Bringing Light into the Shadows: A Qualitative Interview Study on Citizens' Non-Adoption of e-Government

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Abstract: Despite the growing availability of e-government services, citizens are still reluctant to use them. Prior research has mostly focused on investigating reasons for e-government use. Why individuals refrain from using these services seems to be of less scientific interest. The present study sets out to reveal what barriers to e-government adoption citizens perceive. A qualitative and explorative interview study was conducted with 18 citizens in Germany to better understand how citizens perceive e-government and what keeps them from using it. The study yields twelve different barriers to e-government adoption among which no need to use/rare usage of public services, no personal counsellor, and perceptions of convenience are the most important. The results suggest that the characteristics of the services themselves are highly influential for the decision to not use e-government. In contrast, technological shortcomings like data security or a lack of usability only play a subordinate role.

Keywords: Adoption, non-adoption, channel choice, citizens, Germany, qualitative research

1. Introduction

In many European countries, e-government usage rates are stagnating on rather low levels (Carter *et al.*, 2016; Rey-Moreno *et al.*, 2017). According to the United Nations, in Germany the rate of citizens' electronic interaction with administrations lies around 50%, while only around 30% of citizens actually filled out forms over the internet (United Nations Department of Economic and Social Affairs, 2014, p. 142). Although the Federal German Government has passed an e-government law (*Act to promote electronic government and to amend other legislation* 2013), all administrations are required to adhere to the 'multi-channel principle', meaning that electronic communication is equated with postal or personal communication but may not supersede these channels (Federal Ministry of the Interior Germany, n.d., pp. 13–14). Thus, every citizen can still use conventional ways of contacting public agencies on-site. Since this situation leaves the citizens with the decision, it is all the more important to understand why most citizens (actively) decide to *not use e-government.*

So far, non-adoption of e-government is mostly studied in the course of adoption research but represents seldom the main or single focus (e.g. Carter and Weerakkody, 2008; Featherman and Pavlou, 2003). One reason for this may be that non-adoption is often viewed as the opposite to adoption. This becomes evident when considering the few empirical studies dealing with barriers to e-government adoption, which are mostly based on existing technology adoption models (e.g. Ochara, Mawela and Odhiambo, 2016). By applying adoption models to study non-adoption of e-government (e.g. Gilbert, Balestrini and Littleboy, 2004), research reproduces already obtained knowledge rather than producing new insights. This also becomes obvious with regard to the use of methodologies, which are most often quantitative (e.g. Belanche, Casaló and Flavián, 2012; Carter *et al.*, 2016) and impede the rise of new views and topics and leaves aside the fact that enablers and barriers may be fundamentally different with regard to their antecedents and consequences (Cenfetelli, 2004). In contrast, this paper proposes that understanding how e-government diffuses necessitates the research of non-adoption detached from research on e-government adoption, thus considering this endeavour as research field of its own. Against this backdrop, this study sets out to explore with a qualitative design perceived barriers to citizens' e-government adoption. The leading research question is therefore: *What are the barriers to e-government adoption that citizens in Germany do perceive?*

The explorative character of this study may yield a broader set of factors that lead to non-adoption as citizens are not restricted to common adoption models, when depicting their perceptions of e-government. In general, qualitative research may yield deeper insights if "[…] a phenomenon is not yet fully understood, not well researched, or still emerging." (Recker, 2013, p. 88) This study is part of a larger research project and conceived as the first study within a mixed methods design. Results from the analysis will be used to build a model that is tested with quantitative data.

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The paper is structured as follows. The next section briefly reviews literature on technology and e-government non-adoption, based on which three assumptions are derived that guide the study. Section 3 introduces the method and process of data gathering, while in section 4 the results are presented and discussed in section 5. The paper concludes with a summary and outlook on future research.

