of TAM-2 was developed by Won et al. (2007) to evaluate the acceptance and characteristics of technologic products for the older users.

In this work, our goal was to use this instrument to measure usage intentions, exploring in particularly some of the key predictors of perceived usefulness and perceived ease of use (see Figure 8). Table 1 presents a brief definition of each factor included in this model.



Based on the literature review, we also included a measure of the stereotypic perceptions of older people and use of technology since this is identified as one of the main barriers to technology use by this age group. In fact, there is a stereotypical view that older adults are technologically inadequate. What is particularly insidious is that the negative sloping of human potential represented by ageism may well form the image that older people themselves internalize (Chaffin & Harlow, 2005). For example, being too old to learn to use computers is a belief held by many older people, even before attempting to use computers (Timmermann, 1998, in Broady, 2010).

In fact, the manner in which older people are viewed and treated can impact upon their acceptance and utilization of technology (Broady, 2010). The negative self-beliefs held by the older students may well be ascribed not solely to their poor performances (Hawthorn, 2007), but also to the negative stereotypical views held by their tutors, as well as the fact that the tutors expected them to learn new skills not commensurate with their existing skills and knowledge more rapidly than they were capable of doing (Broady, 2010). In order to measure the impact of ageing stereotypes we included some items measuring stereotype threat, stigma consciousness, stereotype content in general and specifically related with the use of technology by older people (see Table 1).

Finally, we also included some demographic questions and items evaluating previous experience with technological devices.

Table 1. Variables measured in the questionnaire – psychometric qualities at the TEC				
Variables		Source	Post questionnaire	During questionnaire*
Previous experience with technologies	Use of technologies <i>refers to the frequency of use of technologies in daily life</i>	Original item	Q1.1.	-
	Frequency of use of different types of technologies <i>refers to the frequency of use of specific technologies in daily life</i>	Adapted from Matlabi (2012); Hernandez-Encuentra et al. (2009); Patomella et al. (2011)	Q1.2.	-
TAM2	Intention to use technology/specific technology <i>expressed tendencies to use technologies in daily living</i>	Adapted from Venkatesh (2000); Venkatesh & Davies (2000); Wong et al. (2007)	Q2.1; Q2.2 $r = .88^{**}$	Q2.1; Q2.2
	Ease of use of technologies/specific technology <i>the extent in which the person believes that using the system will be free of effort</i>		Q2.3-Q2.5 $\alpha = .75$	Q2.3-Q2.5
	Usefulness of technology/specific technology <i>the extent to which a person believes that using the system will enhance his or her performance</i>		Q2.6-Q2.8 $\alpha = .70$	Q2.6-Q2.8
	Subjective norm <i>person's perception that most people who are important to him think that he should or should not perform the behaviour in question</i>		Q2.9-Q2.10 $r = .59^{**}$	-
	Image <i>the degree to which use of</i>		Q2.11-Q2.12 $r = .43^{**}$	-

Deliverable 2.4

	<p><i>innovation is perceived to enhance one's status in one's social system</i></p> <p>Self-efficacy</p> <p><i>one's beliefs about his/her ability to perform a certain task/job using technology</i></p> <p>Technological anxiety</p> <p><i>individual's apprehension or even fear when he/she is faced with the possibility to use technologies</i></p> <p>Enjoyment</p> <p><i>the extent to which the activity of using a specific system is perceived to be enjoyable in its own right, aside from any performance consequences resulting from system use</i></p>		<p>Q2.14</p> <p>Q2.16; Q2.20; Q2.22</p> <p>$\alpha = .56$</p> <p>Q2.17-Q2.19</p> <p>$\alpha = .91$</p>	<p>-</p> <p>Q2.9; Q2.13; Q2.15</p> <p>Q2.10-Q2.12</p>
Stereotypes of old age and technologies	<p>Stereotypic behaviours and technology</p> <p><i>the degree in which certain behaviours are perceived to be typically associated with different age groups</i></p>	Swift, Abrams & Marques (20013)	Q3	-
	<p>Stereotype threat</p> <p><i>anxiety or fear that one's performance could be affected by the stereotypic expectancies regarding one's age group</i></p>	Marx & Goff (2005)	Q4.1-Q4.4	Q3.1; Q3.2
	<p>Stigma consciousness</p> <p><i>awareness of the negative representations associated with the age group</i></p>	Brown & Pinnel (2003)	Q4.5-Q4.7	-
	<p>Stereotype content model</p> <p><i>the degree in which older people are typically perceived to be competent or warm</i></p>	Fiske et al. (2002)	Q5	-
	<p>Identification with old</p>	Abrams et al. (2006)	Q6	-

Deliverable 2.4

	age <i>the degree in which individual's believe that they belong to the age group and that this is important for their self-concept</i>		$\alpha = .73$	
Reactions to the TEC	Reactions to the TEC <i>opinion regarding the TEC experience</i>	Adapted from Velada (2009)	Q7	-
Demographics	Age, gender, place of living, people living with, work and leisure situation, education, habit to fill questionnaires	Original items	-	-
<p>Note: the psychometric values of all the scales for each technology evaluated were appropriate and proximal of the post results (more information available by contact with the authors)</p> <p>α = Chronbach alpha; r = Pearson correlation (based on TEC questionnaire results)</p> <p>** $p < .01$</p>				

6.3 TEC feedback

6.3.1 Previous experience with technology

6.3.1.1 Use of technology

100% of the participants in the TEC stated that they use technological devices in their daily living.

6.3.1.2 Types of devices used by direct users

Table 2 presents a list of the technological devices direct users referred to use in their daily living. Direct users use in a regular basis different types of home appliances such as the remote control, TV, dishwasher and the coffee maker. It is also important that these older participants in the TEC also referred a frequent use of the mobile phone, desktop computer and the Internet.

Table 2. Frequency of use of different type of devices regularly used by direct users (n = 25) <i>(1 = never; 2 = a few times during the year; 3 = once a month; 4 = every week; 5 = everyday)</i>				
Types of devices used	After TEC			
	M	SD	95% CI	
			IL	SL
Remote control	4.84	0.80	4.51	5.17
Mobile phone	4.65	0.65	4.37	4.93
TV	4.64	1.11	4.18	5.10
Dishwasher	4.36	1.00	3.95	4.77
Desktop computer	4.04	1.49	3.43	4.65
Internet	4.04	1.60	3.38	4.70
Coffee maker	4.04	1.60	3.38	4.70
Laptop	3.68	1.95	2.87	4.49
Other	3.67	2.55	1.71	5.63
Microwave	3.42	1.86	2.63	4.20
CD	3.28	1.37	2.71	3.85
GPS	3.13	1.63	2.42	3.84
DVD	2.92	1.38	2.35	3.49
Assisted health devices	2.81	1.91	1.94	3.68
Digital camera	2.79	1.18	2.80	3.29
Emergency call systems	1.77	1.74	1.00	2.55

Note: M: Mean; SD: Standard deviation; CI: confidence interval; IL: inferior limit; SL: superior limit.

2.3.1.2 Types of devices used by indirect users

Table 3 presents a list of the technological devices indirect users referred to use in their daily living.

Indirect users use in a regular basis different types of home appliances such as the remote control, coffee maker, TV and the mobile phone. Besides, indirect users reported a very frequent use of the laptop, Internet and desktop computer.

Table 3. Frequency of use of different type of devices regularly used by indirect users (n = 16)
(1 = never; 2 = a few times during the year; 3 = once a month; 4 = every week; 5 = everyday)

