USER PARTICIPATION AT A DISCOUNT - EXPLORING THE USE AND REUSE OF PERSONAS IN PUBLIC E-SERVICE DEVELOPMENT

Research in Progress

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Abstract

In recent years, we have seen an ever increasing push for new public e-services. Such e-services must be useful and beneficial for governments but also for citizens. In order to develop e-services that are effective, efficient and satisfactory for the citizens, the citizens have to be kept in focus and be involved in the development process. However, municipalities face pressure to develop a wide range of e-services, but at the same time battle palpable scarce resources. In this paper, a concept that addresses this problem within an ongoing research project is presented. We express this concept as 'figurative user participation through the use and reuse of empirically grounded personas with help of persona repository including usage guidance that is shared among several municipalities'. The purpose of this paper is to empirically explore municipalities' perceptions and attitudes towards this concept. The result shows that the municipalities are positive to the concept and consider it having great potentials. However, some challenges and pitfalls have also been brought out that need to be taken into account and addressed.

Keywords: Public e-service development, Persona, User Participation, Repository, Municipality

1   Introduction

Public e-services are an increasingly adopted channel for the delivery of services from public admin-istrations to citizens[1] (Rowley, 2006). In this paper, we view public e-services as artefacts that allow public administrations to offer service that is mediated via electronic communication channels, such as the Internet, to the society, e.g., citizens, companies, and non-profit associations. In e-Government research (e.g. Holgersson and Karlsson, 2014, Verdegem and Verleye, 2009) as well as in governmen-tal strategic documents (e.g. Commission of the European communities, 2006, E-delegationen, 2012), an increased interest for user-centeredness in public e-service development can be found. Still, no sub-stantial changes in the way public e-services are developed can be identified. Instead, they are mainly being developed from an internal government perspective in which user considerations are given in-sufficient attention (Axelsson et al., 2013). Therefore, public administrations have a tendency to either fail to address the users'[2] needs or do it by guessing what the users' characteristics and needs of future public e-service might be (Kotamraju and van der Geest, 2011). This, in turn, has led to a situation where public e-services in many cases are refused by the intended users simply because they do not regard public e-services as better alternatives than already existing service channels (Kotamraju and van der Geest, 2011, Sæbø et al., 2008, Verdegem and Verleye, 2009). For that reason, it is essential for e-service developers[3] to put serious efforts to design high quality e-services with the intended users and usage context in mind so that the possibilities that the users actually choose to use them increase (Hartson and Pyla, 2012, Hassenzahl and Tractinsky, 2006). Thus, to address this difficulty it is im-portant to involve the future users during the whole development process. Users can participate in pub-lic e-service development in a wide variety of ways along several dimensions, e.g., as purely inform-ants, full members of the project team, in parts of, or during the whole process. The actual participa-tion should take place in a way that gives high value to the project and the final product as well as makes everyone involved feel comfortable in the situation (Kujala, 2008).

Introducing user participation in public e-service development is a complex task which is associated with several challenges and obstacles that need to be addressed, not at least for municipalities who face challenges such as: 1) a broad population that entail a diversity of user characteristics, 2) partici-pation must be based on free will, 3) a pressure to deliver a large number of public e-services in a wide range of areas, and 4) palpable scarce resources in terms of time and money (see e.g. Axelsson et al., 2010, Karlsson et al., 2012, Holgersson and Söderström, 2014). This means that there is a need to gain the advantages of user participation, without paying the price for it. There is a need for "user participa-tion at a discount", to paraphrase Nielsen (1989).

In an ongoing research project, we address these conflicting issues by working on a concept that we describe as *figurative user participation through the use and reuse of empirically grounded personas with help of persona repository including usage guidance that is shared among several municipalities*. Personas is a widespread and popular concept to tackle the difficulties of establishing and maintaining the focus on the users during the development process as well as grounding the design and decisions on correct and relevant information about the users, their characteristics, needs, and goals (Chang et al., 2008, Friess, 2012, Miaskiewicz and Kozar, 2011). The concept of personas was introduced by

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1 By citizens, this paper refers to all inhabitants in for example a municipality and not only those with national citizenship.

2 In this paper, the term user refers to external users residing outside the organisational boundaries of the providing public administration, e.g., citizens, compa-nies and non-profit associations.

3 In this paper, e-service developer is used as a generic term for any stakeholder, internal as well as internal, working with the development of public e-services on behalf of the public e-service provider, i.e., municipalities.

