Social Inclusion through E-Government?
Developing an Inclusionary Framework of E-Government Adoption

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Abstract
E-government applications specifically developed for people with disabilities are promoted as a great contribution towards social inclusion. However, research has pointed out that simply providing technology is not enough to guarantee the use of e-government applications. In the past, many systems developed for users with disabilities were neglected due to factors that are specific for this user group such as accessibility barriers or perceived stigmatization. Understanding the factors determining e-government use among people with disabilities can help to increase the inclusiveness of service delivery as proclaimed by government agencies. Goal of this research is to develop an inclusionary framework for e-government adoption with the intention to find determinants of use and non-use. Therefore, we combined functional value, usability, accessibility and stereotype perceptions as direct antecedents to use intentions and two disability-related constructs as external variables in an inclusionary adoption model, which aims to explain e-government adoption among people with disabilities.

Keywords: E-government, adoption, digital inequality, disability, social inclusion
Introduction

Governments promote digital applications specifically developed for people with disabilities as a great contribution towards social inclusion (Commissioner of the Federal Government for Information Technology 2014). However, research has pointed out that improvements in the quality of life of people with disabilities will not flow automatically from technology (Cromby and Standen 1999). In the past, many systems and applications that were developed for users with special needs were discarded due to factors that are specific for these user groups such as accessibility barriers or perceived stigmatization (Cromby and Standen 1999; Heerink et al. 2010; Vicente and López 2010). Rather than creating more equality, recent and ongoing discussions about social inclusion have witnessed a marginalization of certain individuals and groups as a social consequence of the Internet (van Deursen and van Dijk 2014; van Dijk 2005). Therefore, a move towards an inclusionary electronic government (e-government) requires more than simply an online presence (Baum and Mahizhnan 2014). The extent to which social inclusion is reached as a benefit from e-government service provisioning is highly dependent on citizens' willingness to adopt these offerings (Nam 2014). Understanding the factors determining e-government use among people with disabilities can help to increase the inclusiveness of service delivery as proclaimed by government agencies (Baum and Mahizhnan 2014; Becker et al. 2008; Nam 2014). Goal of this research is to develop an inclusionary framework for e-government adoption with the intention to find determinants of use and non-use.

Though technology adoption is regarded as one of the most mature research streams in the field of information systems (IS) (Venkatesh et al. 2003), most adoption models fail to address factors that specifically influence acceptance and usage of IS of users with disabilities. Saqr and Bhattacherjee (2012) noted that people with disabilities have been largely ignored in prior research in IS adoption. With e-government adoption research still in its infancy (Venkatesh et al. 2014), no existing adoption model encompasses the unique context of this population. Among those authors, who addressed this special community, the majority identified socioeconomic and technical access barriers as the main factors preventing use. Commonly encountered barriers are the lack of personal assistance (Edler and Rath 2014), no physical Internet access (Helbig et al. 2009), the requirement for assistive technologies (Vicente and López 2010), the need for special configurations of hardware and software (Dobransky and Hargittai 2006), and the failure of websites to meet accessibility standards (Adam and Kreps 2006; Goodwin et al. 2011). Therefore, adoption researchers have considered perceived barriers as an important characteristic of an innovation to influence its use (Jeyaraj et al. 2006). Porter and Donthu (2006) use the construct perceived access barriers to explain demographic-based differences in Internet use.

Recent research on assistive technology suggests that not only technical and socioeconomic barriers can hinder adoption, but also cultural stigma and negative symbolic value associated with certain products (Bichard et al. 2007; Jensen 2014). Fears of stigmatization may lead to abandonment of assistive technology, which underlines social acceptability as a crucial factor in determining its use (Hersh 2013). Despite a certain degree of tolerance in western cultures, stigmas and stereotypes about disabilities are embedded in our culture and cause individuals to suffer from ascribed attributes that are deeply discrediting (Goffman 1963; Major et al. 1998). Limited research has been conducted to understand how perception and usage of specialized e-government services can differ among stigmatized and non-stigmatized groups (Hsieh et al. 2008). Stereotype perceptions, however, have never been viewed as an antecedent to e-government usage. From an e-government adoption perspective, this is highly relevant as researchers have argued that technologies specifically aimed at people with disabilities can be viewed as instruments of social control and oppression (Bichard et al. 2007).