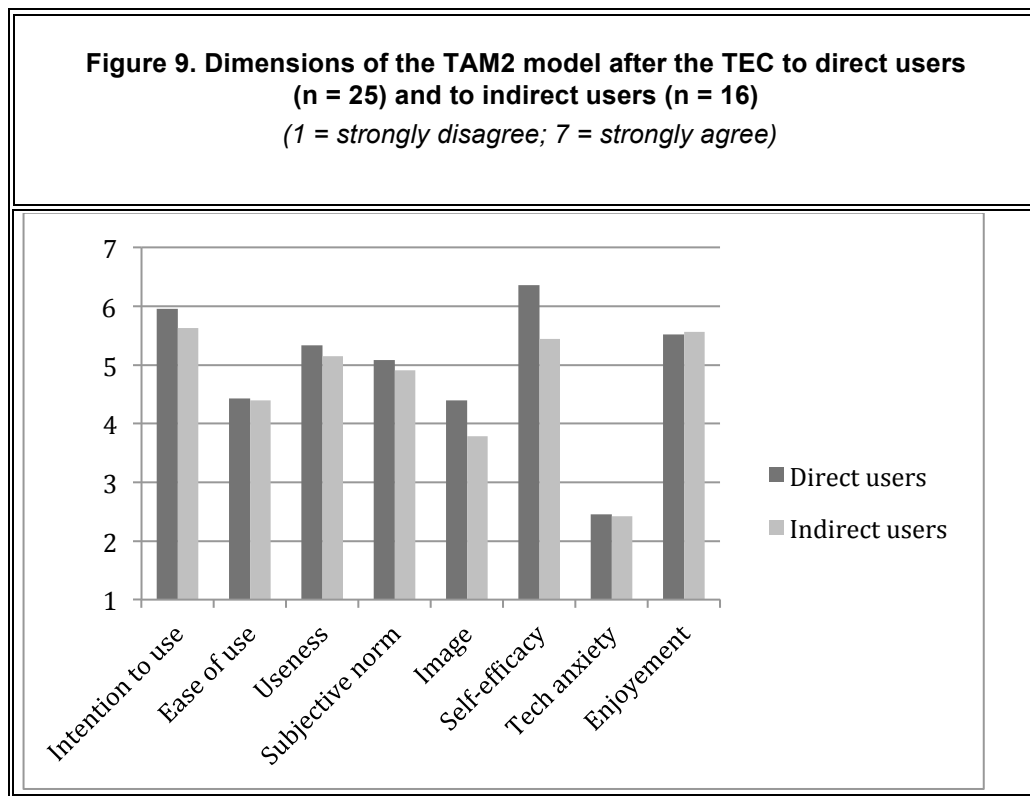
Types of devices used	After TEC			
	M	SD	95% CI	
			IL	SL
Remote control	4.93	0.27	4.77	5.08
Laptop	4.88	0.50	4.61	5.14
Internet	4.88	0.34	4.69	5.06
Desktop computer	4.81	0.75	4.41	5.21
Coffee maker	4.75	1.00	4.22	5.28
TV	4.69	0.79	4.26	5.11
Mobile phone	4.38	1.20	3.73	5.02
Dishwasher	4.06	1.34	3.35	4.78
Other	3.70	2.36	2.01	5.39
Microwave	3.53	1.89	2.49	4.58
GPS	3.27	1.75	2.30	4.24
DVD	3.06	1.39	2.32	3.80
CD	2.88	1.41	2.12	3.63
Digital camera	2.69	1.01	2.15	3.23
Assisted health devices	2.63	1.96	1.58	3.67
Emergency call systems	1.94	2.02	0.86	3.01

Note: M: Mean; SD: Standard deviation; CI: confidence interval; IL: inferior limit; SL: superior limit.

6.3.2 TAM 2

6.3.2.1 Descriptive analysis

The general pattern of the results suggests that both direct and indirect users share a very similar positive attitude regarding the use of technologies. In fact, these two groups expressed high levels of self-efficacy, intention to use technologies and enjoyment. In line with these results, direct and indirect users also reported very low levels of technological anxiety.



6.3.2.2 Evaluation of the 2 different technological devices during the session

Both direct and indirect users reported a positive overall opinion regarding the two technologies tested with high intention to use, ease of use, useness and enjoyment levels. Anxiety regarding the use of technologies was low in general (Figures 10 and 11).

Figure 10. Dimensions of the TAM2 model regarding the 2 technologies tested in the TEC by direct users (n = 22)
 (the Y axis measures the strength in which participants endorse the TAM2 dimensions for each technology; 1 = strongly disagree; 7 = strongly agree)

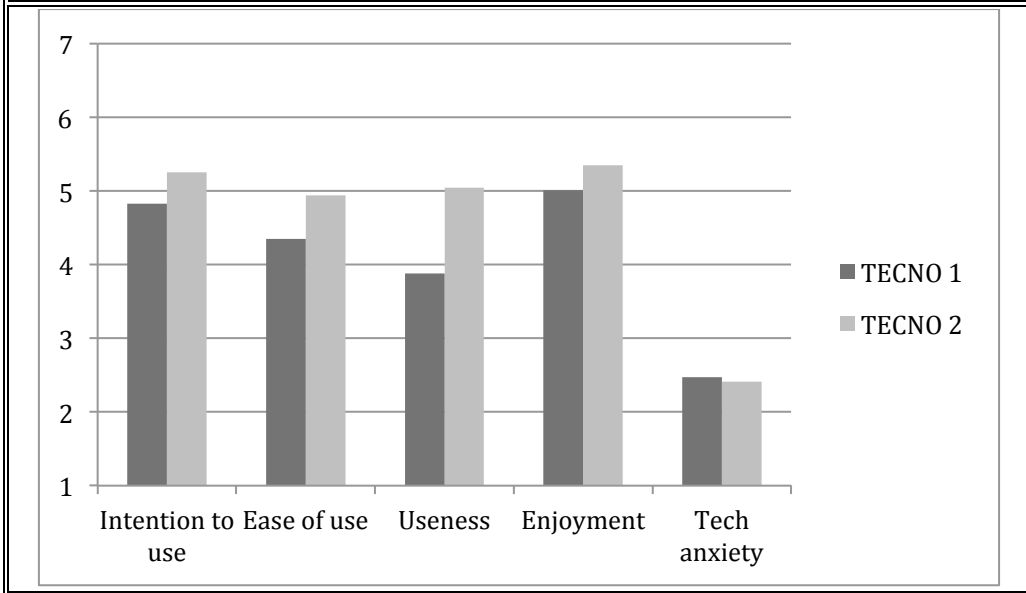
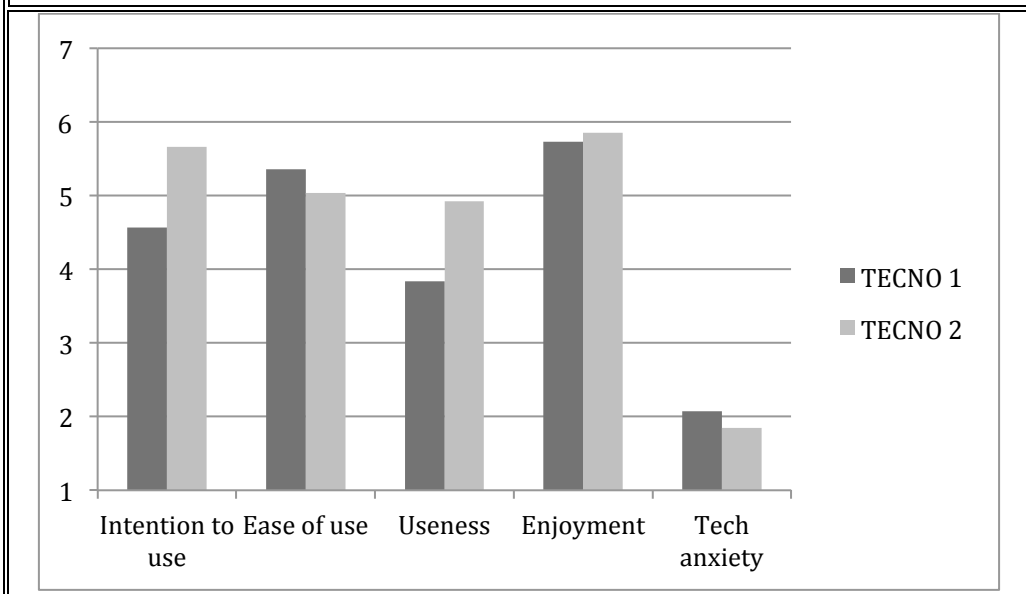


Figure 11. Dimensions of the TAM2 model regarding the 2 technologies tested in the TEC by indirect users (n = 16)
 (the Y axis measures the strength in which participants endorse the TAM2 dimensions for each technology; 1 = strongly disagree; 7 = strongly agree)

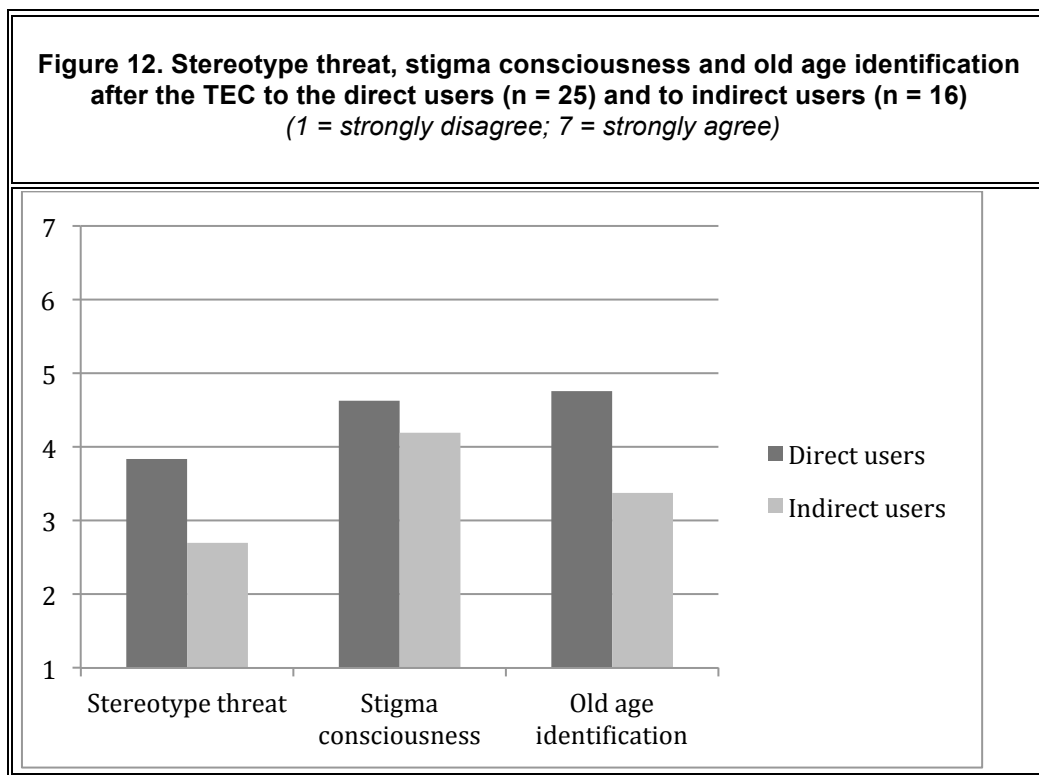


6.3.3 Stereotypes of old age and technologies

6.3.3.1 Post-questionnaire results

The analyses of the results showed that direct users reported medium high levels of identification with the old age group as well as stigma consciousness of being stigmatized due to their age. Besides, they experienced a medium level of stereotype threat regarding the use of technologies.

