

# TOWARDS THE DESIRED FUTURE OF THE ELDERLY AND ICT: POLICY RECOMMENDATIONS BASED ON A DIALOGUE WITH SENIOR CITIZENS

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## Abstract

This study dealt with the interaction between two important trends in future Western societies, i.e. the greying of society and the technology-induced transformation of everyday life. It aimed at formulating a framework of policy recommendations with regard to the elderly and ICT in 2030. To meet this objective a three-phased methodology was developed, relying on methods of participatory technology assessment and technology foresighting. In the first phase of the project, a literature study, semi-structured expert discussions and focus groups with (future) elderly provided the necessary information for the development of scenarios about the future. In the second phase, these scenarios were transformed into a theatre play, which was performed for elderly audiences. Group discussions with senior participants led to the formulation of the “desired” future with regard to the elderly and ICT. During the last phase of the project – a backcasting exercise – experts and stakeholders from different fields formulated policy recommendations, necessary to achieve this future.

**Keywords:** ICT and elderly, scenario development, theatre play, participation

## Introduction

This paper presents the results of a study into the future of the elderly and ICT. The project ‘Colourful Flanders turns to Grey’ was designed, initiated and managed by the Flemish Institution for Science and Technology Assessment (viWTA, a parliamentary institution for technology assessment), and conducted by the Centre for Audience Research (Catholic University of Leuven). The ultimate aim of the study was to formulate short-term and long-term policy recommendations with regard to the elderly and ICT. To meet this objective, existing participatory technology assessment methods and foresight techniques were combined in an innovative way, assuring the involvement of experts and stakeholders in the field and, central in this project, elderly people themselves.

Technology Assessment (TA) can be defined as ‘a scientific, interactive and communicative process which aims to contribute to the formation of public and political

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opinion on societal aspects of science and technology' (Decker-Ladikas, 2003:14). Two elements are important in this definition. Firstly, TA 'contributes' to public and political opinion-forming. It offers knowledge regarding societal aspects of science and technology (opportunities and risks). TA does not aim at shaping or creating technology, but at giving advice in this area. As technology assessment typically concerns the evaluation of new or forthcoming technologies, it is usually future oriented rather than backward-looking.

Secondly, science, interaction and communication are three equally important pillars of TA. The project of which the results are presented here was designed taking utmost care to ensure the integration of these three elements.

Science provides 'knowledge' about the developments, possibilities and consequences of technology. Interaction and participation, which have become increasingly important in European TA, (Joss, 2002: 220; Norman & Paschen, 2000: 8) ensure that citizens, experts and stakeholders are included in the process of assessing and debating socially sensitive issues of science and technology. Through the engagement of publics with various interests and insights, and through their exchange of information, data and experiences, policymakers can develop programmes and initiatives that receive broader support and incorporate knowledge that otherwise might be overlooked (Nentwich & Bütschi, 2002; Steyaert & Lisoir, 2005).

Communication, too, is described as a crucial aspect of TA in recent publications (Decker-Ladikas, 2003:95). Not only the communication of results at the end of a project (i.e. the classical view on communication) is deemed essential, but also the communication during earlier phases of the project. The latter is considered an important tool to keep track with outside reality. Using attractive forms with high communicational value (like literature, film or theatre) increases the relevance and impact of TA projects.

Apart from the trend towards the increased use of participatory methods, there is also an evolution towards an increased use of anticipatory methods (Georghiou, 1996; Coates et al., 2001). Recently, several authors have made strong pleas for an integration of TA, forecasting and foresighting (Smits & Kuhlmann, 2004; Lengrand, 2002). These approaches are seen as (strategic intelligence) instruments for a new innovation policy (multi-purpose or third-generation innovation policy). The main characteristic of the third-generation innovation policy is that it not only contributes to the enhancement of the innovation and to the competitive power of companies, but also to the solution of different kinds of societal problems (in areas such as education, care, health, etc.). Technology forecasting aims at predicting future technological capabilities, attributes, and parameters, based on numeric data-based techniques (e.g. trend extrapolations). Technology foresighting, on the other hand, departs from judgment-based techniques (e.g. Delphi methods and scenarios) to assess the long-term future of science, technology and society. It aims at identifying evolving trends and developments that should be taken into account during policy formulation, planning and decision-making. Whereas forecasting often results in quantitative predictions of the future, foresighting

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methodologies often produce various “possible futures”. In the context of foresighting methods, policy measures are considered tools to work towards the most desirable future (Cuhls, 2003).