Thus, the need for adoption research, which incorporates socio-psychological factors, such as stereotype perceptions as antecedents to use intentions, becomes apparent. It is proposed that individuals differ in the extent to which they expect stereotypes, discrimination and prejudices against them, also known as their level of stigma consciousness (Pinel 1999). The higher people score on a measure of stigma consciousness, the more likely they are to perceive themselves as targets of discrimination at both personal and group level (Pinel 1999), the more they expect to be treated negatively by members of the dominant group (Pinel 2002) and the sooner they withdraw from stereotypic situations (Major and O’Brien 2005; Shantz and Booth 2014). Therefore, it is suggested that people with disabilities, who have a higher level of stigma consciousness, are more likely to disengage and ultimately avoid a situation where they are able to use an e-government service that specifically targets their stigmatizing characteristics.
Research involving the adoption of technology generally focuses on functionality (perceived usefulness) and usability (perceived ease of use) of a system (Jeyaraj et al. 2006). If e-government services are built to be functional and usable, but people are neglecting them, how effective are they in improving the inclusion of people with disabilities? As a conclusion, we considered not merely functional value and usability to explain adoption, but added accessibility and stereotype perceptions as antecedents to use intentions in an inclusionary e-government adoption framework. Also, we added two disability-related variables as external variables to understand which characteristics of a disability have an impact on the proposed variables. To our knowledge, it is the first time that these components are jointly discussed in e-government research. In doing so, two major contributions to the research community are provided. First, the study aims to develop an understanding of the factors contributing to e-government adoption among the impaired population to promote greater inclusion of these citizens (Sipior et al. 2011). Second, it creates a unique extension of the TAM, which could be applied to other e-government applications targeted at social groups affected by digital inequality and social exclusion. Rojas and Palma (2014) illuminate how e-government services could be leveraged to support inclusion of expatriates both in the country they reside in and in their home country, while Wilson (2014) explores possibilities of e-government implementations to provide assistance to low-income citizens in the United States.

**Theoretical Background**

**E-Government and E-Government Adoption**

The emergence of information and communication technology (ICT) in the field of public administration has been viewed as a catalyst for enabling public institutions to create more efficient services and a positive impact on daily life (Alcaide-Muñoz and Rodríguez Bolívar 2015; Carter and Bélanger 2005). However, many citizens are reluctant to engage in e-government initiatives and research is needed to identify what works well and what does not (Snead and Wright 2014). Therefore, it is important to understand e-government as a fundamentally socio-technical topic, emerging from the interactions between people and technology (Belanger and Carter 2012; Helbig et al. 2009). A rich body of research is dealing with the facilitating drivers of e-government adoption on the individual level (Hofmann et al. 2012; Snead and Wright 2014). Many researchers derived e-government adoption models from ‘quasi standard’ models of IT acceptance research (Hofmann et al. 2012). A review of citizen level e-government adoption studies shows that the theoretical basis of such studies is generally the TAM or the Theory of Planned Behavior (TPB) (Ojha et al. 2009). In a comparison of leading IS journal articles, Belanger and Carter (2012) found that theories in technology adoption and technology diffusion are the most popular employed frameworks in e-government research. Especially the TAM has been modified numerous times to include additional constructs applicable to the e-government domain (Al-Hujran et al. 2015; Nam 2014; Rana et al. 2014).

It is only recently that researchers have vehemently called for a thorough investigation of the alignment between e-government initiatives and the needs and capabilities of disabled and older people (Alcaide-Muñoz and Rodriguez Bolivar 2015). This raises an important issue as governments’ political mandate requires that all sections of the public are served (Phang et al. 2006). E-government services, however, can only improve service delivery if they are used by the public (Al-Hujran et al. 2015). Especially the motives and perceptions of new technologies among citizens with special needs are largely unexplored, thus representing a research topic with great potential (Alcaide-Muñoz and Rodriguez Bolivar 2015).