Indirect users, in turn, revealed medium levels of stigma consciousness and old age identification. Furthermore, they refer a low level of stereotype threat regarding the use of technologies.



In the post-questionnaire we were also interested in assessing the stereotypical perceptions of older people and the use of technology. In this regard, direct users associated the use of technologies with the 25 year old group: using the computer (88%), using the internet to buy something (84%); and using a mobile phone (62.5%). However, the use of the microwave was associated with both age groups (72%).

Similar results were obtained from indirect user's responses who also associated the use of technologies with the 25 year old group: using the computer (93.8%), using the internet to buy something (93.8%); using a mobile phone (87.5%); and using a DVD (75%). Once again, the use of the microwave was the only technological behaviour that was associated with both age groups (56.3%).

Deliverable 2.4

Figure 13. Behaviours associated with different age groups after the TEC by direct users (n = 25)

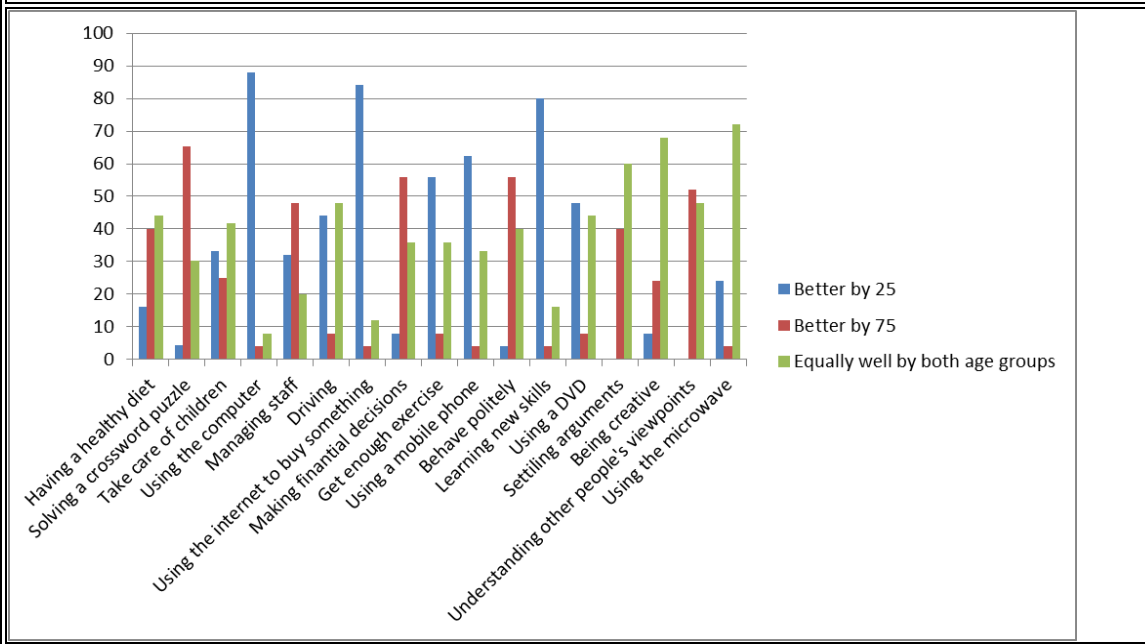
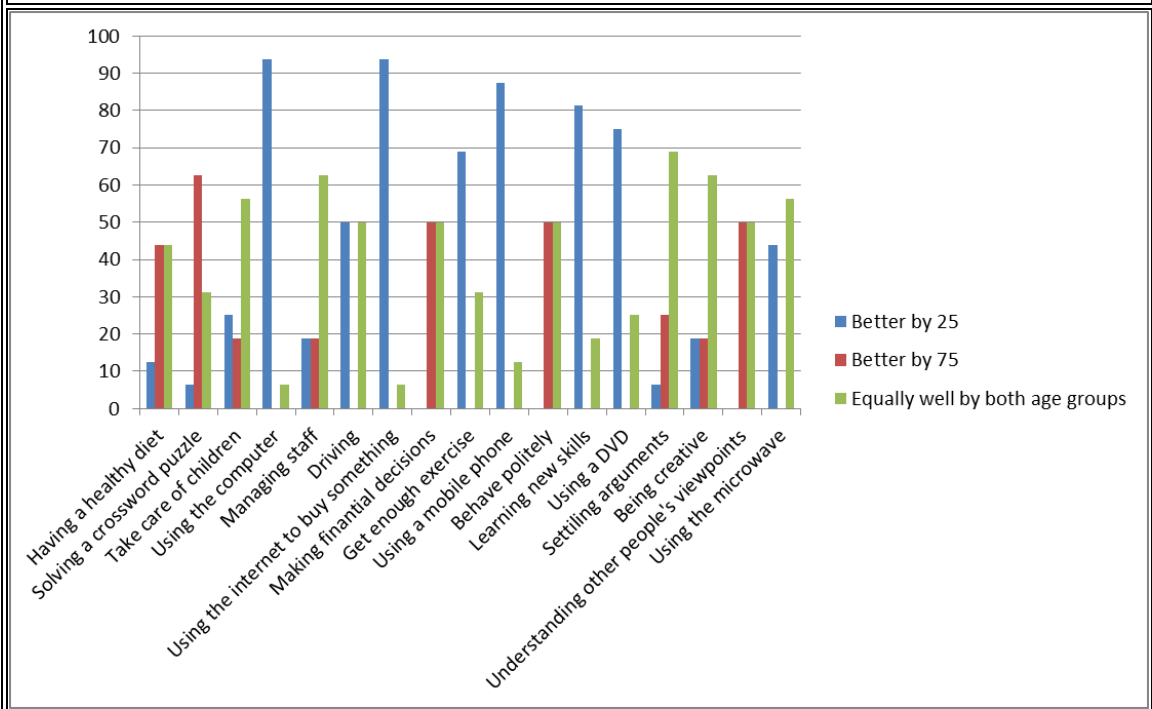
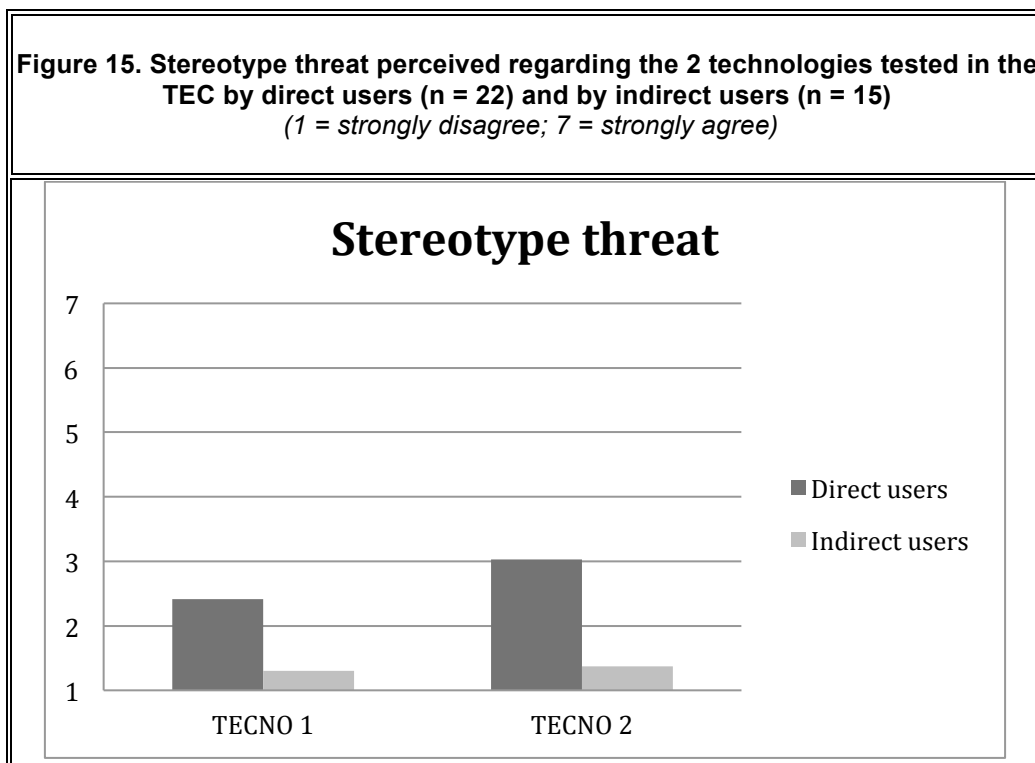


Figure 14. Behaviours associated with different age groups after the TEC by indirect users (n = 16)



6.3.3.2 Evaluation of the stereotype threat related with the use of the 2 different technologies during the session

Participants revealed an overall low level of perceived threat regarding the two technologies tested in the TEC (Figure 15). However, direct users expressed a higher level of perceived threat, mainly with regard to TECNO 2 – “Elena” (mobile navigation system).