The aim of this study, which actually amounts to describing how the trend of an emerging technological information society may interact with the demographic trend in Western societies of a growing population of elderly, clearly fits into third-generation innovation policy thinking. The choice for participatory technology assessment and technology foresight methods is thus a logic consequence of the goal of this project. Key questions are: Which threats or opportunities does future ICT present to the future elderly? And which policies should be developed in order to create the most desired future?

The combination of the elderly and ICT (and of the elderly and involvement in policymaking processes) is frequently described in problematic terms. Old age often implies a “disengagement” from different societal areas, such as the field of technology (and political participation). The digital divide obviously holds an age-related division, with senior citizens being over-represented among the non-adopters. Commonly cited reasons for elderly people’s non-adoption can be divided into two broad categories. On the one hand, biological, cognitive, psychological, social and economic factors connected with later phases of life may form a barrier to the adoption of ICT. Failing eyesight, a declining ability to learn and retain information on new subjects, reduced contact with environments that feature new technologies (e.g. the workplace), and limited financial means, for instance, may hinder the adoption of ICT. On the other hand, the typical historical background of the elderly is put forward as an explanation. The current elderly, for instance, grew up in a world that was dominated by one-way media (first print and later broadcast media), and therefore lack cognitive resources and habits necessary to deal adequately with new ICT.

However, more recently it appears as if the traditional negative discourse about elderly and ICT gradually will be replaced by a positive discourse (Bosma et al., 2000). More and more technologies are conceived as a means to “empower” the elderly. Typical problems related to old age may be solved through ICT; domotics, for instance, may promote independent living; online relationships may compensate for the lack of real-life contacts; etc.

Given the large number of elderly people in the future, limiting the negative effects of non-adoption of ICT by the future elderly (i.e. social exclusion) and stimulating the positive effects of their adoption of ICT (which, on an aggregate scale, might provide a solution for the financial problems related to the greying of the population) become important tasks for public policy.

In the following pages, we will describe a three-phased methodology, a combination of participatory technology assessment methods and foresight techniques, which was developed in order to formulate short-term and long-term policy recommendations about the elderly and ICT. In the first phase of the project, a literature review, two semi-

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structured group discussions with experts and stakeholders from the academic, policy and business world, and two focus groups with (future) elderly people provided the necessary information for the development of scenarios about the future of the elderly and ICT in 2030. In the second phase of the project, the scenarios were transformed into a theatre play, which was performed for elderly audiences. Group discussions with senior participants led to the formulation of the “desired” future with regard to the elderly and ICT. During the last phase of the project – the backcasting exercise – experts and stakeholders from different fields formulated policy recommendations, necessary to achieve this goal.

## **Phase 1: Future Scenario Development**

### **1 Future Scenarios**

Central to the methodology of this study is the concept of future scenarios. A future scenario presents a hypothetical sketch of what (particular areas of) society may look like in the future. More specifically, a future scenario is a theoretical description of society based on the hypothetical projection of certain “key drivers”, i.e. variables presumed to be the most important drivers of the progress of society. For instance, when ‘ICT adoption’ is considered a key driver, one future scenario may start off from the hypothetical projection that the adoption of ICT will stagnate. Another future scenario may be sustained mainly by the projection of ICT adoption as a continuously expanding phenomenon. Thus, the goal of a future scenario is not to be predictive. Instead, it is a theoretical and hypothetical, yet structured, way of thinking about what might happen to society if a key driver goes in one of the possible directions. This approach usually results in future scenarios being developed in sets of poles, one for each antipodal ‘value’ a key variable may take (e.g. stagnation vs. continuous rise).

### **2 Method**

The aim of the first phase of this study was to produce a set of meaningful key drivers and to identify potential ‘values’ for these key drivers as well as to develop, for each combination of prognosticated key drivers, a substantiated interpretation of what the future society might look like. As this required a profound understanding of assorted domains of society, the methodology for this phase consisted of an extensive information-gathering process. The steps taken included reviewing research material from various academic fields, soliciting specific views from experts and stakeholders in a variety of areas, and collecting concrete accounts of older citizens’ observations, perceptions and insights.