2. Research Background

Only few conceptual works on non-adoption of IT exist and even less on e-government non-adoption when compared to the vast amount of literature on adoption behaviour and its antecedents (e.g. Bagayogo, Lapointe and Bassellier, 2014; Kirs and Bagchi, 2012). In addition, most of the general IT research deals with non-users in terms of deficiencies, i.e. digital divides in the society, and from a rather normative point of view where technology is always associated with undeniable and desirable benefits (Selwyn, 2003). These assumptions are replicated in the e-government context, leading a lot of studies to be technology-deterministic and following positivistic research paradigms, although recently this trend mitigates (Madsen, Berger and Phythian, 2014). In contrast to this perspective, Murthy and Mani (2013) argue that non-users in general should be treated as responsible individuals who actively choose to not use a given technology. It can be assumed that individuals perceive their own behaviour as rational, because of personal technological needs that lead them to consciously decide to adopt or to not adopt the technology (Selwyn, 2003) – although objectively, the decision may seem unreasonable. The adoption decisions may not be solely driven by e-government itself but more by the setting in which it is used. Following this line of argumentation, it can be assumed that adoption and non-adoption may differ regarding their antecedents and consequences, wherefore enablers (antecedents to adoption) should be treated separately from barriers (antecedents to non-adoption) (Cenfetelli, 2004) – a research endeavour that so far has only rarely been undertaken (Distel and Ogonek, 2016).

Taking a closer look at those studies that do include barriers shows that research on non-adoption often lacks conceptual frameworks (Distel and Ogonek, 2016), instead this line of research simply adapts adoption models and explains non-adoption in terms of unfulfilled success factors. For example, Belanche, Casaló and Flavián (2012) apply the Technology Acceptance Model to the e-government context and integrate trust as a mediating factor. In doing so, the authors focus on the technology and on the question in how far the use of technology facilitates the consumption of public services. Consequently, the integration of trust into this model refers to trust in the e-government service, while trust in the service providing agency is not considered. This technology-deterministic perspective can be found in many studies on e-government adoption (e.g. Carter *et al.*, 2016; Gilbert, Balestrini and Littleboy, 2004; Ochara, Mawela and Odhiambo, 2016) and certainly contributes to the understanding of e-government diffusion. However, it supposes that individuals deal intensively with using the online mode of contact. This perspective eclipses service-related factors, such as the personal involvement or the complexity of public services in general (e.g. Barth and Veit, 2011) that may directly lead citizens to interact with administrations personally. Moreover, by applying the commonly used adoption models, most research overshadows the peculiarities characterizing the public sector and the role of the citizen in the public, which differs considerably from the customers' role in society (e.g. Thomas, 2013). Additionally, public services are mostly mandatory to use, which puts more emphasis on the channel choice than in other contexts. Researchers have pointed out that choosing a certain channel to interact with administrations may not only depend on the channel's characteristics, which would be the perspective of the above cited studies, but more on the task the citizen aims to fulfil (e.g. Ebbers *et al.*, 2016). It has also been shown that citizens choose the communication channel depending on their concerns and that they may use more than just one channel (e.g. Reddick and Anthopoulos, 2014). Whereas this behaviour supposes that the individual acts rationally and is able to assess the task's and the channels' characteristics, Ebbers *et al.* (2016) put emphasis on the personal and situational factors as well as established habits that may have substantial impact on adoption decisions. Consequently, the adoption decision may neither be objectively rational (but still conscious) nor based solely on the technological characteristics of the e-government service, which seems to be an emphasis of past e-government adoption research.

In summary, three main assumptions guide this research. First, non-adoption of e-government may differ in its antecedents and consequences from adoption and should therefore be studied independently. Second, non-adoption may not affect all available e-government services but only selected services. Third, the decision whether to use e-government or not is a conscious decision but not always rational and driven by technological characteristics. Habits or routines and the situation and context in which services are consumed by the individual may also define the ultimate decision.