6.3.4 Evaluation of the 2 different technologies during the session

When asked about their opinion regarding the two technologies tested, direct and indirect participants expressed an overall positive evaluation regarding both KochBot (intelligent kitchen) and Elena (mobile navigation system) (table 3).

More specifically, direct users (table 3) considered the KochBot as a useful (n=6) and innovative (n=3) technology based on technological functioning (n=5) and voice control (n=6). This intelligent kitchen was perceived as relevant for two target groups: older and disabled people (n=4). However, some limitations (n=5) were ascribed to this technology still in development (n=5).

In the specific case of Elena, direct users highlighted the usefulness of this technology with an orientation function (n=6), especially in unknown/complex contexts (n=5). This mobile navigation system based on technological functioning (n=6) and oral guidance (n=3) was considered suitable for blind (n=9) and also for deaf (n=2) people by the majority of the respondents. However, some limitations (n=2) were attributed to this technology, namely its difficulty of use (n=5).

Table 4. Qualitative evaluation regarding the two technologies tested by the direct users	
KochBot (Intelligent Kitchen) (n=21)	Elena (Mobile Navigation System) (n=23)
Kitchen utensils (n=7)	Suitable for blind people (n=9)
Useful (n=6)	Technological devices (n=8)
Voice control (n=6)	Technological functioning (n=6)
Under development (n=5)	Navigator/Orientation (n=6)
Technological functioning (n=5)	Useful in unknown/complex contexts (n=5)
With limitations (n=5)	Difficult (n=5)
Technological kitchen utensils (n=5)	Useful (n=4)
Target-oriented (disabled and older people) (n=4)	Oral guidance (n=3)
Innovation (n=3)	Barriers (n=3)
I like it (n=3)	With limitations (n=2)
Not for me (n=2)	Hints (n=2)
Fun (n=2)	Mobility (n=2)
Too difficult (n=1)	Suitable for deaf people (n=2)
-	Social participation/independence (n=1)
-	Easy (n=1)
-	I like it (n=1)
-	For leisure (n=1)
-	Compact (n=1)
-	Text-based guidance (n=1)
-	Not suitable for blind people (n=1)
-	Not suitable for older people (n=1)
-	Not for me (n=1)

Indirect users considered the KochBot as an innovative (n=5) and under development technology (n=4) based on technological functioning (n=7) and voice control (n=2). This technology was perceived as a useful tool (n=5) with two main advantages: time-saving (n=2) and energy-saving (n=2). However, some limitations (n=2) were ascribed to this technology, namely its difficulty of use (n=2).

Regarding the mobile navigation system, indirect users highlighted the orientation function (n=5) of this innovative (n=4) and versatile (n=2) technology. These group of respondents considered this technology as easy to operate (n=5) and useful in unknown/complex contexts (n=2), especially for blind people (n=3). However, some limitations (n=2) were ascribed to this technology still in development (n=1).

Table 5. Qualitative evaluation regarding the two technologies tested by the indirect users	
KochBot (Intelligent Kitchen) (n=13)	Elena (Mobile Navigation System) (n=15)
Technological functioning (n=7)	Navigator/Orientation (n=5)
Useful (n=5)	Easy (n=5)
Innovation (n=5)	Innovation (n=4)
Under development (n=4)	Technological functioning (n=4)
Technological kitchen utensils (n=3)	Oral guidance (n=3)
Time-saving (n=2)	Suitable for blind people (n=3)

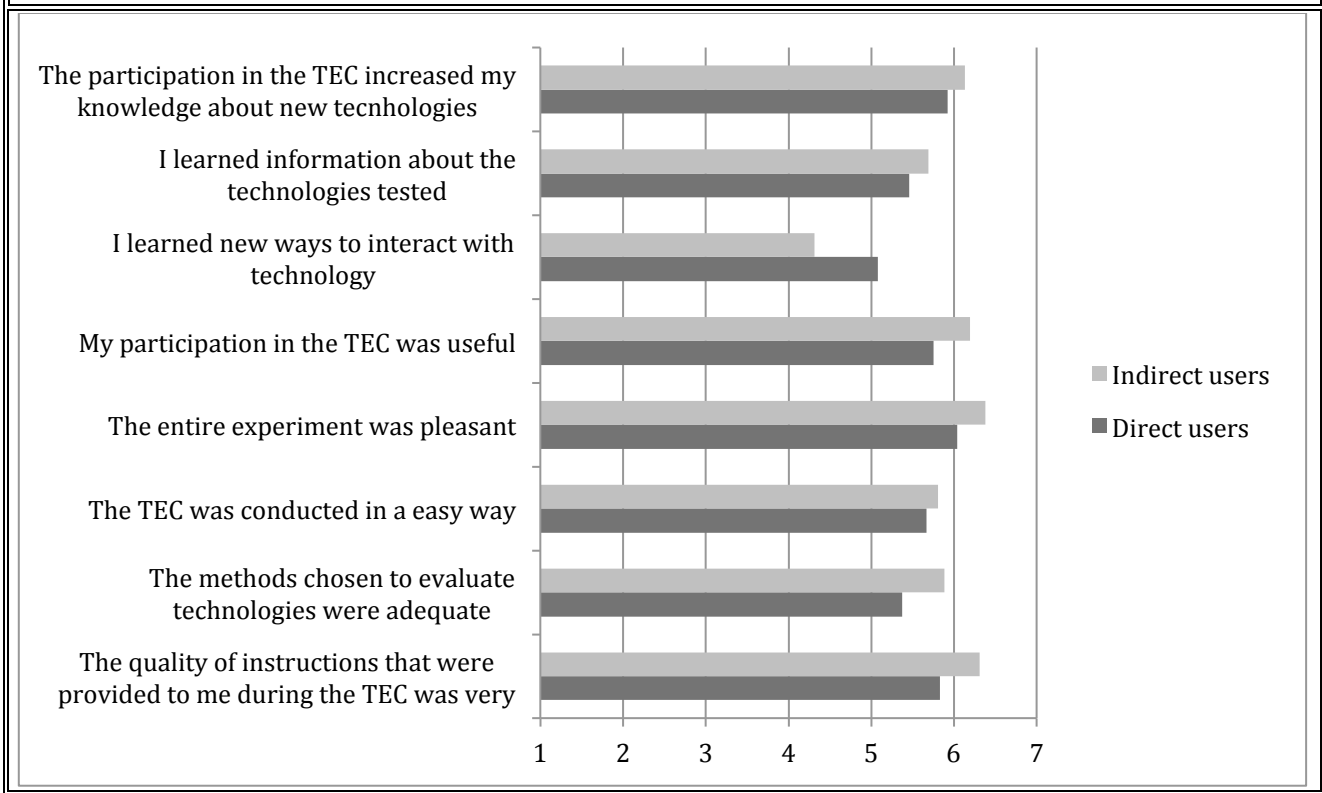
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Energy-saving (n=2)	Admiration (n=3)
Voice control (n=2)	Technological devices (n=3)
Too difficult (n=2)	With limitations (n=2)
With limitations (n=2)	Versatile (n=2)
It's fun (n=1)	Useful in unknown/complex contexts (n=2)
I like it (n=1)	Fun (n=1)
Loneliness/no human interaction (n=1)	Interesting (n=1)
Also interesting for other targets (n=1)	Support for disabled people (n=1)
Not suitable for older people (n=1)	In development (n=1)
Easy (n=1)	Mobility (n=1)
Is it really necessary? (n=1)	Also interesting for other targets (n=1)
-	Difficult (n=1)

6.3.5 Reactions to TEC

Participants (both direct and indirect users) rated their participation in the TEC in a very positive way regarding several aspects related with this experience (see Figure 16 for a detailed description of this opinion).

Figure 16. Reactions regarding the TEC after participation (mean value) by direct users (n = 24) and by indirect users (n = 16)
 (1 = strongly disagree; 7 = strongly agree)



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When asked about their collaboration in TECs in an open manner, both direct and indirect participants considered it very informative, interesting, good and a joyful event. Some direct users (n=2) even showed their availability and interest in participating in similar future studies (Table 5).

