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Jörg Becker

University Muenster, becker@ercis.uni-muenster.de

Bjoern Niehaves

University of Muenster, bjoern.niehaves@ercis.uni-muenster.de

Kevin Ortbach

University of Muenster, kevin.ortbach@ercis.uni-muenster.de

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DOES THE ANSWER LIE IN COLLABORATION? – A CASE STUDY ON E-GOVERNMENT AND SOCIETAL AGING

Becker, Jörg, University of Münster, European Research Center for Information Systems, Leonardo-Campus 3, 48149 Muenster, Germany, becker@ercis.uni-muenster.de

Niehaves, Björn, University of Münster, European Research Center for Information Systems, Leonardo-Campus 3, 48149 Muenster, Germany, bjoern.niehaves@ercis.uni-muenster.de

Ortbach, Kevin, University of Münster, European Research Center for Information Systems, Leonardo-Campus 3, 48149 Muenster, Germany, kevin.ortbach@ercis.uni-muenster.de

Abstract

E-Government can be considered the key element when it comes to modernizing public administrations as result to rising demands of citizens towards the provided services. At the same time, the demographic change posed numerous challenges to the development of new strategies. The need for inclusive E-Government, as well as human resource issues and the general reorientation of services require substantial investments. However, depopulation leads to a reduction in tax income, resulting in an imbalance of public budget. Cooperation between municipalities can be a promising approach to reduce costs and thus deal with major challenges of demographic transition in both front office and back office. Our exploratory single case study analysis introduces auspicious solutions related to these aspects and discusses in how far they might be applied to other settings.

Summary of Arguments

- *Literature identifies demographic change as a key future research theme for E-Government while it is hitherto considerably under-researched.*
- *Aging and depopulation are two major, often inseparable elements of the demographic change.*
- *The demographic change creates a dilemma for public administrations as it, on the one hand, increases the need for reforms and IT investments in inclusive Age-Aware E-Government solutions, and, on the other hand, decreases the financial means available.*
- *Cooperation both in front as well as back office E-Government – in the case study setting in terms of a shared service center, inter-organizational collaboration, and public-private-partnerships – is a possible mean to cope with demography-induced challenges.*

Keywords: E-Government, E-Inclusion, demography, societal aging, depopulation, elderly.

1 INTRODUCTION

E-Government is gaining in importance due to rising demands of citizens towards their local administrations in terms of service improvement. In addition, cost pressure forces public administrations to look for innovative ways of service provision. As a consequence of the Lisbon-Agenda, all EU (European Union) member states committed to implement an E-Government-oriented strategy as an effort of public administration modernization. On the other hand, demographic change is a topic of greatest practical and theoretical relevance. Not only academic literature (Birg, 2005; Coleman, 2006; Kaufmann, 2005), also every bigger newspaper talks about critical demographics in industrialized countries and population projections tend to receive a more dramatic paint every time they are released. Almost all of Europe is subject to a vast reduction of fertility and an increase of life expectancy, resulting in both depopulation and demographic aging (Birg, 2005). Thus, inclusive and especially age-aware E-Government is gaining in importance in all industrialized countries and is discussed as one of the most current topics in research and practice (Kaplan, 2005; Becker et al. 2008a; Niehaves et al. 2009).

Especially senior citizens are still very much excluded from participation in electronic (European Commission 2006). Against this background, the EU initiative i2010 set up a comprehensive strategy to strengthen citizen-centric inclusive E-Government services, dedicating future E-Government measures to a set of broad policy guidelines. Amongst others it is focused upon an inclusive European information society. This reflects that socio-demographic change and its consequences for E-Government are discussed as one of the key future E-Government research themes (Wimmer, Codagnone and Janssen, 2008). Against this background, we seek to address the following research questions within this paper:

What are major demographic trends in industrialized societies – taking the example of Germany –, what are possible consequences for public administrations, and what could be possible means in E-Government to react to these challenges?