**The Case of E-Government Adoption by People with Special Needs**

In Europe, the Digital Agenda forms an important pillar of the Europe 2020 Strategy, where one of the main objectives is to “enhance digital literacy, skills and inclusion”, in order to enable persons with disabilities to “fully participate in the information society” (European Commission 2015). Despite the noticeable efforts, research shows that such initiatives are not without challenges (Gil-Garcia et al. 2006; Hsieh et al. 2008; van Deursen and van Dijk 2014; van Dijk 2005). Digital inequality, defined as the inequality in the access and use of ICTs, is still a prevalent problem among people with special needs (Dobransky and Hargittai 2006; van Deursen and van Dijk 2014). Instead of equalization, the Internet is expected to increasingly reinforce known social, economic and cultural inequalities of the offline world (van Deursen and van Dijk 2014). To address digital inequality and understand the factors that influence...
the acceptance and usage of e-government services among the target groups, potential sources of inequality have been classified along five dimensions (Becker et al. 2009): (1) demographic, (2) socioeconomic, (3) ethnic, (4) geographic, and (5) physical/mental (disability-related) disadvantages.

Prior research on e-government adoption focusing on users with special needs strongly reflects the aforementioned dimensions of digital inequality. Phang et al. (2006) focus on demographic differences by assessing antecedents of PU and PEOU that lead senior citizens to use a service directly targeted towards their needs. Among the constructs that found support are computer anxiety and social support as factors influencing PU as well as resource savings and self-actualization as antecedents to PEOU. Sipior et al. (2011) use an extended version of the TAM to illustrate e-government adoption among technodisadvantaged public housing communities and neighboring households. They explore demographic characteristics and socioeconomic barriers preventing members to partake in e-government services. Low income, educational level and employment level characterize those households who perceive barriers to accessing e-government services. In a broader study, Hsieh et al. (2008) found different postimplementation behaviors between socio-economically advantaged and disadvantaged groups, though government initiatives provided Internet access at no additional costs. Carter and Weerakkody (2008) argue that ethnicity is one of the major components of digital inequality in the U.S. Their study identified Internet accessibility and skill as significant determinants of e-government adoption in the U.S., however, these constructs did not find support in the U.K. Low usage rates and a more negative perception of the Internet among African-American and Hispanic minorities in the U.S. have previously been reported by Porter and Donthu (2006). In a Singaporean e-government case study, ethnic inequality materializes in form of a language divide as the government provides only services in English formats and mono-lingual non-English speakers account for a significant number of non-adopters (Baum and Mahizhnan 2014). Choudrie et al. (2005) elaborate on geographic disadvantages by comparing digital inequality between urban and rural citizens. They noted that geographic location related issues were posing problems to the citizens in the rural area. Unavailability of broadband networks, IT skill shortages and security concerns of the population are the key obstacles to making e-government successful in rural areas (Choudrie et al. 2005). In a study of e-government portal use in rural India, Venkatesh et al. (2014) found support for demographic and personality factors as predictors of use.

Research targeting e-government adoption of people with disabilities is somewhat limited as much of the existing literature is from a supply-side perspective (Al-Hujran et al. 2015; Helbig et al. 2009; Reddick 2005). Jaeger (2004, 2006, 2008) evaluate the accessibility of e-government websites by analyzing federal laws that create legal requirements for e-government websites. Many e-government websites fail to address accessibility features for special populations such as the disabled. Recent papers in this area have suggested that little has changed during the past years. In a global web accessibility overview, Goodwin et al. (2011) found web accessibility barriers for all evaluated UN Member States, causing significant problems for people with disabilities. Kamoun and Almourad (2014) state that none of the tested e-government websites in the United Arab Emirates meets the minimum web accessibility conformance, though the country has signed the UN convention on the rights of the disabled. More attention, however, to the demand-side is needed, which examines citizens’ adoption of services provided by the government (Al-Hujran et al. 2015). Literature reviewing digital inequality among people with disabilities (“disability divide”) is a suitable starting point to understand the facilitating conditions and barriers of e-government adoption from the demand-side perspective. Dobransky and Hargittai (2006) note that many people with disabilities lag behind those without impairments in terms of access and use of computers and the Internet. The authors find that socioeconomic factors play a role in lower levels of access; however, they argue that technical accessibility is the main cause for lagging behind those without disabilities. As a main reason they see the inferiority of adaptive technology, which is not only difficult to learn and expensive, but also much slower in the development than the technologies to which it is supposed to enable access. Vicente and López (2010) provide very similar findings. They suggest that intimidation of technology and computer anxiety are reasons for non-adoption of technology. Disabled users are less likely to feel confident in their online abilities than the rest of Internet users. These discrepancies in digital skills may be explained by the technical barriers perceived by the target group (Vicente and López 2010).
Functional Value and Usability