3. Method

Semi-structured interviews can provide deep insights into the actual usage behaviour of citizens, since the interview is guided by but not limited to the topics determined by the researcher. In addition to known or at least suspected influences, completely new relationships can be discovered (e.g. Brinkmann, 2013), wherefore qualitative interviews were conducted. In five blocks, respondents were asked to share their perceptions of IT and e-services in general and what leads them to use and reject certain e-services. The first two more general parts were followed by questions on the respondents' image of public administrations (e.g. How efficient do you think public administrations are in general?) and their perceptions of barriers and enablers to e-government adoption (e.g. What could be reasons for you to not use e-government?). In the last block, the respondents were given the opportunity to highlight issues that were important to them or not discussed so far.

Most researchers state as a criterion for the 'right' sample size the saturation of the data, meaning that participants are recruited until no further information occurs in the interviews (Kvale, 2007, pp. 43–44). The analysis (see section 4) showed that after 18 interviews no further recruiting was necessary as no further themes arose and the coding scheme, which was developed throughout the analysis of the interviews, was not altered anymore during the last few interviews. Thus, it can be *assumed* that more interviews would not have led to more information and that the data was saturated. Saturation as a selection criterion may have limitations as one *cannot know or test* if interviewing another person would have led to more or different information. For the purpose of our study, the method is still suitable as the study does not aim at representative data that can be statistically analysed but at first insights into a yet underexplored topic and at gaining a deeper understanding of how citizens perceive administrations in general and e-government in particular.

The interviewees were selected purposely, a commonly used method in qualitative research (Bhattacherjee, 2012, p. 69). For the interviewees, the minimum age was set to 18 as this is the age, where German citizens attain full age and thus will presumably consume public services themselves and not through their parents. Ten women and eight men from different parts of Germany were interviewed. They were between 23 and 63 years old, spent between 30 minutes and 68 hours per week online, possessed one to five internet enabled devices and reported different degrees of technological competence from "very low, basically none" to "very advanced". On average respondents had 1.5 contacts to public administrations during the last year, ranging from none to five contacts. It was a conscious choice to not limit the sample to specific user groups, e.g. students. Understanding how e-government diffuses, requires to learn from experiences from *all potential users*, wherefore the sample was composed this diverse.

The interviews took 34 minutes on average. They were recorded and then transcribed using reconstructive transcription technique (Brinkmann, 2013, p. 61) that focuses on the content and does not include the voice's register, breaks, or dialects. The analysis was conducted inductively and in several iterations, meaning that categories were developed from the first interviews and were revised, complemented and refined with every analysed interview. The method follows the approach of qualitative content analysis proposed by Mayring (2015). The resulting coding scheme was used by a second researcher who also analysed all interviews to check the scheme's reliability.

4. Results: Barriers to e-Government Adoption

Besides the mentioning of barriers, more aspects were analysed but are not further discussed here. In general, citizens expressed rather high degrees of trust towards administrations. Most of them believe that administrations are bound to the (strict) German data protection law and cannot abuse private data. They also think that administrations have no intrinsic motivation to use citizens' data for anything else but to conduct public services. The public administrations' image is overall positive, but some respondents view them as being old-fashioned, especially when it comes to digitalization. Practically no interviewee stated e-government services as part of the e-services they commonly use. Only when the interview was guided in this direction, respondents came up with e-government services they had already used, which indicates that the use of e-government is not part of their (daily) internet routines. With regard to socio-demographic variables, such as age, gender, and education, the answers did not reveal substantial differences between the respondents. On the one hand, this may be due to the sampling procedure that led to highly educated and rather well-established sample. On the other hand, this could also indicate that barriers are less related to the individual

and more related to the service itself and the context in which services are used. Overall, the interviews showed that many barriers to e-government adoption in fact exist (c.f. Table 1) and that the respondents were mostly able to recall and justify their behaviour.