In order to address the research questions, the remainder of the paper is structured as follows: Section 2 builds the theoretical foundation of the paper by analyzing related work, specifically on the demographic transition, E-Inclusion, and the effects of aging in the E-Government literature. Section 3 elaborates the research methodology applied, here: explorative qualitative single case study analysis based on nine expert interviews. Background information on the demographic situation in the case of *Alphaville* (pseudonym is used for reasons of anonymity), Germany, as well as the selected qualitative interview data will be presented in Section 4 and discussed and interpreted in Section 5. Our paper concludes with a discussion of limitations, a summary of results and an argument on potentially fruitful avenues for future research.

2 THEORETICAL FOUNDATION

2.1 Demographic developments

According to Hauser & Duncan (1959), demography can be defined as „the study of the size, territorial distribution, and composition of population, changes therein, and the components of such changes, which may be identified as natality, mortality, territorial movement (migration), and social mobility (change of status)“ (Hauser and Duncan, 1959, p. 2). Here, literature specifically identifies three major factors underlying the development of demography: a) fertility, b) mortality, and c) migrations (Kaufmann, 2005). Accordingly, demographic transition can be understood as the progressive alteration of these determinants. Especially fertility and mortality have undergone significant changes in most industrialized countries. On the one hand, fertility has been declining due to, for instance, changed life models or family planning and the possibilities of birth control and abortion (Hill and Kopp, 2000). Morgan & Hagewen (2005) state that fertility transitions “[...] are complete in many developed countries and are in progress in much of the rest of the world. The transition model has three stages: relatively high and stable fertility, followed by a period of fertility

decline, and then followed by relatively low and stable fertility.” (Morgan and Hagewen, 2005, p. 231) Mortality on the other hand has been declining as well, mainly due to advances in medical care (Höhn, 2000). Many industrialized countries experienced this process of demographic transition in the past and are now only able to prevent a population decline by retaining a positive net migration. Therefore, those countries with a fertility rate below the replacement level and low external migration are most likely subject to depopulation. Additionally, structurally weak regions are frequently losing population due to selective emigration (Kröhnert, Medicus and Klingholz, 2007). Especially young highly mobile people move out of these areas in order to have better chances to get a job. Furthermore, while life expectancy is rising and populating experiences normal aging, less young people are following up which results in an overall aging of the society in these countries, and here in specific regions. The old-age dependency ratio that sets the number of people aged over 60 years in relation to the number of people aged between 20 and 60 years dramatically increased by two to three times its size in some industrialized countries (Birg, 2005). Therefore, depopulation and aging can be identified as the two major consequences of demographic transition in industrialized countries.

2.2 Effects of Aging

Even though the demographic transition has an influence on most of the described gaps, aging is certainly one of the most important aspects to consider when creating or adapting E-Government strategies. According to Davis’ Technology Acceptance Model (TAM), the two main dimensions of technology acceptance are perceived usefulness and perceived ease of use (Davis, Bagozzi and Warshaw). The perceived usefulness on the one hand has the biggest influence on the actual usage. Older people are lacking the awareness of advantages related to ICT usage because they are easily satisfied with their current possibilities and cannot imagine how ICT could improve their lives (Morris and Venkatesh, 2000). They have a critical attitude towards the usage of new technologies because they did not get used to them throughout their working lives. They appreciate the face-to-face contact and fear that new media will contribute to their isolation.

The perceived ease of use, on the other hand, is usually declining with an increasing age. An impairment of vision implies difficulties in recognizing details especially if they are presented on a computer screen (Shirley, 2004). Furthermore, it is harder for the elderly to adapt necessary skills because they have problems to understand complex new processes. Recent studies show that elderly more often experience problems with ICT than younger persons (European Commission 2004a, 2004b). They are still very much excluded from participation in electronic services (for the case of Germany see Table 1, Niehaves & Becker 2008).

	Total Population	Senior Citizens (55-74)	Ratio (SeniorCit/TotalPop)
Internet usage	69 %	37 %	0.53
E-Commerce usage	38 %	15 %	0.39
E-Government usage	28 %	12 %	0.43

Source: EuroStat (2006).