The TAM is a valid and robust model in determining an individual’s intention to use a technology (King and He 2006) and is regarded as a “pre- eminent theory of technology acceptance” (Al- adawi et al. 2005). The framework has been applied across various domains in IS research, such as the context of citizen- centered studies on e-government acceptance, e.g. by Räckers et al. (2013), who examine the acceptance of the new German identity card or by Warkentin et al. (2002), who evaluate the factors influencing adoption of an electronic tax filing and payment system. TAM’s two core beliefs, PU and PEOU, were thereby found to significantly influence e-government use in a number of empirical studies among people with special needs (Phang et al. 2006; Sipior et al. 2011). In its original form, PU is defined as “the degree to which a person believes that using a particular system would enhance his or her job performance” (Davis et al. 1989), meaning that it is used to measure the functional value of a system with regard to job performance. In the context of e-government, a non- workplace environment, the concept also represents a user’s perception of functional value, however, in terms of facilitating the interaction process with the government (Warkentin et al. 2002). For people with disabilities functional value could mean sparing a burdensome trip to the next government agency or less paperwork to apply for government funding. PU as a representative of functional value was found to have empirical support in several studies (Carter 2008; Phang et al. 2006; Räckers et al. 2013; Rana et al. 2014; Sambasivan et al. 2010). PEOU is defined as “the degree to which a person feels that using a particular system would be free of effort” (Davis et al. 1989) and is the construct that turned out to be significant most frequently in e-government adoption research (Carter and Bélanger 2005; Phang et al. 2006; Räckers et al. 2013; Rana et al. 2014; Sambasivan et al. 2010; Sipior et al. 2011). Applied to the e-government context, higher PEOU represents a higher degree of usability, which allows citizens to complete intended tasks with “effectiveness, efficiency and satisfaction” (W3C 2004). As Vicente and López (2010) pointed out that many people with disabilities have less confidence in their online abilities, usability is a key enabler to interact and use the implemented e-government system.

Accessibility

Barriers to technology accessibility are a pervasive phenomenon for all people with special needs and significantly reduce the likelihood of using offered e-government services (Carter and Weerakkody 2008; Choudrie et al. 2005; Lazar and Jaeger 2011; Sipior et al. 2011). Though barriers vary to some degree between groups with different disadvantages, people with disabilities are acknowledged to “face particular difficulties in benefiting fully from new electronic content and services” (European Commission 2015). Consistently research has noted that people with disabilities are excluded from using ICTs (Goggin and Newell 2000; Jaeger 2006; Lazar and Jaeger 2011). As a result, the rate of Internet access among people with disabilities is only half as high as for the rest of the population (Agree 2014; Dobransky and Hargittai 2006; Lazar and Jaeger 2011; Vicente and López 2010). Jaeger (2004) argues that accessibility for persons with disabilities has been frequently neglected in the development of ICTs, including e- government websites. A lack of understanding disabilities causes inherent problems when shaping new and existing technologies (Goggin and Newell 2000). Thus, many times individuals resist using services, which they, depending on type and severity of disability, can only access with appropriate assistive technologies (Jaeger 2006). These technologies are often viewed as the main barrier to technology access due to technical inferiority, low levels of usability and high prices (Dobransky and Hargittai 2006). Agree (2014) underlines that often only the initial acquisition of assistive technologies is covered by the insurance, whereas repair and replacement have to be paid by the user. Therefore, many people with disabilities refrain from changing or updating existing technologies despite declining functionality.

Yet not only demand-side issues prevent higher levels of e-government adoption among people with disabilities. Studies on various government websites have revealed a very low level of accessibility indicated by the failure to provide content in a manner that does not exclude users with disabilities (Bertot and Jaeger 2006; Goodwin et al. 2011). Additionally, Bertot et al. (2012) criticize that new e- government initiatives often favor access for citizens, who already use other forms of technology-based government interactions. These results are even more alarming as accessibility is legally mandated in several countries, such as the United States and countries within the European Union (Jaeger 2008; Kuzma 2010). In sum, it is therefore suggested that accessibility, captured by an individual’s perception of barriers, is a major factor associated with technology use for people with disabilities.
Stereotype Perceptions