No need to use/rare usage. Respondents from all age groups and regardless of their socio-economic status stated that they perceived no need to use e-government, for example, due to the seldom need to contact public administrations. One interviewee stated at the very end of the talk, reflecting his own usage behaviour: *"And obviously, for the most it is in the professional context that I use e-government. […] I use these services hardly in a private context and […] I can't think of anything that I would want to use. So, there are just no interesting services that spontaneously come to mind which administrations could offer me."* (Interview G, male, 30)

Perceptions of convenience and no personal counsellor. In this category, all statements were coded that highlight the persons' lack of willingness to use the e-service, because using the service on-site is more convenient than changing behaviour and putting effort into learning a new system. If the new technology is not compatible with established routines, non-adoption seems to be the reasonable decision for some respondents. For example, Interviewee O (male, 53) said with regard to the use of electronic tax filing: *"It is already a faster way, but it would be better, if you could conduct the service completely without paper forms – which I know is possible, but I would have to take care of how it works. These are things, you do once a year and I have often said to myself 'Well, next year I take care of how this works!' – but until now I haven't done it."* In addition, consumption of public services is seemingly associated with complexity of the process. To reach the best possible results, citizens need to understand what they do and perhaps even have some knowledge about the legal aspects. Using online tools does not necessarily lead to a reduction of this perceived complexity but may even impede the process for the citizen: *"Let's take the electronic tax filing as an example. I have tried it out some time ago but experienced it as complicated and I had a lot of further inquiries and I observed that you have to look up and search a lot of additional information. […T]hat I need a lot of additional information and that I have to become acquainted with this stuff – that's what's bothering me."* (Interview Q, female, 58)

Table 1: Barriers to e-Government Adoption

Barrier	Description
No need to use/rare usage	There is no need to use an e-government service, e.g. due to the seldom need to contact public administrations or rare usage of public services in general
No personal counsellor	Need for personal consultation or personal contact
Perceptions of convenience	It is more convenient to use the service on-site than to change the behaviour and put effort into learning a new system
Required to use service in person	Assumption that for certain public services appearance in person is required
No time is saved	Assumption that e-government services do not save time compared to on-site services
Data security and privacy concerns	fear of data loss and/or theft due to lack of security measures or criminal interference
Lack of information about services offered	Lack of information about what e-government services are actually available
No user-friendliness	User-friendliness is understood as the extent to which technologies can be used without great effort and IT skills
No effort expectancy/media breaks	Assumption that e-government will not lead to reduced workload and/or that the use of e-government services does not lead to reduced workload due to media breaks, i.e. the change of medium during a process
Lack of information about technological features/high efforts	Lack information about functionalities of the e-government services/usage is related to great personal efforts due to learning the use, functions or (legal) bases of the service
Save economic structures on-site	Concern that e-government services endanger economic structures on-site, e.g. jobs in administrations
Need for status report	Need for information on current status, need for immediate response

The perceived complexity may be due to the missing habituation that leads some respondents to feel a need for personal consultation. Rather surprisingly, this barrier was reported by older respondents *and* younger ones, which seems to be due to a lack of experience with public administrations: *"(Interviewer): So, what*

you're saying is that [the electronic tax return] is not self-explanatory and that you therefore need personal contact? (Respondent): Exactly, especially because I'm still young and have to do a lot of things for the first time, for example the tax return. I feel completely out of my depths and need someone who explains this to me." (Interview E, male, 23) It can be assumed that the adoption of e-government is less tied to the age of citizens or their experience with IT and e-services but rather to their experience with administrations and public services in general. This assumption is also supported by the finding that some respondents **do not expect to save time** or have the impression that they are **required to use a service in person** and thus are not able to use e-government at all.

Lack of information about services offered. Another major problem in e-government adoption is a lack of information about what services are actually available, a problem that has been addressed repeatedly by previous research (Rana, Dwivedi and Williams, 2013). Again, this barrier was reported by respondents from all age groups. In addition to the lack of information about the existence of e-government services, one interviewee also reported a **lack of information about technological features** and the general operating modes of e-government services. This interviewee perceived e-government usage as related to **high** personal **efforts**. Thus, the proposition that administrations should inform citizens about existing e-government services can be extended with the proposition that they also need to provide additional information about the operating modes of e-government.