Table 1. Online Service Usage (Germany)

However, the degree of technology aversion differs between individuals within the group of senior citizens. Browne states in this context that “once elders become avid users, their online skills and activities do not differ much from other age groups” (Browne 2000). Bavec’s (2008) correlation analysis between E-Government use by individuals and selected socio-economic indicators revealed "regular use of internet services", "interest in science and technology", and "trust (social capital)" as major factors for E-Government usage. All these indicators, however, have relatively low values among the elderly. While the Internet usage is comparatively low within the group of senior citizens, major reasons for not using E-Government services where missing personal contact, the complexity of E-Government services, and concerns about additional costs (for the case of Germany see Table 2). All these reasons for non-usage have been mentioned more often by senior citizens than they have been mentioned by the entire population (Niehaves et al. 2008).

	Total Population	Senior Citizens (55-74)	Ratio (TotalPop/SeniorCit)
Personal contact missed	48 %	52 %	1.08
Too complex	24 %	30 %	1.24
Concerned about additional costs	13 %	17 %	1.27
Other reasons	16 %	14 %	0.89

Source: EuroStat (2006).

Table 1: *Reasons for not Using E-Government Services (Germany)*

2.3 E-Inclusion

These trends pose several challenges to the development of E-Government strategies. The societal aging is one factor that leads to what is called the digital divide, in this context understood as an emerging polarization phenomenon in society, creating a gap between those who do have access to and use the potentialities of information and communication technologies, and those who do not (European Commission, 2004a). Apart from the described demographic gap referring to the fact that senior people often do not use ICT on a regular basis (E-Aging) (Becker et al. 2008b), several other gaps can be identified. Disabilities can debar people from actively using information technology. For the usage of online services the most important disabilities to consider are visual handicaps, cognitive defects and limitations of motor skills. Geographical differences refer to gaps in ICT usage between different regions. Socio-economic gaps include differences in occupation, income and education whereas ethnical and cultural gaps identify barriers in the ICT usage of migrants and ethnical minorities.

Here, E-Inclusion focuses on the elimination of these barriers for the use of ICT. The declaration of Riga gives the following definition of E-Inclusion: “‘eInclusion’ means both inclusive ICT and the use of ICT to achieve wider inclusion objectives. It focuses on participation of all individuals and communities in all aspects of the information society. eInclusion policy, therefore, aims at reducing gaps in ICT usage and promoting the use of ICT to overcome exclusion, and improve economic performance, employment opportunities, quality of life, social participation and cohesion.” (Ministers of the EU, 2006, p. 1) The main focus of E-Inclusion is on creating accessible services over ICT. This effort can be divided into accessibility and usability aspects (Kraner, 2004). It is stated that the design and delivery of key services and public service policies shall be user-centric and inclusive, “using channels, incentives and intermediaries that maximise benefits and convenience for all so that no one is left behind.” (European Commission 2006b) Finally it also proposes to ensure “that electronic documents are available in such a way that they can be used by people with disabilities in an appropriate and, where possible, EU-wide recognised” (European Commission 2006a) format. With these statements, declared by 34 member countries, eInclusion in eGovernment or inclusive eGovernment becomes a key issue in many EU countries.

The discussion of related work shows that current research on E-Government strategies mainly focuses upon front end issues to deal with the process of demographic aging. As of today, back office improvements in the area of E-Government in order to cope with the demographic challenge are thus far under-investigated. Furthermore, challenges and possible solutions regarding depopulation are under-researched as well.

3 RESEARCH METHODOLOGY

In order to investigate into our research question, we chose an exploratory case study as method of analysis. The following classification and methodological discussion refers to Yin (2003) and Benbasat et al. (Benbasat et al., 1987). Our research goal was to collect qualitative data as a basis for building a preliminary theory of demography-aware E-Government (initiatives). A holistic single case design in a local public administration was chosen in order to allow for a rich understanding of the

potentially various (stakeholder) perspectives. Thus, 9 semi-structured expert interviews were conducted, pre-informed and structured with the help of a prior literature analysis. The resulting interview guideline included questions on demography, E-Government, the local government website, E-Inclusion and human resource management. Each interview partner was addressed with a selection of those questions corresponding to his or her specific working area. Besides such specific questions, the interviews also included an open discussion on all of the above given topics and were as well open to other related aspects that the interviewee brought up.