Table 6. Qualitative evaluation regarding the TEC after participation by direct and indirect users	
Direct users (n=12)	Indirect users (n=12)
It was very informative (n=6)	It was very informative (n=5)
It was very interesting (n=5)	It was very good (n=4)
It was very good (n=2)	It was very joyful (n=4)
It was very joyful (n=2)	It was very interesting (n=3)
I am available and interested in participating in similar studies in the future (n=2)	It was very useful (n=2)
It was very useful (n=1)	-

7. Resources employed for the TEC

Major resource needed for the TEC organization was labour as the preparatory activities as well as the event itself required significant participation of the staff.

The staff worked for the TEC included:

- 2 senior staff members. Concept development, communication, moderating the plenary sessions,
- 4 junior researchers as moderators as testing sites. Also, provided various kinds of assistance for the testing sites preparation.
- 1 secretary. Communication, registration, arrangements, documents preparation and translation into German.

We estimate the direct efforts for the German TEC organization as at least 6 person-months FTE.

DFKI provided all necessary infrastructure for the preparation and carrying out the event (premises, communication, presentation facilities, office infrastructure, etc.), therefore there were no direct costs associated. Partially, catering (coffee, cold drinks, porcelain, etc.) was also provided by DFKI (ca. 40 euro in total).

Additional direct costs comprised the following:

- Catering (cakes, biscuits) ordered from the external provider (range of 60 euro)
- Ingredients for Intelligent Kitchen testing (ca. 30 euro)
- Various office suppliers (ca. 20 euro)

8. Impact Assessment

The TEC developed in Germany constituted an important opportunity to put together direct users (older people) and indirect users (namely, technology developers) in the same event. These two groups of participants had the opportunity to test and express their feedback regarding two different technologies in a friendly atmosphere.

Overall, both direct and indirect participants share a very positive attitude regarding the use of technologies, expressing high levels of self-efficacy, enjoyment and intention to use technologies. The same pattern of results was found for the specific two technologies tested during the session, with participants highlighting the ease of use and usefulness associated with both the “KochBot” and “Elena”. However, some limitations were ascribed to these technologies under development, which constitute an important input to its continued improvement.

As for DFKI as a representative of two experimental technologies the benefits obtained are as the following:

- DFKI gained first-hand experience in planning and organizing Technology Experience Café event with the aim to evaluate user experience in the context of the User Centered Design RTD methodology. Without doubt, it will be re-used in future research projects in the field of Ambient Assisted Living.
- DFKI reinforced the links with the local user communities and their representatives. It also re-confirmed its reputation as a leading research centre fulfilling an important social function.
- The feedback collected at the TEC enables the development team to re-formulate the user requirements in both cases. This will open new directions in the technology development, but, in addition, to foresee new use cases for the target technology. As an example: one of the participants expressed the opinion that the Kochbot technology can be used in an educational setting for children at schools, thus stimulating interest to cooking and healthy nutrition. Before the developers have not even thought of such potential application. The new look at the Kochbot technology will probably result in the new research direction.
- Intensive discussions with the testing users allowed a better understanding of the market barriers for the technology roll-out. This will enable more focused development and communication with potential innovation scouts.

9. Annexes

9.1 Annex 1. Documents developed at the event preparation stage

Informed consent form

Einverständniserklärung – Technology Experience Café

Hiermit erkläre ich mich einverstanden, beim Technology Experience Café (TEC) am Deutschen Forschungszentrum für Künstliche Intelligenz GmbH teilzunehmen. Als Teilnehmer stimme ich zu:

- an den Aktivitäten des TECs teilzunehmen
- Fragebögen auszufüllen
- mich aktiv an den anschließende Diskussionen zu beteiligen
- Ich erlaube den Organisatoren Fotos zu machen, die anschließend in unterschiedlichen Medien (Print-, elektronische, audio-visuelle etc) ohne zeitliche Begrenzung verwendet werden dürfen

Ich bin mir bewusst, dass ich meine Teilnahme jederzeit abbrechen kann. In diesem Fall werde ich die Organisatoren informieren. Weiterhin akzeptiere ich, dass die Organisatoren nicht belangt werden können bei eventuellen Unfällen und/oder persönlichen Schäden bei der Teilnahme an den Vorführungen der Exponate.

Mir ist bewusst, dass die Teilnahme an dem TEC nur durch meine Unterschrift gewährt werden kann.

Ich habe den obigen Text gelesen. Ich nehme an dem TEC freiwillig teil.

Ja

Nein

Saarbrücken den:

Name

TEC4 Poster Invitation

TEILNEHMER GESUCHT

Altersgerechte Assistenzsysteme versprechen konkrete Unterstützung im Alltag, sorgen dafür, dass Wohnräume angenehm temperiert sind oder Haushaltsgeräte nach Benutzung selbsttätig abschalten. Sie erinnern uns an den Arztbesuch oder die Einnahme von Medikamenten und rufen im Bedarfsfall sogar Hilfe. Doch welche Funktionalitäten sind sinnvoll, welche weniger und wie müssen die elektronischen Helfer gestaltet sein, damit sie uns tatsächlich entlasten?

Teilen Sie uns Ihre Meinung mit!

03. oder 04.02.2015
jeweils
von: 14:00 Uhr
bis: 17:30 Uhr

DFKI
Campus D3 2
66123
SAARBRÜCKEN

Anmeldung bei Dr. Jan Alexandersson und Michelle Würtz
E-Mail: tec4@dfki.de
Telefon: (0681) 85775 -5347 / -5260
Anmeldung notwendig, Teilnahme kostenlos.

Das **DFKI** lädt Sie ein, in entspannter Atmosphäre bei Kaffee und Kuchen, neue Technologien für den Alltag kennenzulernen, zu testen und anschließend zu bewerten. Das **Technology Experience Café** ist ein Forum für Hersteller, Multiplikatoren und Anwender von altersgerechten Assistenzsystemen mit dem Ziel, die Bedürfnisse der einzelnen Zielgruppen zu identifizieren, zu verstehen und in künftigen Entwicklungen umsetzen zu können. Das Technologie-Test-Café ist Teil des europäischen Forschungsprojekts **SiforAGE** – Innovationen für aktives und gesundes Altern. Ziel des Projekts ist es, Wissenschaftler, Anwender, Unternehmen und öffentliche Einrichtungen zusammenzubringen, um benutzergerechte Technologien und Produkte für ein selbstbestimmtes Leben im Alter zu entwickeln.

Wir freuen uns auf Ihr Kommen!



Weitere Informationen: <http://www.siforage.eu/> und <http://ccaal.dfki.de/>

Veranstungsablauf

14:00 Ankunft und Begrüßung
14:15 Einführung in SiforAGE und TEC
14:30 TEC Präsentation
14:45 Fragebogen und Einverständniserklärung
15:00 Aufteilung in 3 Gruppen, die abwechselnd folgende Stationen besuchen

- **Intelligente Küche**
- **In-door-Navigation**
- **Kaffee und Kuchen**
(40 Minuten pro Station)

17:00 Diskussion und Zusammenfassung
17:30 Veranstungsende

Anfahrt :

DFKI GmbH
Stuhlsatzenhausweg 3 (Geb. D 3 2)
66123 Saarbrücken

Mit dem PKW:
Aus Richtung Saarbrücken:
Parkhaus Mitte
Aus Richtung Dudweiler:
Parkhaus Ost

Mit ÖPNV:
Ausstieg Bushaltestelle Universität Mensa



Weitere Informationen: <http://www.siforage.eu/> und <http://ccaal.dfki.de/>

List of Participants is available on demand. For privacy reasons we do not include it

into the deliverable, which is public.

9.2 Annex 2. Documents for the user experience survey

All questionnaires provided by ISCTE have been translated into German

Questionnaire (post-test)

Teilnehmernummer: _____

Studie zur Nutzung von Technologie

BITTE LESEN SIE SICH DIE FOLGENDEN ANWEISUNGEN SORGFÄLTIG DURCH
BEVOR SIE DEN FRAGEBOGEN AUSFÜLLEN

Sehr geehrte/r Teilnehmer/in,

Dieser Fragebogen ist Teil einer Studie über die Nutzung von Technologie. Dies ist Teil des SiforAGE Projektes, einem europäischen Projekt mit dem Ziel, die Verbreitung von Forschung in der Gesellschaft zu verbessern. Ein Verständnis der Faktoren, welche die Anwendung von Technologie beeinflussen, ist sehr wichtig, da es die Voraussetzung zur Herstellung neuer Produkte sowie für die Erforschung einer optimal auf den Nutzer angepassten Umgebung darstellt. Wir werden Ihnen Fragen über Ihre persönliche Selbstwahrnehmung sowie zur Wahrnehmung Ihres Nutzerverhaltens stellen. Dadurch wollen wir ein besseres Bild von den Faktoren bekommen, die die Nutzung von Technologie durch verschiedene Bevölkerungsgruppen hauptsächlich beeinflussen.