Stereotypes and stigmatization are among the most intrusive obstacles in the life of a disabled person. To conceptualize stigma and understand its implications on e-government adoption, it is necessary to find a uniform definition (Link and Phelan 2001). During the past years, stigma research produced a “definitional morass”, caused by an array of application areas (Pescosolido and Martin 2015). To avoid an in-depth discussion, this study relies on Crocker et al.’s (1998) definition, used in literature reviews of several renowned authors (Link and Phelan 2001; Major and O’Brien 2005). They define social stigma as “some attribute or characteristic that conveys a social identity that is devalued in a particular social context” (Crocker et al. 1998). From this definition it is important to note that not the attribute or characteristic itself is harmful or discrediting. Stigma solely depends on the social context it is viewed in. Therefore, not every member of every stigmatized group is affected by a stereotype to the same degree (Pinel 1999). For stigma to affect the lives of those touched by it, individuals must develop an expectation to become target of a stereotype (Pescosolido and Martin 2015; Pinel 1999, 2004). The magnitude to which a target believes to be judged on the basis of a stigma has been widely accepted as stigma consciousness (Pinel 1999). Therefore, social stigma (“an attribute”) can be clearly differentiated from stigma consciousness (“an expectation”) (see Figure 1). Consequently, stigma consciousness is the prerequisite for behavioral intention, because individuals may interpret the same interaction in a completely different context, depending on their level of stigma consciousness (Pinel 2004).

![Figure 1. Social Stigma and Stigma Consciousness](image)

High levels of stigma consciousness increase avoidance and withdrawal as well as the likelihood of lowered self-esteem and self-certainty (Link and Phelan 2014; Pinel 1999). Link and Phelan (2014) conceptualize these effects as “being kept away” and “being kept down”, meaning that concern about being within “normative boundaries” can trigger the desire to stay away or the feeling of being a person of lower value. Thus, at the behavioral level, targets high in stigma consciousness tend to disengage more from stigmatizing situations than targets low in stigma consciousness (Pinel and Paulin 2005; Ro and Olson 2014; Shantz and Booth 2014; Wildes 2005). Applied to the context of IS, Sheldon (2004) argues that “technology is not neutral. It is created by the same oppressive society that turns those with impairments into disabled people.” This proposes that people with disabilities high in stigma consciousness may suspect and sense discrimination and stereotypes related to an e-government service focusing on disabilities in the expectation to be kept down or away (Link and Phelan 2014). Many people fear that “technology might be provided as a cost cutting exercise, reducing the need to make more meaningful social changes” (Sheldon 2004). In sum, it is suggested that disabled users with higher stigma consciousness disengage and ultimately avoid a situation where they are able to use a service that specifically targets their stigmatizing characteristics.

Disability-related Variables

There are considerable differences between individuals in terms of their perception of disabilities, because every person’s experience with the impairment is unique (Bichard et al. 2007). This suggests that previously discussed factors, which influence the intentions to use e-government services, are differential relevant to people with different perceptions of their disability. Drawing upon Livneh and Wilson (2003), two disability-related variables, perceived functionality and visibility of disability, which have increasingly gained interest in social-psychological research, were identified. Perceived functionality refers to the
“inherent ability to perform various tasks” as subjectively perceived by a person with disabilities (Livneh and Wilson 2003). It is measured in terms of functional limitations, referring to what a person “can or cannot do” (Livneh and Wilson 2003). In the disability literature, functional limitations have been positively related with psychological outcomes, such as depression, psychosocial distress and decreased sense of purpose in life (Ferington 1986; Wineman et al. 1994). Given these attributes and the various barriers people with disabilities experience when accessing and using technology, functional limitations are expected to cause early resignation and rejection of e-government services. Central to these reactions may be the fact that individuals, who score higher on a measure of functional limitations, are more likely in the need for some kind of adaptive technology to access an e-government service. Given the friction caused by many of these devices, persons with higher functional limitations will view an e-government system as difficult to access and to use. Thus, perceived functionality is regarded as an antecedent to the accessibility and usability of an e-government service.