*Literature review* – The systematic review of the literature involved a phased process of identifying, locating and assessing the research evidence on three particular subjects believed to adequately cover the key substantive question of this project. First, it was critical to understand the position of old age in present-day (and future) societies and the demographical projection of the “baby boom generation” (which will constitute a substantial part of the older age category in 2030). Secondly, scenario development needed to be informed about (expected) progress in the conception, design and

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distribution of innovative ICT applications and the (expected) acceptance of these applications. Thirdly, it was important to be familiar with scenario development on related topics and/or in other countries. Descriptions of future scenarios on, for instance, wide-ranging evolutions at a global level (Davies et al., 2001), the expected innovation of specific technologies (EMCC, 2003; Friedewald & Da Costa, 2003) and the situation of the elderly in future societies (Merdes, 2003) functioned as leading sources for this project.

*Expert view* – In the next step, the attention shifted from adjacent topics towards the actual relationship between the elderly and ICT in future society. Ten specialists from assorted disciplines were asked for their particular comprehension of the topic. They were selected from fields as diverse as gerontology, media studies, sociology, demography, and technology design and came from government, academic and business backgrounds. This multidisciplinary, with actors from different backgrounds bringing together knowledge of various areas, is a key characteristic of TA. One can only give a more or less complete overview of societal aspects if as many as possible (societal) views and insights are involved.

The actual research strategy comprised two stages. First, each member of the panel submitted his or her own independent view on the topic of concern. The experts received a questionnaire containing three sets of wide, open-ended questions. These questions were classified under ‘The elderly in the future’, ‘ICT in the future’, and ‘The elderly, ICT and government policy’ and referred to views on opportunities, threats, strengths and weaknesses of the relationship between ICT and the elderly in 2030. Panellists were free to choose the set of questions that was most closely linked to their own area of expertise.

In a second stage, the experts were invited for a semi-structured group conversation. Two such discussions were organised; both brought together five panellists. The individual responses to the questionnaire served as the starting-point of these discussions. The responses were summarised and reported to the panellists, who were asked to reassess their replies in the light of the group feedback. The interchange among the group members gradually produced a certain aggregation of the differing backgrounds and views. In the end, this process led to a rich, detailed, balanced, and differentiating group response to the key question of the project.

Subsequently, to document this group response and describe how it was reached through the group conversations, verbatim transcripts of the discussions were analysed. This was a two-fold task which incorporated becoming aware of the data as they stand, i.e. uncovering the themes that were addressed by the panellists, and secondly, assembling the data, i.e. establishing a series of categorised and labelled arguments that echoed the nature of participants’ contributions and therefore provided answers to the research question.

*The elderly’s view* – The expert view as well as the research literature had given the process of scenario development a strong theoretical underpinning and a robust