Deliverable 2.4

Am Ende fragen wir Sie nach Informationen zu Ihrer Person (Geburtsmonat und Geburtsjahr), um die gesammelten Ergebnisse vergleichen zu können. Dieser Fragebogen sowie Ihre Kontaktinformationen sind vertraulich und nur den Forschern zugänglich. Die Daten werden nach dem Ende des Projekts unwiderruflich vernichtet.

Es wird 20 Minuten dauern, den Fragebogen auszufüllen. Bitte bedenken Sie beim Ausfüllen, dass es weder „gute“ noch „schlechte“ Antworten gibt und wir an Ihrer Meinung zu diesem Thema interessiert sind. Wir bitten Sie außerdem darum, die Fragen in der Reihenfolge zu bearbeiten, in der sie gestellt sind.

Wenn Sie Zweifel oder Schwierigkeiten mit dieser Studie haben, können Sie Ihre Fragen gerne an Jan Alexandersson senden: Jan.Alexandersson@dfki.de, DFKI, Deutsches Forschungszentrum für Künstliche Intelligenz, oder sich an den Koordinator dieser Erhebung wenden: Dr.Sibila Marques, Sibila.Marques@iscte.pt, Ecole de Psychologie, Institut universitaire de Lisbonne (ISCTE-IUL).

Wenn Sie bereit sind, blättern Sie bitte zur nächsten Seite um und beantworten Sie die Fragen. Die Blätter sind beidseitig bedruckt.

Vielen Dank!

Ihre Sichtweise auf die Nutzung von Technologie

Heutzutage stehen uns zahlreiche technische Geräte (zum Beispiel Radio, Telefon, Computer) zur Verfügung, die viele Aspekte unseres Lebens beeinflussen. In den folgenden Fragen wollen wir Ihre Meinung zur Nutzung von Technologie im Alltag ganz allgemein erfahren.

Nutzen Sie technische Geräte (zum Beispiel Radio, Telefon, Computer...) im Alltag?
Zutreffendes bitte ankreuzen.

Ja Nein

Wenn Sie die vorherige Frage mit JA beantwortet haben:

Deliverable 2.4

Welche Art von Technologie nutzen Sie häufig? (Antworten Sie für jedes der im Folgenden aufgelisteten technischen Geräte und bewerten Sie die Häufigkeit Ihrer Nutzung von 1 bis 5, wobei 1 „nie“ und 5 „täglich“ bedeutet.)

Zutreffendes bitte umkreisen.

	1	2	3	4	5	Nicht relevant
	Nie	Ein paar Mal im Jahr	Min. 1x im Monat	Min. 1x die Woche	täglich	
Fernseher	1	2	3	4	5	6
DVD Player/Rekorder	1	2	3	4	5	6
Fernbedienung	1	2	3	4	5	6
Mobiltelefon	1	2	3	4	5	6
CD Player	1	2	3	4	5	6
Digitalkamera	1	2	3	4	5	6
Computer	1	2	3	4	5	6
Laptop	1	2	3	4	5	6
Internet	1	2	3	4	5	6
GPS	1	2	3	4	5	6
Spülmaschine	1	2	3	4	5	6
Elektrische Kaffeemaschine	1	2	3	4	5	6
Mikrowelle	1	2	3	4	5	6
Gesundheitliche Assistenzsysteme	1	2	3	4	5	6
Notruf-Systeme	1	2	3	4	5	6
Sonstige	1	2	3	4	5	6

Bitte benennen Sie, welche sonstigen Geräte Sie benutzen :

Jetzt fragen wir nach Ihrer allgemeinen Einstellung zur Verwendung von Technik. Im folgenden Fragenblock geht es nicht darum, ob Sie eine bestimmte Technologie nutzen, wir wollen lediglich Ihre Haltung zur Verwendung von Technik im Alltag erfahren. Im Folgenden finden Sie eine Liste mit Aussagen über Ihre persönlichen Gefühle. Bitte geben Sie an, ob Sie den folgenden Aussagen jeweils zustimmen oder nicht. Zutreffendes bitte ankreuzen.

Deliverable 2.4

Angenommen ich hätte Zugriff auf Technologie, dann würde ich diese nutzen.

Ich stimme überhaupt nicht zu	1	2	3	4	5	6	7	Ich stimme vollkommen zu
-------------------------------	---	---	---	---	---	---	---	--------------------------

Wenn ich Zugriff auf Technologie hätte, denke ich, dass ich sie auch nutzen würde.

Ich stimme überhaupt nicht zu	1	2	3	4	5	6	7	Ich stimme vollkommen zu
-------------------------------	---	---	---	---	---	---	---	--------------------------

Die Art, mit der ich Technologie bediene, ist im Allgemeinen klar und verständlich.

Ich stimme überhaupt nicht zu	1	2	3	4	5	6	7	Ich stimme vollkommen zu
-------------------------------	---	---	---	---	---	---	---	--------------------------

Wenn ich auf Technologie treffe, ist mir klar, wie ich sie bedienen muss.

Ich stimme überhaupt nicht zu	1	2	3	4	5	6	7	Ich stimme vollkommen zu
-------------------------------	---	---	---	---	---	---	---	--------------------------

Im Allgemeinen finde ich, dass Technologien einfach zu bedienen sind.

Ich stimme überhaupt nicht zu	1	2	3	4	5	6	7	Ich stimme vollkommen zu
-------------------------------	---	---	---	---	---	---	---	--------------------------

Generell kann ich Technologie dazu bringen, das zu tun, was ich will.

Ich stimme überhaupt nicht zu	1	2	3	4	5	6	7	Ich stimme vollkommen zu
-------------------------------	---	---	---	---	---	---	---	--------------------------

Die Verwendung von Technologie verbessert meine Leistungsfähigkeit in verschiedenen Bereichen meines Lebens.

Ich stimme überhaupt nicht zu	1	2	3	4	5	6	7	Ich stimme vollkommen zu
-------------------------------	---	---	---	---	---	---	---	--------------------------

Im Alltag halte ich Technologien für sehr nützlich.

Ich stimme überhaupt nicht zu	1	2	3	4	5	6	7	Ich stimme vollkommen zu
-------------------------------	---	---	---	---	---	---	---	--------------------------

Deliverable 2.4

Menschen, die mir am Herzen liegen, raten mir, Technologie im Alltag zu nutzen.

Ich stimme überhaupt nicht zu	1	2	3	4	5	6	7	Ich stimme vollkommen zu
-------------------------------	---	---	---	---	---	---	---	--------------------------

Menschen, die mich beeinflussen, finden, ich sollte im Alltag Technologie nutzen.

Ich stimme überhaupt nicht zu	1	2	3	4	5	6	7	Ich stimme vollkommen zu
-------------------------------	---	---	---	---	---	---	---	--------------------------

Menschen in meinem Alter, die Technologie nutzen, genießen ein höheres Ansehen

Ich stimme überhaupt nicht zu	1	2	3	4	5	6	7	Ich stimme vollkommen zu
-------------------------------	---	---	---	---	---	---	---	--------------------------

Die Verwendung von Technologien ist ein Symbol für höheren sozialen Status.

Ich stimme überhaupt nicht zu	1	2	3	4	5	6	7	Ich stimme vollkommen zu
-------------------------------	---	---	---	---	---	---	---	--------------------------

Ich kann Technologien auch dann bedienen, wenn niemand da ist, der mir erklärt, was ich tun muss.

Ich stimme überhaupt nicht zu	1	2	3	4	5	6	7	Ich stimme vollkommen zu
-------------------------------	---	---	---	---	---	---	---	--------------------------

Ich denke, dass ich eine neue Technologie benutzen kann, wenn jemand mir vorher erklärt hat, wie ich sie bedienen muss.

Ich stimme überhaupt nicht zu	1	2	3	4	5	6	7	Ich stimme vollkommen zu
-------------------------------	---	---	---	---	---	---	---	--------------------------

Ich glaube, dass ich eine neue Technologie bedienen könnte, wenn ich ein Handbuch hätte.

Ich stimme überhaupt nicht zu	1	2	3	4	5	6	7	Ich stimme vollkommen zu
-------------------------------	---	---	---	---	---	---	---	--------------------------

Der Kontakt mit moderner Technologie vermittelt mir ein unbehagliches Gefühl.

Ich stimme überhaupt nicht zu	1	2	3	4	5	6	7	Ich stimme vollkommen zu
-------------------------------	---	---	---	---	---	---	---	--------------------------

Ich finde es unterhaltsam, Technologien zu benutzen.

Deliverable 2.4

Ich stimme überhaupt nicht zu	1	2	3	4	5	6	7	Ich stimme vollkommen zu
-------------------------------	---	---	---	---	---	---	---	--------------------------

Technologien zu benutzen ist angenehm.

Ich stimme überhaupt nicht zu	1	2	3	4	5	6	7	Ich stimme vollkommen zu
-------------------------------	---	---	---	---	---	---	---	--------------------------

Es macht mir Spaß, Technologien zu benutzen.