The experts interviewed held the organizational roles of, for instance, head of IT department, E-Government responsible, webmaster, head of human resources, coordinator of demographic program and the governing major. All interviews were performed in German and later translated into English. The case setting Alphaville was chosen mainly for the reason that our pre-analysis of potential case candidates indicated that the city was heavily affected by depopulation and aging, the identified two major demographic trends in industrialized countries, including Germany. In order to frame the qualitative case study findings and to discuss the question of generalizability, we commence the case analysis with a brief case description, including available studies and quantitative data on the specific case demographics and their embeddedness in the overall societal demographic developments. Moreover, we conclude our case discussion addressing Lee's (1989) key questions of in how far a) the setting variables and b) the setting conclusions might potentially be i) repeatable and ii) generalizable (Lee, 1989).

4 CASE STUDY RESULTS

4.1 Demographic Trends in Germany

Regarding the demographic development in Germany and specifically in terms of the case under investigation – the city of Alphaville –, two major demographic trends can be identified: depopulation and aging.

A) Germany – as most industrialized countries – is subject to significant depopulation. In 2006, the average number of births per women reached a historical low with 1.33 children (German Statistical Office, 2008). Already in the late 1960s, this index fell below the limit of 2.1 needed to remain a constant population level. For quite a while, immigration was able to compensate the resulting population loss. Nevertheless, this trend stopped in 2003 and Germany's population is shrinking ever since (Kröhnert et al., 2007). According to the 11th coordinated population projection, the total number of inhabitants could reach a level of 68.8 million in 2050 (Eisenmenger, Pötzsch and Sommer, 2006). This will be down from around 82 million today. The trend of depopulation worsens especially in those areas that suffer from economic and structural problems. For example, regions in Eastern Germany and the Ruhr area – the case city of Alphaville is part of the latter – are facing depopulation related to regionally declining work opportunities. While young and often more mobile inhabitants are following the job market and emigrating, immobile senior inhabitants often stay in the specific regions. Such development contributes to a process of societal aging with a specific regional component.

B) Aging can be regarded as the second major trend of demographic change in Germany. Over the last centuries, life expectancy at birth has been significantly rising in Germany. From 1900 to 2006 it increased by more than 30 years for both boys and girls (German Statistical Office, 2008). Nevertheless, life expectancy of the 60-year-olds also went up within this timeframe. Along with the described lack of fertility this led to a process of aging within society because “[...] improvements in survival mostly benefit the older population, making the population itself older.” (Coleman, 2006, p. 63) While fewer children are born, the elderly age-groups with high birth-rates are getting older and older. This trend will continue in the future. Recent projections show that the number of people older than 65 years will increase from 15.7 million in 2005 to 22.9 Mio in 2050 (German Statistical Office, 2008). Already today, Germany is the country with the third highest percentage of this elderly age group in an international comparison. By 2050, the share of the elderly will take up more than 30

percent of the German population. Already in 2010, the number of older people will exceed the number of younger ones.

4.2 Demographic Trends in Alphaville

A) Deindustrialization led to significant depopulation in Alphaville. Currently, Alphaville has around 64,200 inhabitants (09/2008) on an area of 37 square kilometers. In contrast to this, in 1975, a total of 70,645 people were living in Alphaville. The comparison of these figures states a loss of nearly 7.6 percent within the three decades (Strohmeier, Bader, Melzer, Schulz and Wunderlich, 2006). With the closing of coal-mines, Alphaville – the city with the former biggest coal-mining industry in the Ruhr area – experienced massive deindustrialization. While the number of available jobs decreased, the overall population started to decline (Kröhnert et al., 2007). According to recent projections, cities in the district of Alphaville will encounter a population loss of 8 to 15 percent between 2004 and 2020. Alphaville will be one of the most affected cities with a forecasted depopulation of 14.5 percent.