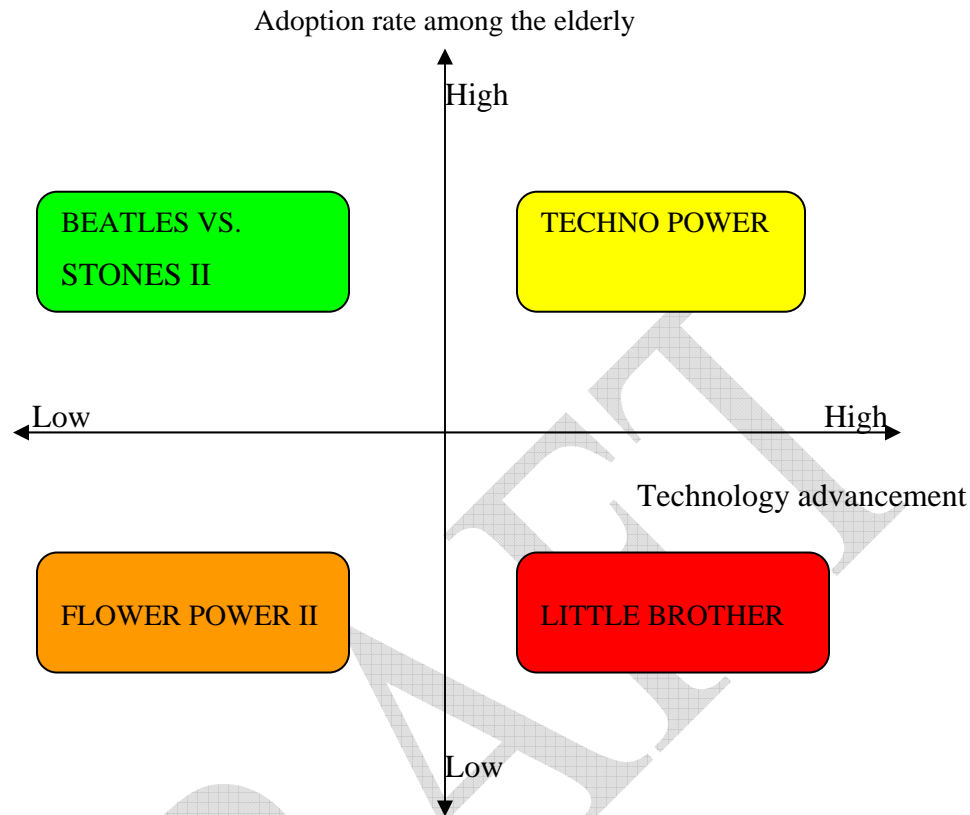
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conceptual structure. These steps had supplied most of the material that was considered necessary for a well-informed development of future scenarios. In these steps, however, only knowledge had been placed in a pivotal role. A step in which experience would take a prominent position was believed to be required as well. Scenarios describing the elderly's (future) living environment could benefit from an account of their lived experience, i.e. their perceptions, observations and concerns. For that reason, a small-scale qualitative study using the focus group methodology was performed. The first part of this study was conceptualised as a projection exercise; the second part, as a simulation exercise. The former took the form of a group interview with respondents in middle age (40-50 years old) and focused on how they, as senior citizens-to-be in 2030, would appreciate fundamentally changed living conditions in a future society with radically new technologies. In the latter part, senior citizens of today were interviewed on how they appreciated the position of technology in their current living situation.

### **3 Results**

The end result of this process was twofold. First, the analysis pointed at the most essential variables, the key drivers with which the set of scenarios could be organised and differences between the scenarios highlighted. The key drivers selected here were the advancement status of future technology and the technology adoption rate among the elderly of 2030. The first key driver started from the idea that society will either be permeated by highly innovative technologies (for instance, ambient intelligence) or will only be slightly more technologised compared to present-day society (PC-based technologies). The second key driver referred to the degree of adoption of these technologies by the elderly (high versus low adoption rate) and the positive versus negative effects of adoption and non-adoption. The opposition within each of these variables produced four future scenarios, as represented in Figure 1.

Figure 1: Four Future Scenarios



Furthermore, the analytic process revealed several other variables that appeared to be essential for the topic of concern. Concepts such as empowerment, alienation, control, and oppositions within and between generations contributed considerably to the interpretation of the four scenarios.

The four scenarios can be characterised as follows:

**TECHNO POWER:** The first scenario is characterised by highly advanced technological applications (paradigm shift), which are adopted by a large proportion of the elderly and lead to their empowerment. Senior citizens participate in all societal areas. Ageism does not exist anymore. The intergenerational differences are small. Disadvantage of this scenario: technology dependence. This scenario is probably the most utopian scenario.

**LITTLE BROTHER:** In the second scenario too, “ambient intelligence” plays a major role. But this time, innovative technology leads to the disempowerment of the elderly. Senior citizens become isolated and estranged. Although huge in number, they are a marginal group in society. Younger people rule, and use new ICT to “assist” the elderly.

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Among the latter, however, this creates the feeling of being controlled. The intergenerational gap is large. This scenario is the “worst-case” or “doom” scenario for the future of the elderly and ICT in 2030.

**FLOWER POWER II:** In this scenario, technological advancement is limited, especially because there is a growing mental resistance in society against the further technologisation of everyday life. The elderly are the first in line to fight for a return to authenticity and face-to-face contacts. The baby boomers are in their prime. Backside of this rejection of new technologies: missed opportunities? Like the Techno Power scenario, this is a positive scenario for the elderly and ICT in 2030.