Ich stimme überhaupt nicht zu	1	2	3	4	5	6	7	Ich stimme vollkommen zu
-------------------------------	---	---	---	---	---	---	---	--------------------------

Technologie macht mir keine Angst.

Ich stimme überhaupt nicht zu	1	2	3	4	5	6	7	Ich stimme vollkommen zu
-------------------------------	---	---	---	---	---	---	---	--------------------------

Ich fühle mich nicht unbehaglich wenn andere sich über Technologie unterhalten

Ich stimme überhaupt nicht zu	1	2	3	4	5	6	7	Ich stimme vollkommen zu
-------------------------------	---	---	---	---	---	---	---	--------------------------

Es macht mich nervös, mit Technologie zu arbeiten.

Ich stimme überhaupt nicht zu	1	2	3	4	5	6	7	Ich stimme vollkommen zu
-------------------------------	---	---	---	---	---	---	---	--------------------------

Deliverable 2.4

In diesem Fragenblock möchten wir Ihre Wahrnehmung bezüglich unterschiedlicher Altersgruppen erfassen. Denken Sie, dass 25-jährige Personen, 75-jährige Personen oder beide die folgenden Herausforderungen besser meistern würden? Zutreffendes bitte umkreisen.

	25-jährige Personen meistern es besser	75-jährige Personen meistern es besser	Beide stellen sich gleich gut an
Sich gesund ernähren	1	2	3
Kreuzworträtsel lösen	1	2	3
Sich um Kinder kümmern	1	2	3
Einen Computer benutzen	1	2	3
Ein Team leiten	1	2	3
Auto fahren	1	2	3
Etwas im Internet bestellen	1	2	3
Finanzielle Entscheidungen treffen	1	2	3
Genug Sport treiben	1	2	3
Ein Mobiltelefon bedienen	1	2	3
Höflich sein	1	2	3
Neue Fähigkeiten erlernen	1	2	3
Einen DVD Player/Rekorder benutzen	1	2	3
In einer Diskussion argumentieren	1	2	3
Kreativ sein	1	2	3
Die Meinung anderer nachvollziehen	1	2	3
Eine Mikrowelle benutzen	1	2	3

Deliverable 2.4

Die folgende Liste enthält Behauptungen über Ihre Selbstwahrnehmung. Bitte geben Sie an, ob Sie den jeweiligen Aussagen zustimmen oder nicht (1 = Ich stimme überhaupt nicht zu, 7 = Ich stimme vollkommen zu). Zutreffendes bitte umkreisen.

Es gibt Menschen, die glauben, dass ich aufgrund meines Alters weniger fähig bin, Technologien zu bedienen.

Ich stimme überhaupt nicht zu	1	2	3	4	5	6	7	Ich stimme vollkommen zu
-------------------------------	---	---	---	---	---	---	---	--------------------------

Ich befürchte, dass mein Alter meine Fähigkeit, Technologie zu bedienen, negativ beeinflussen könnte.

Ich stimme überhaupt nicht zu	1	2	3	4	5	6	7	Ich stimme vollkommen zu
-------------------------------	---	---	---	---	---	---	---	--------------------------

Wenn ich Technologien nicht angemessen bediene, befürchte ich, dass andere Leute den geringen Erfolg auf mein Alter zurückführen könnten.

Ich stimme überhaupt nicht zu	1	2	3	4	5	6	7	Ich stimme vollkommen zu
-------------------------------	---	---	---	---	---	---	---	--------------------------

Ich habe Angst, dass andere Leute mich hinsichtlich meines Alters beurteilen.

Ich stimme überhaupt nicht zu	1	2	3	4	5	6	7	Ich stimme vollkommen zu
-------------------------------	---	---	---	---	---	---	---	--------------------------

Ich glaube nicht, dass ich schon einmal in einer Situation war, in der Vorurteile über mein Alter mich bestraft oder begünstigt haben.

Ich stimme überhaupt nicht zu	1	2	3	4	5	6	7	Ich stimme vollkommen zu
-------------------------------	---	---	---	---	---	---	---	--------------------------

Ich mache mir keine Sorgen, dass mein Verhalten als stereotyp für mein Alter interpretiert werden könnte.

Ich stimme überhaupt nicht zu	1	2	3	4	5	6	7	Ich stimme vollkommen zu
-------------------------------	---	---	---	---	---	---	---	--------------------------

Die Tatsache, dass ich ein älterer Mensch bin, haben keinen Einfluss darauf, wie andere sich

Deliverable 2.4

mir gegenüber verhalten.

Ich stimme überhaupt nicht zu	1	2	3	4	5	6	7	Ich stimme vollkommen zu
-------------------------------	---	---	---	---	---	---	---	--------------------------

Deliverable 2.4

Wie würden Sie ältere Menschen beurteilen, wenn Sie an die folgenden Charaktereigenschaften denken (1 = überhaupt nicht, 5 = extrem)? Zutreffendes bitte umkreisen.

	Überhaupt nicht				Extrem
Geschickt	1	2	3	4	5
Freundlich	1	2	3	4	5

Bitte geben Sie an, ob sie den folgenden Aussagen zustimmen oder nicht.

Zutreffendes bitte ankreuzen.

Ich würde mich selbst als „älteren Menschen“ bezeichnen.

Ich stimme überhaupt nicht zu	1	2	3	4	5	6	7	Ich stimme vollkommen zu
-------------------------------	---	---	---	---	---	---	---	--------------------------

Ich habe ein starkes Zugehörigkeitsgefühl zur Gruppe der Älteren

Ich stimme überhaupt nicht zu	1	2	3	4	5	6	7	Ich stimme vollkommen zu
-------------------------------	---	---	---	---	---	---	---	--------------------------

Ich fühle mich gut dabei, zu den Älteren zu gehören.

Ich stimme überhaupt nicht zu	1	2	3	4	5	6	7	Ich stimme vollkommen zu
-------------------------------	---	---	---	---	---	---	---	--------------------------

Deliverable 2.4

Die folgende Liste enthält Behauptungen über die TEC Sitzung. Bitte geben Sie an, ob Sie den Aussagen zustimmen oder nicht (1 = Ich stimme überhaupt nicht zu, 7 = Ich stimme vollkommen zu).

Zutreffendes bitte ankreuzen.

Die Anweisungen, die ich während dem TEC erhalten habe, waren von sehr guter Qualität.

Ich stimme überhaupt nicht zu	1	2	3	4	5	6	7	Ich stimme vollkommen zu
-------------------------------	---	---	---	---	---	---	---	--------------------------

Die Methoden zur Bewertung von Technologien waren angemessen.

Ich stimme überhaupt nicht zu	1	2	3	4	5	6	7	Ich stimme vollkommen zu
-------------------------------	---	---	---	---	---	---	---	--------------------------

Das TEC ist reibungslos abgelaufen.

Ich stimme überhaupt nicht zu	1	2	3	4	5	6	7	Ich stimme vollkommen zu
-------------------------------	---	---	---	---	---	---	---	--------------------------

Das viele Testen war unterhaltsam.

Ich stimme überhaupt nicht zu	1	2	3	4	5	6	7	Ich stimme vollkommen zu
-------------------------------	---	---	---	---	---	---	---	--------------------------

Ihre Teilnahme am TEC war nützlich.

Ich stimme überhaupt nicht zu	1	2	3	4	5	6	7	Ich stimme vollkommen zu
-------------------------------	---	---	---	---	---	---	---	--------------------------

Ich habe neue Wege erlernt, mit Technologie umzugehen.

Ich stimme überhaupt nicht zu	1	2	3	4	5	6	7	Ich stimme vollkommen zu
-------------------------------	---	---	---	---	---	---	---	--------------------------

Ich habe Informationen zu bewährten Technologie erhalten.

Ich stimme überhaupt nicht zu	1	2	3	4	5	6	7	Ich stimme vollkommen zu
-------------------------------	---	---	---	---	---	---	---	--------------------------

Meine Teilnahme am TEC hat mein Wissen über neue Technologien erweitert.

Ich stimme überhaupt nicht zu 1 2 3 4 5 6 7 Ich stimme vollkommen zu

DEMOGRAFISCHE DATEN (bitte das entsprechende Feld ankreuzen)

Geschlecht

W

M

Alter

Geburtsmonat und -jahr

Wo leben Sie?

Zuhause

Bei einem Familienmitglied oder Freund

Altersresidenz

Sonstige

Mit wem leben Sie zusammen?

Ich lebe alleine

Ehefrau/Ehemann/Partner/in

Familie oder Freund(e)

Sonstige

Nehmen Sie an Freizeitaktivitäten mit anderen Leuten teil?