B) Selective migration and depopulation led to an aging of the population in Alphaville. While the loss of workforce needed led to general migration, many senior citizens were often not willing to move away from the area in which they have lived the greatest share of their lives. On the other hand, they were often not looking for new jobs and thus stayed in the region. This led to a trend of aging within the society of Alphaville. With the population percentage of children and juveniles aged under 18 years hitting a high of 26 percent in 1975, the same age group today only makes around 18 percent of the inhabitants. Moreover, the population share of citizens of age 65 years and older went up from 12 percent to around 22 percent within the very same timeframe (Strohmeier et al., 2006). This demographic trend has led to the situation that in Alphaville elderly today make a greater share of the population than children and juveniles. Most recent projections show that the age structure will continue to change dramatically. By 2020, the 30 to 49-year-olds will lose their majority of number to the 50 to 64-year-olds. Moreover, the share of people older than 80 years will in 2020 have almost doubled its size compared to 2003 (Bertelsmann Stiftung, 2008). Thus, Alphaville will continuously be subject to significant depopulation and aging in the future.

As a result, the city can be regarded as a case of rather dramatic economic change and demographic transition. While it is aligned with the national trends of decrease of fertility and increase of life expectation, Alphaville has suffered, more than many other cities, from an economic downturn and the selective migration (emigration) of younger inhabitants. In that regard, Alphaville can be seen as a rather typical case for those cities in Europe that have been affected by deindustrialization and resulting depopulation and aging.

4.3 Qualitative Case Data

The qualitative interview data shows that the two major demographic trends – depopulation and aging – confronted Alphaville with numerous challenges. The city therefore sees dealing with the demographic change as a cross-divisional task that affects the overall strategic orientation and decisions. An Alphaville public administration department head stated:

‘We see coping with the demographic change as a cross-functional and strategic task that affects all actions of the public administration.’

In Alphaville, a decrease in population led to a decrease in tax revenue. The city is not able to reduce costs to the same degree. Infrastructure, including public administration, is laid out for a specific number of citizens and contains a great share of fixed costs which cannot be cut back in the short- or mid-term. An Alphaville public administration department head stated:

‘It is impossible to close 10 percent of the schools if the number of students decreases by 10 percent. Neither are we able to close down a couple of traffic lights if the population declines.’

This is similar for most of the other infrastructure related expenses. Therefore, the tense financial situation of Alphaville has intensified in the move of demographic transition, here depopulation (see Roberts 2003 for a general analysis of aging-related financial stress). Discussing possibilities to cope with this financial strain, solely reducing the public administration personnel (costs) is not a possibility: it would mean less manpower for a rising number of tasks. An Alphaville public administration department head stated:

'We won't be able to cut back personnel in the same extend that we are losing population. [...] Considering that today we do have to take a credit of 50000 € per day in order to cover our over-the-budget expenses – and this is about the annual salary for an employee – we would have to fire one person a day in order to be 'efficient'.'

Furthermore, population aging in Alphaville evokes the need for rethinking the existing E-Government services offered. Against the background of a larger share of senior citizens in the population, E-Inclusion becomes an important topic. The Alphaville.de webmaster stated:

'Focusing on the elderly is important because it is evident that more and more seniors use the internet. For them it is a good possibility to participate in daily life even if they are not mobile anymore.'

This shift in focus leads to a rising number of tasks for the city. Providing services for the elderly requires additional thinking on usability and accessibility and therefore leads to a higher work load within the public administration. An Alphaville public administration department head stated:

'In our city, this situation will intensify. Focusing on elderly people will become a crucial task in public administration's work. [...] There are many additional things that have to be considered: Barrier-freeness, easy access, adaptation of consultation hours, re-formatting printed materials and so on.'

However, the city of Alphaville is turning their back on a purely E-Inclusion focused strategy for elderly service provision. Instead of getting the elderly to use E-Government services directly, establishing a mobile citizen service that can provide the needed services and assist the elderly is considered a promising approach. An Alphaville public administration department head stated:

'We don't know yet in how far the people that are currently 50 or 60 years old will adopt new media in order to retain their mobility when they turn 70, 80 or 90. Currently, we are planning to implement a mobile citizen service that brings the services to the elderly rather than taking IT to the care centers.'

In addition, the demographic change also has an internal effect. The aging population implies an aging workforce within the public administration. In Alphaville, there has been evidence that this development leads to a reduction in performance and especially in innovation potential. An Alphaville public administration department head stated:

'We have seen problematic examples where employees aged somewhere around the mid fifties or late fifties would slowly surrender from what I would call 'production process' and were just looking to 'sneak out'.'