No effort expectancy/media breaks. Repeatedly, researchers and practitioners have claimed that e-government acceptance depends on the seamless processing of applications (e.g. Reddick and Turner, 2012; Siau and Long, 2009), meaning that the complete process can be conducted electronically. Problematic though is that still a lot of services require the user to personally sign the form or to attach supporting documents to the application. The respondents recognized this as a major hindrance to the use of e-government as they perceive e-government to not reduce workloads. When asked for (potential) reasons to not use e-government, one interviewee stated: *"Concerning the use of forms, I repeatedly experience that a lot [of departments] offer forms, even writeable PDF forms, but I still have to send them away. I have to write an e-mail and attach these forms, because generally speaking you cannot directly submit these forms. And not all forms can be edited online, a lot of forms have to be printed out and be edited in writing. So, it [e-government] does not necessarily make sense. I simply don't have to get a form [from the office]."* (Interview S, male, 63)

Data security and privacy concerns. Many respondents stated that they were afraid losing their data and/or data theft due to lack of security measures or criminal interference. It is worth mentioning that these concerns relate both to the administrations' competence to provide secure e-services and to general concerns when interacting online with others. This barriers was also mentioned by various respondents and can be summarized by the following statement: *"I would reject any service if I felt that my data were not secure."* (Interview N, female, 52)

User-friendliness and need for status report. One important barrier to e-government adoption that respondents mentioned is a lack of user-friendliness. Apparently, citizens do not expect e-government services to be usable without efforts. For some of the interviewees this lack of user-friendliness was caused by the services themselves, which are complex and need substantial prior knowledge, whereas other noted that e-government services to not provide important features. For example, some respondents expressed a need for status reports such as receiving a notification that an application has been successfully filed or that the application is worked on. The interviewees mentioned a lack of such a function as a barrier to e-government adoption.

Finally, some of the interviewees mentioned that they would not use e-government to **save economic structures on-site**. This argument was prevalent especially among respondents from smaller towns: *"[What bothers me] is that I don't have a personal contact; that mistakes happen faster, I think. And that jobs will be cancelled, that's what's bothering me."* (Interview E, male, 23)

5. Discussion

To answer the research question, the interview study revealed that in total 12 different barriers to e-government adoption are perceived by the interviewed citizens (c.f. Table 1). The decision to not adopt e-government seemingly relies more on the citizens' technological needs and the context in which services are

consumed than on perceptions of the technology itself, because, for example, privacy concerns play no role and technological issues are in general less important as compared to other more service-related issues. In accordance with prior literature (e.g. Gilbert, Balestrini and Littleboy, 2004), we also find that aspects of usability are less important as compared to other aspects, such as experience with public services. Selwyn (2003) uses, inter alia, the concept of relative advantage to explain why some individuals are more inclined towards technology use than others. It is based on the assumption that the object (technology) is evaluated regarding its potential material *and immaterial* costs for the subject. If potential costs are not only defined with regard to financial investments, as was done by Gilbert, Balestrini and Littleboy (2004), but also with regard to the citizens' cognitive involvement, the results indicate that at least for some citizens the use of e-government or certain aspects of e-government is perceived as superfluous. This implication is partially contradicting e-government adoption literature that states that citizens expect their administrations to provide e-services (Rana *et al.*, 2017) and that e-government is beneficial to citizens in general (Belanche, Casaló and Flavián, 2012). Contrary to this perspective, the interviews reveal that the interviewed citizens perceive no need to use e-government which may be due their few contacts with administrations or the perception that they are required to use a service in person. The investments for the individual are high compared to the quite low number of services that can be conducted or are relevant for the individual. Thus, the ratio of costs and benefits may be for most citizens imbalanced and more in favour of the conventional channels. The decision to use e-government may in parts be a bigger decision than following established routines and habits as was also propose by research on channel choice (e.g. Ebbers *et al.*, 2016).

If research wants to better understand how e-government diffuses it is necessary to define the context of e-government and the potential users. Obviously, not every citizen is in need of every public service and most services have to be conducted only infrequently. Other researchers state that benefits of e-government may act as enablers to use. Gilbert, Balestrini and Littleboy (2004) for example, identify saving money (costs), saving time, and avoiding personal contact as enablers of e-government use. The interview study, however, reveals that although these factors may be perceived as benefits they are not relevant for the individual, because the individual may not make use of public services in general. Interestingly, the authors find that avoiding personal contact may enable e-government use, while the interviewees in this study state a strong need for personal consultation. As Gilbert, Balestrini and Littleboy (2004) conduct their study in UK, this might be an indicator of cultural differences in the perception of enablers and barriers to e-government use.