Ja

Nein

Berufliche Position

Vollzeit-Arbeiter/in

Teilzeit-Arbeiter/in

Arbeitslos

Deliverable 2.4

- | | |
|-----------------|--------------------------|
| Schüler/Student | <input type="checkbox"/> |
| Ruhestand | <input type="checkbox"/> |
| Sonstige | <input type="checkbox"/> |

**Abgeschlossene Bildungsebenen
(ungefähre Altersangaben)**

- | | |
|--|--------------------------|
| Ich bin nie zur Schule gegangen | <input type="checkbox"/> |
| Grundschule (4 - 12 Jahre) zum Teil | <input type="checkbox"/> |
| Grundschule (4 – 12 Jahre) | <input type="checkbox"/> |
| Grundschule (4 – 12 Jahre) und
weiterführende Schule (12 – 18 Jahr)
zum Teil | <input type="checkbox"/> |
| Grundschule (4 – 12 Jahre) und
weiterführende Schule (12 – 18 Jahre) | <input type="checkbox"/> |
| Hochschule
(18 Jahre und älter) | <input type="checkbox"/> |

**Wie viele Jahre sind Sie insgesamt
zur Schule gegangen? (inklusive
Lehre/Ausbildung)**

**In welchem Land sind Sie
aufgewachsen (oder haben die meiste
Zeit Ihrer Kindheit verbracht)?**

**Sind Sie es gewohnt, Fragebögen wie
diesen zu bearbeiten?**

- | | |
|------|--------------------------|
| Ja | <input type="checkbox"/> |
| Nein | <input type="checkbox"/> |

Deliverable 2.4

Wie schätzen Sie Ihre Gesundheit ein?						
1	2	3	4	5	6	7
Kritisch	Sehr schlecht	Schlecht	Durchschnittlich	Gut	Sehr gut	Exzellent

Was halten Sie von Ihrer Teilnahme an dieser Studie (freiwillige Frage)?

Wir bedanken uns herzlich dafür, dass Sie sich die Zeit genommen haben, diesen Fragebogen auszufüllen. Wenn Sie mehr über das Projekt erfahren möchten oder zusätzliche Informationen zur Studie erhalten wollen, werden wir Ihnen diese sehr gerne zusenden (Jan.Alexandersson@dfki.de).

NOCHMALS VIELEN DANK FÜR IHRE TEILNAHME AN DER STUDIE!

Questionnaire (during test)

Teilnehmernummer: _____

Technologie: _____

Studie zur Nutzung von Technologie

Technologie-Test-Café (TEC)

BITTE LESEN SIE SICH DIE FOLGENDEN ANWEISUNGEN SORGFÄLTIG DURCH
BEVOR SIE DEN FRAGEBOGEN AUSFÜLLEN

Sehr geehrte/r Teilnehmer/in,

Dieser Fragebogen ist Teil einer Studie über die Nutzung von Technologie. Dies ist Teil des SiforAGE Projektes, einem europäischen Projekt mit dem Ziel, die Verbreitung von Forschung in der Gesellschaft zu verbessern. Ein Verständnis der Faktoren, welche die Anwendung von Technologie beeinflussen, ist sehr wichtig, da es die Voraussetzung zur Herstellung neuer Produkte sowie für die Erforschung einer optimal auf den Nutzer angepassten Umgebung darstellt. Wir werden Ihnen Fragen über Ihre persönliche Selbstwahrnehmung sowie zur Wahrnehmung Ihres Nutzerverhaltens stellen. Heute laden wir Sie dazu ein, verschiedene Technologien auszuprobieren. Wir möchten dann Ihre Meinung zu jeder dieser Technologien erfahren. Dazu werden wir Sie nach jedem Test darum bitten, einen kurzen Fragebogen auszufüllen.

Wenn Sie Zweifel oder Schwierigkeiten mit dieser Studie haben, können Sie Ihre Fragen gerne an Jan Alexandersson senden: Jan.Alexandersson@dfki.de, DFKI, Deutsches Forschungszentrum für Künstliche Intelligenz, oder sich an den Koordinator dieser Erhebung wenden: Dr.Sibila Marques, Sibila.Marques@iscte.pt, Ecole de Psychologie, Institut universitaire de Lisbonne (ISCTE-IUL).

Deliverable 2.4

Wenn Sie bereit sind, blättern Sie bitte zur nächsten Seite um und beantworten Sie die Fragen.

Die Blätter sind beidseitig bedruckt. Vielen Dank!

Bitte nennen Sie 5 Begriffe, die Ihnen zuerst in den Sinn kommen, wenn Sie an die Technologie denken, die Sie gerade getestet haben.

_____	_____
_____	_____

Jetzt würden wir gerne Ihre Meinung zur Nutzung der Technologie erfahren, die Sie gerade getestet haben. Es folgt eine Liste von Aussagen über Ihre Gefühle. Bitte geben Sie an, ob Sie den Aussagen jeweils zustimmen oder nicht. Zutreffendes bitte ankreuzen.

Angenommen ich hätte Zugriff auf Technologie, dann würde ich diese nutzen.

Ich stimme überhaupt nicht zu	1	2	3	4	5	6	7	Ich stimme vollkommen zu
-------------------------------	---	---	---	---	---	---	---	--------------------------

Wenn ich Zugriff auf Technologie hätte, denke ich, dass ich sie auch nutzen würde.

Ich stimme überhaupt nicht zu	1	2	3	4	5	6	7	Ich stimme vollkommen zu
-------------------------------	---	---	---	---	---	---	---	--------------------------

Die Art, mit der ich die Technologie bedient habe, war klar und verständlich.

Ich stimme überhaupt nicht zu	1	2	3	4	5	6	7	Ich stimme vollkommen zu
-------------------------------	---	---	---	---	---	---	---	--------------------------

Wenn ich auf Technologie treffe, ist mir klar, wie ich sie bedienen muss.

Deliverable 2.4

Ich stimme überhaupt nicht zu	1	2	3	4	5	6	7	Ich stimme vollkommen zu
-------------------------------	---	---	---	---	---	---	---	--------------------------

Ich denke diese Technologie war einfach zu bedienen.

Ich stimme überhaupt nicht zu	1	2	3	4	5	6	7	Ich stimme vollkommen zu
-------------------------------	---	---	---	---	---	---	---	--------------------------

Es war einfach, die Technologie dazu zu bringen, zu tun, was ich möchte.

Ich stimme überhaupt nicht zu	1	2	3	4	5	6	7	Ich stimme vollkommen zu
-------------------------------	---	---	---	---	---	---	---	--------------------------

Die Verwendung dieser Technologie könne meine Leistungsfähigkeiten in vielen Bereichen meines Lebens verbessern.

Ich stimme überhaupt nicht zu	1	2	3	4	5	6	7	Ich stimme vollkommen zu
-------------------------------	---	---	---	---	---	---	---	--------------------------

Ich erachte diese Technologie als sehr nützlich für meinen Alltag.

Ich stimme überhaupt nicht zu	1	2	3	4	5	6	7	Ich stimme vollkommen zu
-------------------------------	---	---	---	---	---	---	---	--------------------------

Ich habe mich unbehaglich gefühlt, als ich diese Technologie benutzt habe.

Ich stimme überhaupt nicht zu	1	2	3	4	5	6	7	Ich stimme vollkommen zu
-------------------------------	---	---	---	---	---	---	---	--------------------------

Ich fand den Gebrauch dieser Technologie sehr unterhaltsam.

Ich stimme überhaupt nicht zu	1	2	3	4	5	6	7	Ich stimme vollkommen zu
-------------------------------	---	---	---	---	---	---	---	--------------------------

Die Nutzung der Technologie war angenehm.

Ich stimme überhaupt nicht zu	1	2	3	4	5	6	7	Ich stimme vollkommen zu
-------------------------------	---	---	---	---	---	---	---	--------------------------

Ich hatte Spaß bei der Verwendung dieser Technologie.

Deliverable 2.4

Ich stimme überhaupt nicht zu 1 2 3 4 5 6 7 Ich stimme vollkommen zu

Diese Technologie hat mir keine Angst gemacht.

Ich stimme überhaupt nicht zu 1 2 3 4 5 6 7 Ich stimme vollkommen zu

Ich fühle mich nicht unbehaglich wenn andere sich über Technologie unterhalten

Ich stimme überhaupt nicht zu 1 2 3 4 5 6 7 Ich stimme vollkommen zu

Es hat mich nervös gemacht, mit dieser Technologie zu arbeiten.

Ich stimme überhaupt nicht zu 1 2 3 4 5 6 7 Ich stimme vollkommen zu

Im Folgenden soll Ihre Selbstwahrnehmung während des Versuchs erfasst werden. Bitte geben Sie an, ob Sie den Aussagen zustimmen oder nicht (1 = Ich stimme überhaupt nicht zu, 7 = Ich stimme vollkommen zu).

Zutreffendes bitte umkreisen.

Ich befürchte, dass mein Alter meine Fähigkeit, diese Technologie korrekt zu bedienen, negativ beeinflusst haben könnte.

Ich stimme überhaupt nicht zu 1 2 3 4 5 6 7 Ich stimme vollkommen zu

Als ich die Technologie benutzt habe, hatte ich Angst, dass die Menschen in meiner Umgebung meinen geringen Erfolg auf mein Alter zurückführen würden.

Ich stimme überhaupt nicht zu 1 2 3 4 5 6 7 Ich stimme vollkommen zu

NOCHMALS VIELEN DANK, DASS SIE AN DIESER UMFRAGE TEILGENOMMEN HABEN!