This leads to a decreasing degree of knowledge transfer between the elderly and younger employees. Knowledge management systems are considered a possible solution to this problem. These, as well as needed changes for E-Inclusion measures, necessitate substantial IT infrastructure investments. However, the city of Alphaville lacks the financial power to push such reforms. Therefore, the demographic change poses a dilemma to the city. An Alphaville public administration department head stated:

'We would have to do a lot more in order to cope with the challenges of the demographic change. This, however, is not possible with intensifying financial problems. [...] Depopulation has a very high negative influence on municipalities like us that are already facing severe financial problems.'

On the one hand, the aging population calls for an adaption of online services offered and IT investments. On the other hand, depopulation intensifies the critical financial situation making needed investments impossible. As an attempt to cope with this situation, Alphaville uses innovative forms of cooperation to share costs, as the Alphaville CIO stated:

'These [the cooperations] start with IT services that we operate together with other municipalities. Our payroll accounting is carried out in cooperation with the neighboring city [Betaville]. We receive IT services from a regional service center that is shared with other municipalities. Those are cross-city efforts that we do focus on in order to be efficient.'

Especially concerning IT cooperation, the city still sees numerous possibilities for improvement. Since calculating capacity can be shared across long distances, Alphaville looks over local boundaries in order to find cooperating partners. An Alphaville public administration department head stated:

'IT opens up a lot of possibilities for cooperation. Instead of cooperating with our neighboring city [Betaville] we could also share IT capacity with, for example, Munich. This is no problem today.'

In addition to such models of cooperation with other cities, Alphaville also focuses on public private partnerships (PPP) as a mean of serving both cost reduction/efficiency and effectiveness (inclusive online services). The new website that was mainly developed in order to create accessible E-Government services has been implemented in cooperation with two partly city-owned service providers. Thus, Alphaville uses cooperative elements in both front office (PPP) and back office (shared service centres). In the future, the city plans to extend these models, especially in E-Government, in order to offer more efficient services to the citizens.

5 DISCUSSION

In the case under investigation, depopulation and aging have been identified as major demographic trends. They were caused by both societal demographic transition, as to be found in most industrialized countries, and regional developments, including economic downturn. While depopulation resulted in an immense pressure to reduce costs, the provision of age-aware inclusive E-Government services necessitates additional IT investments. Cooperation both in the back office and front office in terms of a Shared IT Service Center or a Public Private Partnership in E-Government were considered as feasible means to cope with such (demography-related) investment dilemma (for a depiction of case study results see Figure 1). In order to discuss the question of generalizability of the results, we conduct a brief case study discussion following Lee's (1989) set of analysis questions (Lee, 1989):

1.) What is the initial case setting and in how far is it bound to specific situational and historical circumstances?

A core issue in the case study was the need for reducing costs within the public administration. Deindustrialization in Alphaville led to a decrease of jobs in the area and therefore to an emigration especially of young people. This resulted in a process of aging within the society. We identified that depopulation and aging were two demographic aspects which came hand-in-hand. Depopulation reduced the direct tax income of the city and worsened its financial situation. The inability to cut back infrastructure in the necessary extent puts the public administration in front of only two possible ways of reaction. Either the oversized infrastructure is maintained resulting in higher per-capita expenses, or the relevant institutions are closed down and rebuilt in an adapted size which also creates high costs (Kröhnert et al., 2007). Both ways, decreasing revenues are offset by relatively steady costs. In addition, the aging workforce within the public administration requires a reorientation of human resources as well as an improvement of knowledge transfer to younger employees and thus investments in e.g. knowledge management and human resource systems. Bill (2007) stated in that context that strategic human resource management will be one of the most important adjustment screws to turn in order to create a future-proof and efficient public administration. All this leads to an imbalance of public budget. Population based algorithms for allocating federal taxes to municipalities

intensify this trend. Aging contributes to the financial aggravation because tax revenues from the senior citizens tend to be comparatively low (Bach, Borg, Krimmer, Raffelhüschen and Schulz, 2002). Furthermore, a rising number of elderly evokes the need for an adaptation of the existing E-Government services and necessitates the availability of financial means. Cities like Alphaville, that are subject to a distinct process of demographic change, therefore face a dilemma between the need for creating a new E-Government infrastructure due to aging on the one hand and less financial power due to depopulation on the other hand.