Administrations have good resources to build on, especially with regard to their image in society. Interviewees expressed rather high degrees of trust and expressed a positive image of their local administrations (not further analysed in this paper). Understanding under which conditions citizens tend to use conventional ways of contacting their administrations may help designing e-services more with regard to the citizens need. So, while trusting the administration to handle personal data carefully as well as other technical aspects seem to be only of secondary role for the interviewed citizens, other aspects come to the fore that have gained so far less attention by researchers as well as practitioners. The need for consultation, for example, was not only reported by older interviewees but also by the younger ones, especially those with so far only *few experiences with public administrations,* indicating that one major barrier may be the experience with public services and administrations in general. Citizens may also perceive public services in general as complex and the use of technology might add complexity instead of reducing it. In fact, Reddick and Turner (2012) found that citizens rely on websites for information search but would contact administrations directly via phone if problems had to be solved. The present study agrees with this finding in so far that personal contact was important to respondents – as soon as problems occurred. Interviewees were asked whether they could imagine to conduct public services without the help of administrations' employees. One respondent gave the following answer which is characteristic for all respondents: *"I think I could waive help. It would only be important [to have a contact person] if further inquiries occur that you can reach out to someone. If the request form is not clearly expressed, for example."* (Interview D) Accordingly, one respondent also stated a need for status reports and immediate responses which are seemingly easier to get offline than online. The need for immediate results was also a relevant influence in a study by Barth and Veit (2011), who found the perceived process involvement to have a significant negative influence on citizens' adoption decision. Taking all this into account, the findings highlight the importance of demand-driven and citizen-centric e-government services if public administrations wish to increase usage rates.

6. Final Remarks and Outlook

This study set out to reveal, what barriers to e-government adoption citizens in Germany perceive. The analysis of 18 qualitative and semi-structured interviews revealed 12 barriers to e-government adoption, namely *no need to use/rare usage, no personal counsellor, convenience, required to use a service in person, no time is saved, data security concerns, lack of information about services offered, no user-friendliness, no effort expectancy/media breaks, lack information/high efforts, save economic structures on-site,* and finally*, need for status report*. Comparing findings of this study with other literature revealed some differences. A lot of studies transfer knowledge from IT rejection literature to the e-government context. In doing so, the specificities of the relation between administrations and governments with their citizens are overshadowed.

While the study has a number of strong points, there are also limitations. The study is limited to the German context and results should therefore be handled carefully and be adjusted to other contexts. As part of a larger mixed method study, a qualitative approach and convenience sampling were chosen to get first insights into patterns underlying non-adoption and to take the citizens' point of view. Convenience sampling was chosen to let different viewpoints come up. Thus, the implications may be biased and highlight aspects that are irrelevant statistically. Although the results suggest patterns underlying non-adoption decision, they are not representative and have yet to be tested with other methods.

Still, the interview study has also valuable implications for future research. E-government studies should focus more on theoretical conceptualizations that consider the context in which e-government services are embedded. Research needs to develop a framework that, despite technological issues, also integrates perceptions about the service provider, i.e. a known entity with which the potential users have already gathered diverse experiences. Such a framework should also integrate the potential user and pay more attention to technological needs and existing technological habits. Although repeatedly called for, demand-driven e-government research still seems to be in its infancy. Moreover, e-government as such competes with a wide variety of IT. This raises the question whether e-government in general is beneficial to citizens (normative perspective) and what the innovative character of e-government is that could lead citizens to usage. Many aspects of e-government have been hitherto neglected and thus still lie in the shadows. Research's goal should be to bring light into the shadows, so that the phenomenon of e-government diffusion can be understood in all its complexity.

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