Exploring IT Opportunities:
The Case of the Dutch Elderly Policy Chain

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EXECUTIVE SUMMARY

There is a growing belief that IT can improve public management in general. The Dutch policy and services with regard to the elderly are no exception. Obviously, IT opportunities in the healthcare domain play a central role in this, since the main objective of policies is to sustain the independent functioning of the elderly in everyday social life. In this research four IT opportunities for elderly policy in The Netherlands are explored through discussion meetings with elderly, and consultation of experts in the field of elderly policy and services. The IT opportunities are designed to align the different levels of motivation and skills of elderly to use IT. Four IT pilot projects are defined, that take into account the costs and benefits of these opportunities to improve the elderly policy chain in The Netherlands.

Keywords: *e-health policy; expert consultation; focus groups; health services for the aged; public health informatics*

ORGANIZATION BACKGROUND

It can be recognized as a recent trend that national and European governmental organizations, as well as supranational organizations such as "Brussels," put priority on the improvement a public customer service, that is, strongly anticipate their citizen's needs and wishes. Clearly, this is driven by citizens that are more articulate and more aware of what governments can do for them. Also, citizens have access to information that has never been easier to disclose. The result is a need for better anticipation through what can be labeled as "demand driven policy" or "participatory policy networks" (Bongers, 2000; Mayer, 1997). On various levels we see governmental policies that want to adapt to the needs of their inhabitants. Like in many countries, most of the Dutch initiatives to reform public organizations originate from bridging the "gap" between government and citizens.

Looking specifically at the elderly citizens in The Netherlands, we observe that the rapid growing number of aged people have a dynamic life pattern, high expectations for the future, changing needs, wishes, and specific information demands (Ewijk, Kuipers, Ter Rele, & Wester-

hout, 2000). This results in a larger participation in sports, undertaking long trips, studying, and so forth. Consequently, this articulate group of elderly particularly prompts governments to be more citizen-focused. Traditionally, the elderly are a vulnerable group that strongly relies on governmental support. This includes all major policy domains, such as healthcare, housing, work and retirement, transport, social and cultural participation, and so on. Governments increasingly fail to communicate sufficiently with the elderly to meet these increasing demands. For example, in The Netherlands, recently the bottlenecks experienced by elderly people in relation to the government have been the main topic in a discussion meeting with the Minister of Governmental Renewal (Nieuwsbank, 2004). Major complaints concerned forms that are difficult to read as well as the many different forms that need to be dealt with by the elderly. Not only the content of governmental information is criticized, also the medium of communication. Governments tend to experiment with different kinds of information channels, such as video, Internet, and mobile devices, but seem to neglect that many elderly do not use such technologies.

In short, the coordination and execution of government policy concerning the elderly is perceived insufficient. In addition, it can be stated that an efficient and effective incorporation of the needs and wishes of the elderly by public bodies is still missing. To an important extend, this problem concerns the information flow between the elderly, the government, and public bodies. On the one hand, governmental information should be generated and processed efficiently between organizations, in order to reach citizens in a consistent, understandable, and accessible manner. In return, citizens' demands should flow backwards as organized and regular feedback. How can this exchange of information between citizens and governmental organizations be optimized through the application of IT? In particular, can public services for the elderly be improved by IT-driven solutions? This question is the main trigger for this article. We first present a framework that might be of use to approach end-user problems in the elderly policy chain. Then we present our data collection to evaluate a number of IT opportunities that potentially can overcome these problems, compare, and evaluate them. The last section closes with reflections and some suggestions for further research.