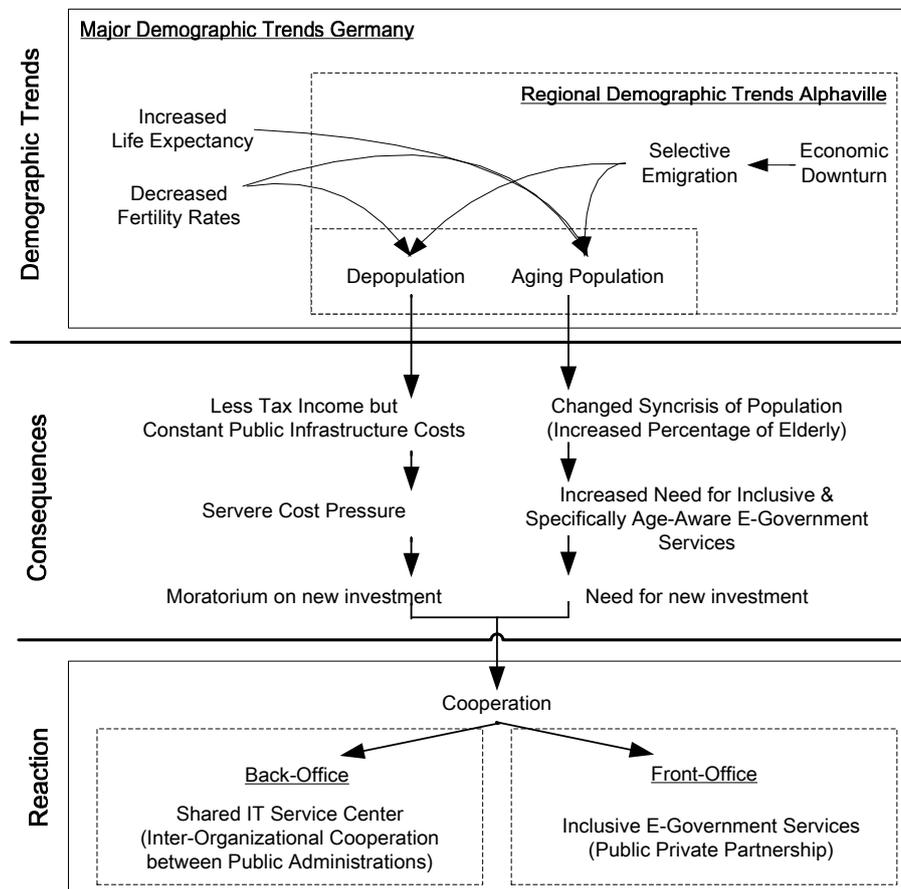


Figure 1: Demographic trends and their consequences for E-Government

2.) Which conclusions are drawn from the case study data and in how far are these conclusions bound to specific situational and historical circumstances?

Based on the case study observations, conclusions include that dealing with the challenges has to be considered a cross-divisional task that affects the strategic orientation of a public administration. Furthermore, focusing on cooperation with both other municipalities could be regarded as a possible way to cope with the demography-related E-Government dilemma. Cooperation is a considerable option to reduce costs for public services. High fix costs for specific E-Government services and infrastructure can be divided and distributed among the cooperating partners. Parishes of those regions have to look over their individual municipal boundaries and work in cooperation on both front and backend matters. These models do not have to be entirely reinvented but are already present in some public administrations and can be extended to the sector of E-Government (Stopper, 2008). Role models for this can be Shared Services Centers (SSC) as used in private enterprise cooperation. These centers are used to combine and centralize administrative tasks of different parishes while at the same time retaining decentralized core units in the participating municipalities. The concept therefore combines the advantages of centralization and decentralization (Hensen, 2005). Furthermore, the case study data revealed an orientation towards alternative channels. When thinking about how to cope with aging-related challenges, literature oftentimes assumes the principle value of information