The second concept, perceived visibility, has been defined as the “external or aesthetic component of the condition” as subjectively perceived by the person with the disability (Livneh and Wilson 2003). The degree of the condition’s visibility can be traced back to Goffman (1963), who viewed visibility as a major indicator for the outcome of discrimination associated with a particular characteristic. Goffman (1963) distinguished between individuals who possess “discrediting” (visible) and “discreditable” (invisible) attributes. Visible marks are often impossible to hide in a face-to-face situation, putting the marked person in a glass house where something personal is immediately visible to others. Individuals, who possess invisible marks, usually experience fewer stigmatizations. However, this makes it difficult to assess to whom, when and how information about a stigma should be disseminated (Hebl and Kleck 2000; Olney and Brockelman 2005; Pescosolido and Martin 2015; Quinn et al. 2004). One coping strategy was labelled “passing” by Goffman (1963) noting that people keep their stigmas hidden and act as though they do not possess them.

As stigma consciousness reflects a “person’s expectation to become stereotyped” (Pinel 1999, 2004), it is argued that people with visible disabilities are more likely to become stereotyped and develop a higher expectation to become stereotyped in the future. Thus, stereotype perceptions are expected to be higher among individuals with visible disabilities. Research shows that people with obvious disabilities have often accepted the disability as part of themselves and search for positive meanings (Blake and Rust 2002). In fear of stigmatization, people with invisible disabilities often keep their disabilities concealed, even at the cost of health problems (Santuzzi et al. 2014). Therefore, being asked to reveal a concealable stigma is perceived as a threatening situation (Major and O’Brien 2005; Quinn et al. 2004; Santuzzi et al. 2014). Hence, the psychological barrier to go to a government agency and publicly reveal a disability will be much higher for individuals, who perceive to have a concealable disability. For these users, the functional value of an e-government service is expected to be higher than for people with a visible impairment.

Proposed Conceptual Model

The proposed conceptual model is shown in Figure 2. Based on the review of IS literature related to e-government adoption among people with special needs, it was possible to identify TAM as a compelling concept, which has been modified to explain technology adoption among techno-disadvantaged citizens in a number of studies (Phang et al. 2006; Porter and Donthu 2006; Sipior et al. 2011). Drawing upon Porter and Donthu (2006) and Sipior et al. (2011), perceived barriers was included as additional belief variable and antecedent to intention to use among techno-disadvantaged citizens, which is also supported by literature reviewing digital inequality among people with disabilities (Dobransky and Hargittai 2006; Vicente and López 2010). People with disabilities may be excluded from e-government services, due to demand-side barriers (e.g. the necessity of assistive technologies, cost associated with Internet access) or supply-side barriers (e.g. failure of government websites to comply with accessibility laws). Thus, it is hypothesized that a measure of perceived barriers is negatively associated with the intention to use an e-government service. Additionally, the construct is expected to have a moderating effect on the relationship between PEOU and intention to use. People with lower perceived barriers can be expected to have more confidence in successfully accessing and using an e-government service and thus PEOU may not be as important to them. On the other hand, people with high perceived barriers are unlikely to access a service, which is difficult to use.
Furthermore, stereotype perceptions were added to the model as many people with disabilities have a mixed attitude towards new technologies that are addressed to their needs while being shaped by market forces (Cromby and Standen 1999; Foley and Ferri 2012). Given the widespread discrimination against people with disabilities, they are unlikely to expect the technology best suited to their needs (Boal 1995; Foley and Ferri 2012). Thus, they suspect that “technological fixes” would be implemented as means of cost cutting, leaving them more isolated than before (Sheldon 2004). Therefore, it is hypothesized that people high in stigma consciousness, who sense and suspect discrimination, are less likely to use an e-government service promoted towards the disabled. Further, it is suggested that stigma consciousness has a moderating effect on the relationship between PU and intention to use. Since people high in stigma consciousness generally associate a negative picture with technology perceived to have a stigmatizing label, the functional value itself may not be a good predictor of technology use for these individuals. To round the construct up, two disability-related variables were added to capture the unique characteristics of this target group. An individual, who perceives higher functional limitations associated with the impairment, is more likely to perceive greater access barriers and reduced ease of use, e.g. due to the need of assistive technologies. Perceived visibility is suggested to increase an individual’s expectation to become the target of stereotypes (a.k.a. stigma consciousness), while people with a low visibility have a higher evaluation of functional value, due to the possibility to conceal an invisible stigma.