**BEATLES VERSUS STONES II:** In this scenario, PC-based technologies are still dominant. There is a growing gap between the large group of healthy and wealthy senior citizens, who adopt new technologies to further improve their lives, and the less advantaged and ill elderly, who are not capable of adopting new ICT. Not the intergenerational differences, but the intragenerational differences are central in this scenario. This scenario is perhaps the most realistic one.

### **Phase 2: Desirability testing**

Even though future scenarios are usually meant to serve as a foundation for long-term policymaking, they are no constructive policy instruments as such. Only when they are methodically re-evaluated can future scenarios be developed into functional tools. Such a re-evaluation usually consists of discussing the scenarios within a normative framework to identify the features and components considered necessary for an advantageous and satisfactory society. The set of developed scenarios needs to be put to the test of desirability. Therefore, the second phase of this study followed a specific participatory methodology designed to assess (senior) citizens’ desires, needs, worries, and expectations by presenting the various scenarios to the public and giving them the opportunity to respond.

## **1 Method**

*Theatre play* – As a first step in the methodology, extended descriptions of the four scenarios were handed over to a theatre company’s producer and director, who were asked to write a theatre script that would reflect the quintessence of the four scenarios. The idea for this approach was based on a commonly used method in science communication and TA, namely science theatre. Among others, the Dutch TA organisation Rathenau Institute used this method (2001) to discuss societal aspects of xenotransplantation (‘Pig in the middle’ project). This method was preferred because of its high communicational value. It was likely to attract media attention, which could (and actually did) stimulate the societal debate on this topic.

To guarantee that the script would respect the ‘scientific’ scenarios, the researchers were given the opportunity to comment on the script. The end result of the creative work was a script about a God who sends out a journalist to get an inside view of four societies, all

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poles apart from the others, and to report on his impressions. The journalist visits Almos, Betmos, Gammos and Delmos, four worlds that correspond to the scenarios of Technopower, Little Brother, Beatles vs. Stones, and Flower Power, in that order.

Next, the theatre company started to produce the play. They were asked to give four performances in the conference hall of the Flemish Parliament (with a capacity of 150 seats). As these performances were open to an elderly public, they were publicised through senior citizen's organisations and announced in a widespread senior citizens' monthly. The viWTA also used its network (about 600 addressees) to invite elderly people. People who were interested could order (free) tickets in advance; all performances were fully booked. These three methods were used because the aim was to reach a sufficiently mixed and representative group of senior citizens. Despite these efforts, it became clear that people from lower social classes were underrepresented in the sample. Furthermore, it appeared that the public that was attracted to this offer mainly consisted of people between 50 and 75 years of age. To overcome this last disadvantage, a fifth performance was organised in a retirement community, where 40 residents attended the performance.

*Group conversation* – The second step in this methodology, which is the stage in which the data are actually collected, consisted of group conversations with members of the theatre public and built directly on the first. We presented a stage adaptation of the future scenarios to those people who would afterwards be asked to participate in the study, to make sure that they would share similar background information and to guarantee that the results of the conversations could be linked to the results of the scenario development phase. Furthermore, also in the procedure of actual data collection, repeated references were made to the future scenarios. In the first stage of the conversation, for instance, the participants were provided with a quick overview of the four parts of the play and asked to express their general opinion. To elucidate this request visually and thereby prevent that this task would be perceived as too abstract, a line was drawn on the floor; one extreme of this line represented "I definitely would not want to live in this world" and the other "I really would like to live in this world". For each world, each participant was invited to indicate a position on that line that corresponded with his opinion of that world. This task was meant to be a trigger for the interview to follow and aimed at setting the tone of the interview: the facilitators wanted to create a thoughtful, permissive, and open atmosphere.

Subsequently, participants took a seat at the table, where the conversation leader discussed the meaning of eight areas of daily life and how they may be impacted by communication and information technologies (illustrating with typical examples of ICT applications). These areas were health, housing, transport, social relationships, education & employment, leisure, public and private services, and political participation. All these areas were represented with pictures that had been hung about the room. After the facilitators' explanation, the participants were asked to go and stand next to the picture of the domain they felt most engaged with. As the three topics that attracted most

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participants were selected as the topics for the subsequent discussion, this procedure gave the group an opportunity to decide on the topics they wanted to talk about.