SETTING THE STAGE

From the background of this article, we recall the general movement of the Dutch government to renew itself and turn its public bodies into an efficient chain of citizen-focused organizations. Customer satisfaction has become an explicit part of the strategy of public organizations (Whitehouse, Spencer, & Payne, 2003), including a service orientation that is aimed at delivering products and services "on demand" instead of "from stock" (Arnold & Chapman, 2003). In terms of the well-known value discipline theory of Treacy and Wiersma, public bodies cannot excel in product differentiation or cost leadership, but typically can follow the "customer intimacy" strategy (Treacy & Wiersma, 1993). Although the (competitive) conditions for public organizations remain quite deviant from these of private companies, many characteristics of customer intimacy are promoted by politicians and policy makers, including detailed segmentation, providing public servants with specific information related to a prospect or client, being responsive, empowerment of people working closely with customers, employees trained to respond to individual needs, and so on.

If we project these characteristics on an elderly-focused governmental strategy, the following requirements for apply:

1. Information is available and services are suitable (tailor-made) for an individual elder person

2. Groups of elderly are being segmented to such level that they are being served best against lowest costs
3. Elderly expectations are being well managed
4. Information about elderly persons are consistent, up-to-date, and easily accessible for those authorized
5. Elderly satisfaction is regularly evaluated, in order to issue improvements
6. Elderly can easily contact the government and stake holding companies

Although this list appears rather idealized, it expresses the practical implications of developing an elderly-focused policy and related services. Actually, it projects the goals for new initiatives as the advanced application of IS/IT between the elderly and public bodies. With regard to our conceptual framework, this list will serve to set the critical success factors for potential IT opportunities that aim to improve the coordination and communication between government, public bodies and the elderly. With this, the main "boundaries" of the framework are defined.

Next, to construct the "content" of the framework, the IT opportunities itself need to emerge from another leading principle. In line with mass customization and individualization as major societal developments, it appears useful to depart from *diversity* as the main concept (Czaja & Sharit, 1998; Vinken, Ester, & Dirven, 1993). Consequently, to account for the diversity of elderly people, IT opportunities should be determined by segments of elderly. We choose to segment according to two dimensions. The first dimension represents the motivation of the elderly to exchange information with the public bodies. This we entitled as "willing" to interact with governmental and public bodies. The second dimension represents the skills of the elderly to exchange information with these organizations. This we labeled "able" to interact with the government and public bodies. This classification of individuals or groups by both the "willing" and the "being able" dimension, originates from a number of social-psychological approaches. From a learning and coaching perspective, it is known as the "skill/will matrix" launched by, among others, Covey and Landsberg (2003). Earlier, it was developed in relation to leadership styles by Hersey and Blanchard (1977).

Here, the skill/will classification is primarily used to capture the diversity of citizens—not to manage or "steer" people as it was intended by the originators of the approach. It is particularly intended to cope with the question how it can be used to leverage IT opportunities to attack the noted problems between the elderly and public bodies. Reasoning from the four possible combinations, Table 1 shows how classification of the elderly leads to IT-driven opportunities to increase their involvement.

Given the structure of Table 1, we choose to support every type of elderly citizen with a different type of IS/IT and approach (Stephanidis, 1999). Elderly that do not want, nor can interact

Table 1. Segmentation of the elderly, according to the motivation and skills of the elderly, including proposed information exchange strategy

		Able	
		No	Yes
"Willing"	No	1. Provide alternatives (multi-channeling)	3. Convince to exchange information
	Yes	2. Provide ICT training and support	4. Challenge and involve in innovative IT initiatives

with policy organizations (Group 1) need to be provided with simple, common communication alternatives. This group will probably never benefit from IT to improve their position in the information exchange with public bodies. Group 2 within Table 1 specifically needs to be supported in use of IT, at home, or elsewhere. Senior-specific computer and Internet-training are the relevant initiatives here. Quite opposite, Group 3 needs to be approached. Since these elderly are skilled to use (modern) communication tools, the prior concern is to let them image government and public bodies as reliable, responsive and supportive organizations. Group 4, obviously, can be considered as the ideal category and might be an example for all the elderly to participate and interact to make a difference for the elderly policy.