technology to the elderly (e.g. Namazi & McClintic 2003). The i2010 EU action plan on inclusive E-Government calls for “no citizen to be left behind” (European Commission 2006c). Thus, asking the questions if IT really helps the elderly and if the provision of services for elderly could easier and cheaper be achieved using a different channel is important. A promising approach of establishing E-Government services for the elderly is the provision of Mobile Citizen Services. In this model, administrative services are provided through citizen consultants on public places such as e.g. hospitals or senior residences. Thus, it “[...] combines aspects of e-government services as well as the idea of a central administrative contact point (‘one-stop office’)” (Buß et al. 2003). A possibility of E-Government cooperation combining front office and back office aspects is IT cooperation. The key goal of this concept is bundling of competences rather than technological redundancy (Arendt and Biel, 2004). This can include projects for creating E-Government portals for a whole area or sharing IT infrastructure like storage and application servers.

3.) In how far do other settings show similar features and, thus, in how far is the case study setting generalisable?

The majority of those cities suffering from deindustrialization faces similar demographic trends and, therefore, is confronted with equivalent E-Government challenges. Nevertheless, also rural and structurally weak areas are subject to comparable tendencies. For instance, many rural municipalities in Eastern Germany face excessive depopulation and correlated aging. When looking at the development in other industrialized countries, it is to say that the identified trends are not only specific to Germany but can also be found in most other European countries (24 out of the 25 oldest countries of the world, measured by the population share of above-64yr-olds, are to be found in Europe) and Japan (the oldest country in the above mentioned ranking (Population Reference Bureau, 2006)). Projections show that such demographic transition will continue in the future and affect an increasing number of countries. Depopulation and aging will therefore be challenges to many public administrations, not only in Europe.

4.) Are the conclusions drawn from the case study setting transferable to other settings?

The main conclusions address the establishment of different forms of cooperation and pursuing a strategy of participation within E-Government services. Especially the cooperative aspect was a central element in the case study setting in order to cope with the demographic challenge. Reference models for cooperative approaches as identified in literature (Schroth, 2008) might help to overcome existing boundaries that prevent seamless interoperability. Cooperation might become increasingly important for public administrations because depopulation and aging will widen (see discussion point 3). In addition, such cooperative attempts, e.g. in terms of Shared Service Center or Public Private Partnership, might not only be feasible means to address demography-related challenges, but might help to address general ambitions to decrease costs and increase effectiveness. Cooperation, as observed in the case study, might thus have demographic transition as one, but not the only reason.

6 CONCLUSIONS & FUTURE RESEARCH

Due to the demographic transition two major trends can be identified in Germany as well as in most other industrialized countries, especially in Europe: a) Depopulation affects rural and structurally weak areas as well as cities that are subject to deindustrialization. b) Aging often comes hand in hand with depopulation as a consequence of selective emigration of younger inhabitants in search for jobs. While depopulation led to a decrease in financial means for the affected public administrations, the aging society demands for a change in the public service infrastructure. The needed reforms in both front office and back office often cannot be taken due to the financial situation. One possible way out of this dilemma is focusing on cooperating with other municipalities in order to share costs. Especially Shared Service Centers are a promising approach. Limitations of the presented study include that a single case was taken into account and that it did not focus on age-aware E-Government services (front-office), but followed a rather broad perspective allowing back-office organization to form a major part of the analysis (instead of E-Inclusion and Technology Acceptance where there lies the greater literature body of knowledge).

Hence, future research could contribute a more front-office oriented perspective and connect such to the above given findings. Moreover, comparative research is necessary, taking into account multiple cases – not only from Germany, but also from other demography-transition affected countries such as Japan, Italy, or Sweden. Here, analyses could explore other means applied in order to cope with the demographic challenge. Furthermore, future research could address an evaluation of alternative channels for public service provision. For instance, it could incorporate the development of a cost-benefit perspective on channels, both online and offline. In addition, concerning the aging workforce, the development and implementation of suitable and cost-efficient knowledge management systems to ensure conservation of knowledge could be an important topic. These aspects indicate that the study area of demography and E-Government offers greatest potential for future research. Demographic transition constitutes one of the most severe challenges to our societies and economies and it is against this background, especially from an E-Government perspective, certainly under-researched. This reflects the fact the given case study directly and indirectly addresses two major future E-Government research themes: a) governance of public-private-civic sector relationships, and foremost b) E-Government in the context of socio-demographic change.

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