Thirdly, the discussion group was split up into three smaller groups, one for each selected topic. These smaller groups were provided with two large pieces of paper, each marked with three black dots and two red dots. One piece of paper held the heading “what we definitely do want”, the other said “what we definitely do not want”. The groups then were invited to talk about potential improvements or deteriorations that could result from the implementation of innovative technologies for the topic of their concern. Next to each black dot, they were asked to write down (and illustrate with an example) the three most valuable advantages and three most threatening drawbacks as an outcome of their discussion. After that, these conclusions were discussed in the full group. When new important suggestions came out of that plenary discussion, they were written down next to red dots. This approach resulted in various pieces of paper per domain, with several wishes and fears written on it. These discussions took about one hour and a half. By way of conclusion, each participant was asked to mark three of the statements written on the papers he or she felt were most important. This whole approach was prepared with the help of two professional facilitators.

## **2 Results**

The result was a mix of data: the numerical expression (on a scale from 1 to 7) of the 537 participants’ general opinion of each world, the number of people that had chosen each of the eight domains as being the most important to them, the respondents’ desires and fears with regard to future ICT in the chosen life areas (which were recoded in larger categories), and the ‘weight’ they gave to each of these desires and fears. Based on the trends revealed by the quantitative analysis of these data, the following description of the “desired future of the elderly and ICT” was produced.

According to the elderly, the ideal future is a combination of the Techno Power and the Flower Power II scenario. On the one hand, they would like to see ICT enhance the quality of life. For instance, ICT may support the social relationships of the elderly and help them fight loneliness; ICT may also ameliorate their physical condition and help them live independently; and ICT may offer them possibilities to stay mobile, to relax, to learn, and to work, in other words, to fully participate in society (The Techno Power scenario). On the other hand, the elderly strongly advocate maintaining non-mediated communication (face-to-face contacts) and non-technological alternatives in the future. They still want to talk to their doctor in person, have the possibility to go to the bank or a grocery store, take courses in a classroom situation, receive information about their community life through traditional information channels, and enjoy nature. Their home environment too should be a cosy place, instead of a cold technological one. (This drive towards authenticity was a key characteristic of the Flower Power II scenario.)

Thus, the elderly are proponents of technological advancement, which may have interesting advantages for them, but not at any price. They do not want face-to-face contacts and non-technological alternatives to disappear because of the introduction of

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new ICT. They prefer an and-and situation, which gives them the power to choose and decide for themselves.

Furthermore, senior citizens set two important conditions. First, new technologies must be easily accessible to them, which requires that future ICT devices (and their developers) keep the typical physical limitations of the elderly in mind, as well as their lack of ICT-related knowledge and skills. The elderly also want information and education that takes their special needs into account (e.g. courses taught in their mother tongue and not exclusively in English). In addition, accessibility implies that ICT is affordable for elderly people with lower incomes. All these measurements should make it possible for the elderly (and by extension also for other social groups, such as people with a lower income or education level) to fully participate in society. In other words: they must prevent exclusion and a digital divide. The gaps between different generations (between young and old), but also within generations (such as between the healthy and wealthy elderly and the less healthy, lower-educated and poorer elderly) were described in the Little Brother and Beatles vs. Stones II scenarios. These theatre plays evoked strongly negative feelings among the elderly.

A second important demand with regard to future ICT applications is that they are reliable and safe and do not pose a threat to the privacy of senior citizens. The elderly fear the abuse of personal information. They demand that their medical files are available only to doctors (and not to third parties, such as insurance companies), are in favour of safe e-commerce and e-government applications, and fear 'Big Brother' conditions in their homes.

### **Phase 3: Backcasting exercise**

#### **1 Method**

Sixteen experts – academics, policymakers, ICT developers and representatives of senior citizens' organisations – were invited to participate in the backcasting exercise. This exercise consisted of several steps. In the introduction, the ultimate aim of the project and the importance of the third phase were underlined. After that, the desired future with regard to the elderly and ICT in 2030 (which resulted from the second research phase) was described in detail. Keywords representing this future were put onto the wall as a permanent reminder ("planting the flag"). This future vision – which was presented as an unquestionable "fact" – was the starting point of the actual backcasting exercise. The experts were asked to formulate what they saw as necessary realisations in the decade leading up to 2030 (i.e., from 2020 to 2030), if the ultimate aim was indeed the future as described above. Every expert wrote down two realisations on a Post-It. These Post-Its were fixed to a time line, clustered, and discussed in a plenary session. After that, the same question was asked for the other two decades (2010 to 2020, and 2004 to 2010). The time line with necessary realisations functioned as the basis for the formulation of policy recommendations. In particular, the experts were asked to think about decisions that governments should take to make these realisations possible, starting from their own