The above segmentation is not to be considered as a static classification for a number of reasons. First of all, the same elderly person can be classified into different groups, when different types of IT skills are concerned. Also, the distinction between Yes and No as projected in the table will not always be clear cut. Still, the segmentation provides a framework for policy planning. From a policy intervention perspective, pilot projects and IS/IT initiatives should be directed to "shift" elderly towards the fourth quadrant. After all, the objective is to empower the elderly such that they are willing and able to exchange information with public bodies. This will enlarge the possible services to the elderly, as well as provide the elderly with new means to, for example, receive and use information. Of course this is an ambitious and probably long-term mission. Still, in searching for IT opportunities we will take the improvement of both the motivation and skills of elderly as the main starting point.

CASE DESCRIPTION

The elder citizens that were invited to join the focus group meetings were interviewed in three different age groups: the so-called "current elderly" (age 70 years and older), the "next elderly people" (between age 50 and 70) and the "future elderly" (between age 30 and 50). Through this division, a relevant variety of motivation and skills was achieved within our target group of panel members (Czaja & Sharit, 1998). It also allows us to take generation and time effects into account. As is known from standard social research, age groups differ significantly in behavior and attitude because of changes during the life course, and, simultaneously, because of temporal conditions (e.g., the period of time in which they experienced their life events such as growing up, being educated, getting jobs, raising families, retiring, and so forth; Becker & Hermskens, 1993). With 8 or 9 persons per panel, a total of 28 people were involved in the three group discussion meetings.

The discussions were organized in an open and informal environment (i.e., "coffee meetings"), to ensure a low threshold for debating. For the group of the current elderly, the research project team organized a meeting at an elderly home. The group of next and future elderly were invited at the office building of research organization. All meetings were organized in 3-hour sessions, facilitated by both older and younger members of the research team. During the meeting, a computer and beamer was used to demonstrate some Web sites, but most of the time the discussion was lead and structured orally, and by using colored post-its to generate ideas as in brown bag sessions.

Next to the elderly, group discussion sessions were held with experts, that is, professionals of public organizations in the field of ICT and elderly policy. These experts were invited to give their opinion on the main bottlenecks the Dutch elderly experience and perceive in interaction and communication with public organizations. In practice, over 35 representatives of central and local authorities, elderly associations, and institutions were randomly divided into three separate groups. These experts merely represent the field of active "stakeholders" in The Netherlands at the crossroad of the ICT, elderly, and policy domain. Representatives were present from several

ministries, governmental authorities, housing and health corporations. In addition, specific organizations took part, as "SeniorWeb," an Internet provider hosting portals for the elderly, "Bij de Tijd," an association to improve the abilities of the elderly in modern society, and KITTZ, an association for palliative care.

In contrast to the elderly panels, these sessions were structured by using an Electronic Meeting Room and, during parts of the meetings, applying computer-supported decision-making. This technology appears to be very useful to support and intensify explorative group processes, especially if policy matters and professionals are involved (Bongers, 2000; Nunamaker, Dennis, Valacich, Vogel, & George, 1991). The meetings were planned likewise the elderly panel groups. The 3-hour sessions were facilitated by members of the research team, and demanded specific efforts because of the use of the groupware system. With regard to both outcomes and process, the expert sessions were evaluated as very successful. Using the groupware system in combination with traditional (computer-supported) brainstorming techniques appeared to be very satisfactory (Batenburg & Bongers, 2001; Fjermestad & Hiltz, 1999).

Consultation Round 1: Elderly and experts consultation on public services and IT

From the first round of group meetings it became clear that the elderly of 50-70 years and older did not consider IT as a possibility to improve the bottlenecks and problems they encounter in communication with policy institutions and public organizations. This group of elderly primarily articulated critics on the attitude of policy employees and civil servants, by quotes such as:

They do not tell me where to go as they don't understand my question
I have the feeling that they are not telling me everything
It sometimes seems that they do not want to understand me
They use difficult words and small fonts
Sometimes, those youngsters behind the desk do not know how it works either!
I call these "organizations without a father or a mother", as they are act irresponsible and uninterested

This group of elderly have less or no experience with IT, although some try very hard not to stay behind. Still they feel stressed by all kinds of commercials on radio and television that refer to Web sites and URLs (like: "go to (…) dot NL!" or "visit www(…) !" and so forth), while they have little or no idea how this would actually work. It appears to them that contacting institutions and companies by phone is discouraged, as it takes longer and longer to be connected to the appropriate person. They fear significant increase of their telephone costs.