![Figure 2. Proposed Conceptual Model](image)

**Methodology**

This study is based on an integrative model combining elements of e-government adoption, social psychology and disability research. Technology and e-government adoption research have traditionally been conducted using surveys (Bélanger and Carter 2008; Moore and Benbasat 1991; Venkatesh et al. 2003). To obtain participants for our study, we plan to conduct a survey at regional associations serving people with specific disabilities (e.g. blindness, deafness and physical impairments) as well as disabled sports associations. For this reason, we already initiated contacts with representatives of several organizations and have received positive feedback so far. Most contacts agreed to send the survey to their mailing list of members, who can directly participate in an online version of the survey. Some organizations will also contact coaches of smaller seminars. They will be provided with paper-based questionnaires for direct distribution to the participants.
The instrument development process is structured after Moore and Benbasat (1991). Items are collected from existing scales in literature to find valid representations of each construct and the wording is modified to fit the context of e-government and disability research (Bélanger and Carter 2008). Most constructs are measured subjectively, reflecting an individual’s own perception, using multiple-item, five-point Likert scales ranging from “strongly disagree” to “strongly agree.”

The first part of the survey focuses on socio-demographic information of the respondents. Most importantly, the survey contains screening questions to differentiate between different types of impairments, including intellectual, learning, sensory and physical disabilities as well as language disorder. Furthermore, participants have the opportunity to state the degree of impairment and the level of care (“Pflegestufe”) as stated in the German disability identification card. These information help to gain a more thorough understanding of the respondents and enable a better comparison with other studies using the term “disability” (Vicente and López 2010). Construct measures for use intentions (Ajzen and Fishbein 1972), PU and PEOU (Davis 1989) are adopted from Carter and Bélanger (2005), who prominently applied the constructs to e-government research and who are among the most heavily cited authors in this domain (Belanger and Carter 2012). Perceived access barriers is borrowed from Porter and Donthu (2006) and extended by self-developed questions, e.g. “It is difficult for me to get Internet access”. For stigma consciousness, we plan to use a modified version of the 10-item Stigma Consciousness Questionnaire (SCQ) developed by Pinel (1999). The SCQ has previously been adapted to the stigma of disabilities and includes response formats such as “When interacting with nondisabled individuals, I feel like they interpret all my behaviors in terms of my disability” (Jaeger et al. 2013; Wang and Dovidio 2011). Finally, both disability-related variables are extended from Livneh and Wilson (2003). Constructs are measured perceptually and sample items include “Observers can easily tell that I have a disability” for visibility and “Due to my disability, I encounter many restrictions in everyday life” for functionality.

Discussion and Further Research Steps

The World Health Organization (2014) estimates that over a billion people worldwide have some form of disability. At present, rates of disability are constantly increasing as the baby boomer generation ages and chronic health conditions, such as diabetes, are on the rise (World Health Organization 2014). Governments need to cater this growing section of the public and are both mandated by law, like the accessibility standards defined in Section 508 of the U.S. Rehabilitation Act, and by self-set goals, like the European Digital Agenda. These initiatives are means to improve the quality of lives of people with disabilities and to eventually reduce digital inequality between those with and without disabilities. Two German states have recently launched an e-government service, called Schweb.NET (https://gatewaylas.saarland.de), which allows people with disabilities to apply for a disability identification card online. Schweb.NET captures all demographic information about a person, including details regarding his/her disabilities and allows for paperless communication with the responsible government agency. The website has several features which attempt to make it user friendly for people with disabilities. These include the use of large font sizes, central disposition of large buttons and the prominent placement of a customer service hotline offering support to users. As mentioned at the beginning of this paper, Schweb.NET is promoted as a great step towards inclusion of people with disabilities (Commissioner of the Federal Government for Information Technology 2014). The conducted research, however, suggests that it takes more than the pure service offering to create the desired impact. Functional value, usability, accessibility, stereotype perceptions and disability-related variables have been identified as important constructs, which are expected to directly and indirectly influence (and often times hinder) the intention to use an e-government service for people with disabilities.

In a next step, we aim to empirically validate the theoretical findings of this research by surveying users with disabilities regarding Schweb.NET. With the results of the study, we hope to achieve three goals. First, we aim to increase empirical support for the findings consistent in literature, e.g. the significance of perceived barriers as antecedent to intention to use among techno-disadvantaged citizens. Second, we hope to inspire future studies in areas, where research is currently lacking, such as the inclusion of stereotype perceptions when analyzing e-government adoption among target groups with special needs. Third, we want to give valuable guidance to practitioners by identifying factors that hinder the adoption of e-government services, thus paving the way for greater inclusion of people with disabilities.
References