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expertise. These individual opinions were later presented to and discussed within a small group of experts from varying backgrounds. The group output was again written down on Post-Its, which were also fixed to the time line and clustered. To get a more detailed description of the most important policy recommendations, the experts were first asked to prioritise the recommendations. After this, the experts formed smaller groups to discuss the recommendation they had most affinity with. The backcasting exercise ended with a short evaluation of the meeting.

## 2 Results

The whole project was set up to eventually arrive at the outcome of this particular backcasting task. The policy recommendations resulting from the backcasting therefore not only reflected the output of this final phase, but that of the preceding phases as well. For instance, one of the most noticeable findings from Phase 2 – that people do not want to be forced into a purely technological paradigm, in which the choice between ICT-based communication and face-to-face communication is ruled out – had a major impact on the experts' discussion. This finding guided their debate towards the outline of a gentle, person-centred and comprehensive policy rather than a policy of strict choices. It inspired the experts to outline a policy that emphasises the merging of conventional and new modes of communication as well as customising the range of innovative technologies to the needs of the elderly.

*Merging traditional and new modes of communication* – Throughout this project, the elderly repeatedly emphasised that they wanted to keep the option of communicating face-to-face with trusted individuals. They considered personal, face-to-face communication of paramount importance; they wanted to have the opportunity to talk with real-life doctors, bank clerks and counter assistants. The elderly were in favour of preserving 'traditional' modes of communication, inspired by the firm conviction that face-to-face communication intrinsically outshines technology-based forms of communication. In addition, they regarded the preservation of 'traditional' channels of communication, next to innovative forms, as an expression of how they value the right of self-determination; they do not want their lives to be led by others. Very illustrative for this claim was the idea of one expert to install benches on the street as well as to develop neighbourhood-based ICT-networks and finance both initiatives from a single budget: the government's policy on the elderly should be integrated in its policy on ICT, and vice versa. The delicate relationship between ICT and the elderly should be a reason for creating a flexible platform of policymakers from various fields, spokespersons of senior citizens' organisations and representatives of the business community. This suggestion clearly starts from the implicit idea of a third-generation innovation policy (see above).

*Customising the range of innovative technologies* – Also central to the set of measures proposed here was the concept of accessibility. According to the experts, arrangements should be made to ensure that the elderly of 2030 will have satisfactory access to needed technologies. This necessitates technologies that are economically within reach, cognitively clear, and physically manageable for all sub-groups within the elder

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population. The building of a widespread network with a strong capacity that reaches the homes of the elderly through interfaces controllable for the visually, motorically, and auditorily impaired most likely will be an important factor in this. Further, the cost of access should be monitored and, if necessary, artificially lowered using advertising, sponsoring or government subsidy. The experts proposed that tuition fees for ICT courses be adapted to the learner's income and that older technological applications discarded by professional users for being outmoded be put up for sale through a network of low-priced second-hand shops. Such measures should prevent ICT from producing a gap between the young and the old, or between the healthy and wealthy elderly and the less well-off elderly.

In addition, the elderly should be encouraged as users, e.g. by making them aware of the extensive possibilities of ICT, by *providing good training and by reinforcing positive attitudes*. Positive feelings about ICT can be supported, for instance, by incorporating ICT-related storylines in television series that are popular with the elderly public. Television shows that represent older characters talking about technologies and using them in a self-confident way, such as Jessica Fletcher in "Murder, she wrote" and certain characters in "Eastenders" (a British soap), have been shown to enhance positive attitudes of older viewers towards ICT. Furthermore, by analogy with Tupperware parties, the experts suggested to develop a network of "Tupper-like" software parties, i.e. relaxed gatherings of people who know each other and during which ICT applications are demonstrated in an easy, leisurely atmosphere. One important advantage of this suggestion is that it may attract people who tend to be put off by classroom courses. An alternative idea was to involve the elderly's grandchildren: in some regions, the local government successfully has experimented with ICT classes that were attended by pairs of a grandparent and his/her grandchild. The interaction between them appeared to expedite the learning process of both the elderly person and the child.