In contrast, the panel group of future elderly (between 30 and 50 years) did recognize the possibility to use IT to improve communication and interaction. When asked, this group mentioned the costs and user friendliness of computers and Internet connection as practical bottlenecks. Many hesitate to purchase a broadband or cable connection as they want to control their Internet costs, that is, pay per use not through a flat fee.

In general, most elderly groups were highly interested in improving their IT skills. They realize, however, that they need to invest in equipment and training. It was suggested that the government should stimulate companies to donate their replaced computers after 2 or 3 years. Also, low level courses should be provided for the elderly at low costs. In addition, they had a large number of practical ideas as to how public bodies can improve their services, especially their front office.

During this first round of meetings, the groups of experts came up with many ideas to attack the bottlenecks and problems as experienced by the Dutch elderly. From their profession, they have a more prominent perspective on the possibilities of IT in this. The experts appeared to be not only concerned about the front office, but explicitly address the problems with regard to the back offices in their organizations. They particularly addressed the chain dependency of public organization as a complex barrier for digitizing and improving public services. Initiatives to set up Internet portals to share civil information by different public bodies through one single platform and database were considered too complex and therefore too risky because of its unforeseen organizational and managerial consequences. Still, all experts realize that the exchange of information within the policy chain needs to be improved in order to provide transparency and better service towards citizens. This is actually (i.e., primarily) a major organizational issue that requires an integrative redesign of governmental chains of services and processes. IT can support this, although some experts believe that IT can be more leading in reshaping the Dutch public services. Currently, a number of public bodies are founded to coordinate the IT policies and investments of Dutch governmental organizations. This includes, among other things, standards for data storage and exchange, e-forms, front office and mid office architectures, and Web site design.

Consultation Round 2: Elderly and experts consultation on four pilots of IT opportunities

With the goals for defining appropriate IT opportunities at scope, we formulated four different opportunities to present at all the panel groups. On the one hand, the opportunities were based on current and proven technology, such as public and private Internet connections and networks. On the other, they were developed in such a way that it suited with the elderly segmentation on a one-to-one basis. In Table 2, we represent the segmentation matrix as presented earlier in Table 1, including the labels for four IT opportunities as a basic idea for improving the bottlenecks in a pilot project.

We elucidate the four IT opportunities as follows:

1. Top box plus: the elderly get a box attached to their television, which provides access to the Internet, and contains a videophone connection. Having the box combined with television is done to lower the threshold for Internet access. Public bodies can supply all kinds of services for the elderly and serve as a direct helpdesk.
2. Elderly telepanel: the elderly can get a Personal Computer, Internet access, and a basic training for free, in exchange for participating in polls and usability tests of, for example, governmental Web sites and public writings for the elderly.

Table 2. Positioning of the four IT opportunities in the elderly segmentation matrix

		Able	
		No	Yes
Willing	No	1. Top box plus	3. Elderly quality mark
	Yes	2. Elderly telepanel	4. Personal Web folio

3. Elderly quality mark: for the rather skilled elderly, Web sites will be judged following heuristic evaluation techniques known from the human factors domain (Nielsen, 1993; Zajicek, 2004; Zaphiris, Kurniawan, & Ghiawadwala, 2006). For the elderly in the U.S., usability expert Nielsen has developed a set of guidelines to which Web sites for the elderly could adhere (Nielsen Norman Group, 2003). A likewise set of guidelines can be used for Europe. The motivation to use quality marked Web sites may be higher, than nonquality marked sites. This opportunity is comparable with the ISO 9000 certification series.
4. Personal Webfolio: the elderly will get secure access to a Web site with all their relevant personal data, they can (let) update their personal data. Also, authorized public bodies will be able to read relevant information and perform updates. With this, the elderly can ensure themselves that personal information is up-to-date from their part. Also, public bodies can now provide all updates of personal information via this channel.

As stated, the feasibility of the opportunities are directly linked to the specific elderly group. For instance, its low threshold makes the top box plus suitable for the first quadrant. We assume that the low threshold can imply that their attitude towards information exchange with public bodies will move to the other quadrants. With the elderly telepanel, skills of the elderly may increase while at the same time public bodies can create, for example, more usable Web sites. An elderly quality mark may be used to increase the quality of, for example, Web sites or other public services. Elderly not motivated to exchange information are often disappointed by the quality of the information exchange. As such, we assume that this IT-related opportunity supports the direction of moving the elderly to the fourth quadrant. Finally, the personal Webfolio inherits the possibility of making information of the elderly most up-to-date, by making both public bodies and the elderly responsible for maintaining the personal information through one channel.

The second round of consultation of the three elderly panels and the three groups of experts resulted into a general appreciation and support for all four IT opportunities. In general, our ideas behind the top box plus, elderly telepanel, and personal Webfolio solution were validated. Organizing an elderly quality mark for Web sites was judged as useful but not essential.

As could be expected, the elderly and expert panels placed different emphasis on the IT opportunities. With regard to the personal Webfolio idea, the elderly strongly expressed their concerns about usability, and also privacy and security. Although the improvement of transparency and communication with public bodies were highly appreciated, they plea for having a strong say in delivering which personal data should be available in such an additional layer of the system. As ICT is a black box for most of the elderly, their fear of loosing control over their personal data is significant; to quote one of the panel members: "*one does not really know what they do behind your back*". In line with the first consultation round, the experts stressed the difficulties of connecting several back office systems for the personal Webfolio idea, reorganizing responsibilities of data entry, storage and representation.

The elderly welcomed the top box plus idea for its applicability. They felt, however, that it should enable more personal services as was initially proposed, such as house alarm and personal contact through cameras and human voice. In this way, the top box plus could also provide additional social support. Usability of such a device remains their major concern, however. The experts also supported the idea, but put their question marks at the financial implication of implementing this in a project; not the technology, but staffing the helpdesk would create difficulties.

Setting up an elderly telepanel, the third IT opportunity, was appreciated by the elderly, especially because it could enable their IT skills. In addition, they mentioned opportunities to stimulate their fellow elderly to get acquainted with IT, once PC and Internet were installed in their very own home. Completing Web questionnaires and using the Internet, together with a

more experienced person, could be another way to combine learning with social contact. The elderly are in favor of the idea that they obtain a computer and Internet connection for free, if they are prepared to contribute to panel activities like survey on a regular basis ("*it is obvious to expect something in return*" as one of the panel member stated it). Some of the experts suggested that the idea of an elderly telepanel should be combined with activities of existing research organizations, or should preferably be tested on a small (municipality) scale. This saves time and development costs.

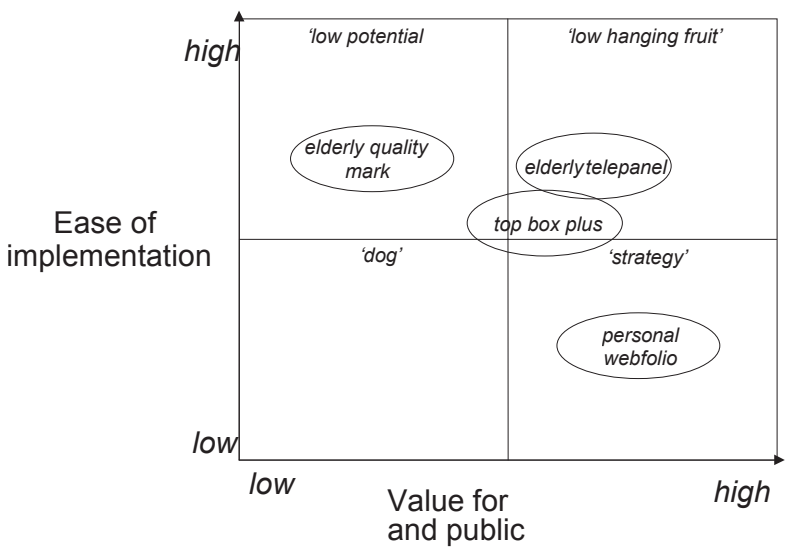
In sum, the focus group consultation results in the proposition that IT provides opportunities to empower the position of different types of elderly towards elderly organization and public bodies—but only if it is tailored, tested, and embodied in specific pilot projects.