Furthermore, manufacturers of ICT should be pushed to *focus on specific characteristics of the elderly as technology users* and to explore whether ICT can contribute to the improvement of the quality of their lives. The burden of pensions and care could be reduced, for instance, when innovative technologies allow the elderly to live on their own and/or be an active member of the labour force for a longer time. In this respect, the experts emphasised that ICT should not be viewed as a goal, but as a means to an end. The outcome of this process should be a range of affordable, custom-made technologies.

The aspired integration of technological and societal components requires *multidisciplinary research* (e.g. usability studies) performed by manufacturers as well as independent, government-funded organisations. New applications should be tested extensively in samples of the older population. Further, designers of ICT applications, which typically are young, healthy and well-educated men, should imagine themselves in the situation of the elderly; some experts suggested they should test their products wearing stiff, rigid gloves (to simulate rheumatism), earplugs (to simulate impaired hearing) and distorting glasses (to simulate bad eyesight).

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## **Discussion**

This paper describes the results of ‘Colourful Flanders Turns to Grey’, which dealt with the interaction between two important trends for future Western societies, i.e. the greying of society and the technology-induced transformation of everyday life. More specifically, it aimed at formulating a framework of policy recommendations with regard to the elderly and ICT in 2030. To meet this objective, a three-phased methodology was developed, combining aspects of participatory technology assessment and technology foresighting.

The mixture of participatory and foresighting methods does not necessarily produce a straightforward approach. This study showed, for instance, that both lay people and experts experience difficulties when thinking about the distant future. Even though the theatre play included apparent references to innovative technologies such as Ambient Intelligence, the elderly found it difficult to leave their contemporary perspectives and go beyond particular experiences with present-day technologies. The policy proposals formulated by the experts too were often focused on the short or medium term rather than on the long term.

On the other hand, the merits of the methodology followed cannot be evaluated solely on the basis of the results, as the project did not aim at giving an exhaustive account of the issue (with analytic, profound or groundbreaking findings), but pre-eminently aspired to produce results that would provide a transparent framework for future reference. This implies that the usefulness of the project (and its methodology) will not surface until the framework is reflected in actual policy plans. The project will only be assessable when policy objectives that have been inspired by this study gradually start to be linked to legislative, policy, service, or budgetary measures. The importance of this project must be deduced from a check of whether the policymakers’ objectives reflect the principles of the study.

Therefore, the Flemish institute for Science and Technology Assessment (viWTA), which solicited the research, planned three types of action. First, it took the initiative of converting several aspects of the methodology into a manageable tool for socio-cultural training courses aimed at the elderly. They developed a training manual, containing the DVD recording of the theatre play, detailed guidelines and illustrated scripts for moderating discussions about ICT, and background information about technological developments in diverse areas of society. This manual will be distributed to local divisions of senior citizens’ organisations, since several of these organisations had expressed their interest in a facilitation tool for discussions about technology. Representatives of the organisations had indicated that a considerable number of their members are interested in technology’s impact on society and are looking for occasions to share their views. Again, the high communicational value of the chosen method (theatre play) is proving its merits. Even after the official ending of the project, its output (in all possible forms) continues to stimulate the societal debate on the topic.

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Secondly, the viWTA will present the results of this project (especially the policy recommendations) to the members of the Flemish Parliament, aiming at reinforcing parliamentary debates on ICT and the elderly. Thirdly, the viWTA will make all institutions involved (policymakers, researchers, industry) aware of the topic and its expected reach and impact. In part, this goal was already met in the course of research, since several involved parties participated in one or more phases of the study. However, it is critical for this type of research to continue the communication. Precise and essential information connected to accepted objectives and familiar strategies should be communicated in political, cultural and social terms. In addition, it should not be limited to quantifiable projections, but include rich descriptions of alternative futures. Foresighting research needs a continuous and cumulative follow-up: what is learned in one step should be rescheduled in the next step. By definition, foresighting research is not a one-time event, but a continuing practice of contributing information to the decision process as well as of responding to feedback. This study only provided the basis for this process.

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