A Policy Portfolio Analysis of Four IT Opportunities

Although it has been concluded that both governmental bodies and the elderly are in favor of the proposed IT opportunities, these obviously differ in their potential benefits and costs. Inspired by Ward and Peppard (2002), we applied the portfolio approach to additionally analyze the IT opportunities from a policy implementation perspective. Doing so, we explored their potential for actually being part of a IS/IT strategy consulting the current Dutch elderly policy chain. In line with the previous, we defined two portfolios for the four IT opportunities: (i) a supply-oriented portfolio, and (ii) a demand-oriented portfolio.

The supply-oriented portfolio describes the value of the four IT opportunities for government and public bodies, in relation to the ease of implementation. The demand-oriented portfolio shows the value of the IT opportunities for the elderly themselves. Subsequently the two portfolios are discussed. In the consultation round, the experts underlined not only the benefits but also the (investment) costs. These two dimensions reflect the portfolio also described in (Crockett, 2003). Figure 1 shows the supply-oriented portfolio, with keywords for each of the four quadrants.

Figure 1. Supply-oriented portfolio of IT opportunities



The personal Webfolio is positioned as the most strategic opportunity, with the highest impact and highest risks for implementation. Although government and public bodies can to a large extent benefit from the high quality of personal elderly information, not only the elderly need to be convinced of the usage of the Webfolio, but also the public bodies. Both the elderly telepanel and the top box plus are considered "low hanging fruit," while they expect to bring less benefits compare to the personal Webfolio. With Figure 1 we confirm that the elderly quality mark is primarily "easy" to implement against relative low value for stakeholders. In sum, the supply-oriented portfolio clearly shows differences in ease of implementation and hence illustrates the trade-off between benefits and costs.

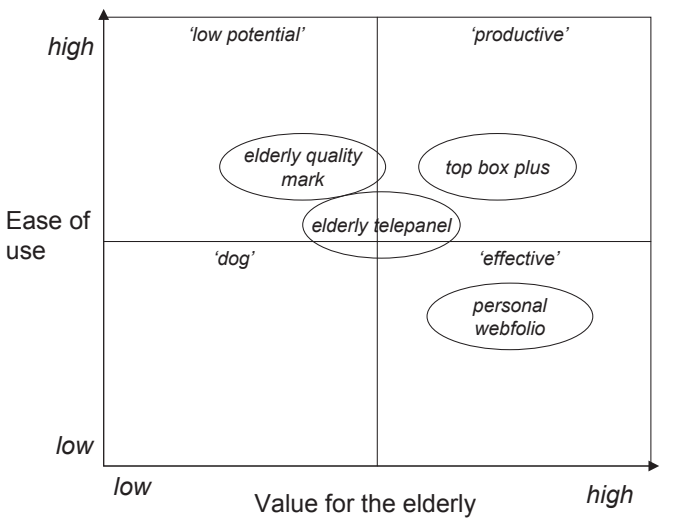
With respect to the demand-oriented portfolio, the elderly highly emphasized the usability of the IT opportunities. Also in the literature, usability of IS/IT for the elderly is considered important (Browne, 2000; Czaja, 1988; Nielsen Norman Group 2003; Schneiderman, 1992; Zaphiris et al., 2006). Next to the value of the IT opportunities, the usability of the opportunities is defined as a dimension. Figure 2 shows the result of our demand-oriented portfolio analysis.

The positioning of the IT opportunities is different from the supply-oriented portfolio, but there are some similarities too. The elderly quality mark appears to be less useful, while the personal Webfolio can considerably contribute to the empowerment of the elderly. The Webfolio remains difficult in its implementation and use, however, even if investments are made in making the Webfolio user friendly. For the current group of the elderly, Figure 2 confirms that the top box plus is the most attractive option, followed by the elderly telepanel.

CURRENT CHALLENGES

In this article, the case of communication in the Dutch elderly policy chain is addressed by taking a combined IS/IT and policy perspective. Our approach does *not* depart from the idea that IS/IT holds the main solution for all the complex problems in the cooperation and communication between government, public bodies, and the elder citizens. Instead, our aim was rather to explore the opportunities and limits of the fast developments in IS/IT, and apply these to the

Figure 2. Demand-oriented portfolio of IT opportunities



case of the domain of the Dutch elderly policy. More specifically, the objective of this research was to define specific (pilot) projects that demonstrate the potential of IT to contribute to a more customer-oriented elderly policy and operation. At the same time, these IT opportunities should contribute to solving existing bottlenecks in the cooperation and communication between government, public bodies, and the elderly.

Steered by our conceptual framework that combines (i) a citizen/elderly-focused government and (ii) segmentation of the elderly, four IT opportunities are developed: (1) the top box plus, providing a low threshold Internet access with additional features, (2) the elderly telepanel, offering a free PC, in exchange for usability testing of, for example, Web sites for elderly, (3) the elderly quality mark, consisting of a kind of ISO certification of Web sites for the elderly, and (4) the personal Webfolio, providing central access to personal information for both public bodies and an elderly person. It is expected that these four IT opportunities support the increase of motivation and skills of the elderly to exchange information with public bodies and the government.

We used group interview data collected from three elderly panels, and three panels of policy actors and stakeholders, applying the methods of focus group and expert consultation. In each panel round, the IT opportunities were discussed and evaluated by the elderly and expert panels. Validation of the four determined IT opportunities by consulting the elderly, the elderly experts, and stakeholders showed that, (except for the elderly quality mark) the IT opportunities were considered good candidates for pilot project initiation at the Dutch policy institutions.

Put into an international context, the opportunities described in this article match with several other European initiatives. Such is the case for the Service Orientated Programmable Smart Environments for Older Europeans (SOPRANO) project. Likewise the approach presented in this article, the aim of this project is to develop IT-based assisted living services to support the independence and quality of life of the elderly people—by explicitly recognizing the user acceptance of the applications (EU, 2007). Also, the British Health Sector panel of the Technology Foresight had been active since the late 1990s to promote the development of technology specific to the elderly as target groups (Newell, 1996). It will be an interesting subject for further research to compare the IT policy initiatives for the elderly in a cross-national comparison.

Next, there a number of other areas for future research. First, the actual piloting of the IT opportunities that can be monitored. One of the Dutch ministries is planning to pilot the personal Webfolio on a small scale, driven by the rapid increasing need for the electronic patient record. Especially with the personal Webfolio, it is interesting to measure the degree of adoption (by the elderly, and the public bodies) of using the Webfolio. The described conceptual framework may be further refined based on piloting in the field. Refinement may, for example, imply a more detailed segmentation, in line with the current e-business and Customer Relationship Management initiatives in healthcare (Crockett & Reed, 2003; Kertzman, Janssen, & Ruster, 2003). Finally, with the growing number of elderly in The Netherlands and many other European countries, it continues to be useful to look for (other) IT opportunities that can support increasingly elderly-focused governments. For certain, the usability and accessibility of these initiatives will remain a critical success factor (e.g., Browne, 2000; Stephanidis, 1999).

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APPENDIX

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