Cooper (1999) with the purpose of providing precise and specified descriptions of the users with significant power to communicate about and engage in the users. To the best of our knowledge, there is neither previous research nor prior use in practice similar to the concept that is under development in our research project. Personas as such have to some extent been used by municipalities in e-service development, but not to the extent or in the way we propose. Our proposed concept comprises a persona repository consisting of personas representing a multiplicity of citizen groups, which are based on systematic, thorough, and empirical user investigations. If the repository consists of high quality personas, it should be possible for the e-service developers to carefully reuse or reincarnate personas (Adlin and Pruitt, 2010) for different e-service development projects. This ought to be possible since the target population remains the same, not only within the municipality, but also in neighbouring municipalities with similar characteristics.

Personas are hypothetical archetypes of real users that are a result of an investigation in which they are discovered (Cooper, 1999). This means that based on real data from user analysis, imaginary persons are depicted that represents the target user groups. A typical persona should have first and last name, a photo, and a narrative text including, e.g., work role, a typical day, household and leisure activities, main tasks, encountered problems, demographic attributes, concerns, technology attitudes, and communication preferences (Hartson and Pyla, 2012, Pruitt and Grudin, 2003). The purpose of the personas is to inform the developers of who they are designing for, to keep them engaged in focusing on the users, and make the intended user, figuratively speaking, present in the developers' offices (Cooper, 1999, Hartson and Pyla, 2012). Salient benefits are improved communication between stakeholders about the users and increased attention to users' needs. Other examples of proposed benefits are that assumptions about the users are challenged, guidance of design decisions, product requirements prioritizations, and agreement catalyst (Miaskiewicz and Kozar, 2011). However, there are of course also drawbacks and challenges. Pruitt and Grudin (2003) mention, for instance, that it can be difficult to get the right persona or set of personas, a temptation to inappropriately reuse personas and a "persona mania" where personas are used as the salvation to too wide range of problems.

The aim of this paper is to explore municipalities' perceptions and attitudes towards the proposed concept of figurative user participation through using a persona repository. Such a repository will be constituted of a set of empirically grounded personas as well as usage guidelines for how to develop public e-services focusing on the intended future users, but at the same time taking into account scarce resources that hinders more traditional methods and techniques for user participation. It is important to formatively evaluate how the intended users – in this case the municipalities – view the concept under development so that a first indication of its applicability as well as its drawbacks and pitfalls are identified.

2 Related work

Using personas as a means to represent future users is not a new concept – it has long been recognised in the research area of human-computer interaction (see e.g. Adlin and Pruitt, 2010, Chang et al., 2008, Bredies, 2009, Miaskiewicz and Kozar, 2011). However, when it comes to the context of e-government and public e-service development, there are only a few studies discussing the usage of personas. The public e-service development context differs compared to other development contexts, e.g., commercial settings. In other contexts, certain user groups can be chosen as targets, while others can be deliberately excluded. This is not the case in the public e-service domain. At the contrary, public administrations have to be inclusive and embrace "everybody", i.e., a very large and heterogeneous group that are members of the society instead of customers or in-house users (Lindgren and Jansson, 2013, Henriksen, 2004).

Artman and Markensten (2005) suggest a procurement approach to user involvement in e-Government, in which personas is a proposed method for the user gestalts aspect in the approach. A citizen-centric approach for user requirements engineering for e-Government services is put forth by

van Velsen et al. (2009). A step in the approach is to conduct citizen walkthroughs of low fidelity prototype versions. In the walkthrough, personas are used. Vicini et al. (2013) have employed personas in their process of developing an e-service for behaviour change, an e-service to help people live healthier lives. The work of Scandurra et al. (2013a) consists of the development of novel eHealth services for citizen use. The system engineering process in their case study was a customer-vendor process. The vendor, which is a commercial actor, used personas to some extent in the development process. However, none of these papers had a particular focus on personas, none have systematically investigated the usefulness and applicability potentials of personas in the domain of e-service, and none of them have investigated reuse or reincarnation of personas. In fact, they have not made any conclusions, suggestions, or claims concerning personas.

There are some notable exceptions, however. Bødker et al. (2012) discuss the usage of personas as a substitute for more active forms of citizen collaboration in public e-service development in a Danish municipality. In their study they create personas based on four application scenarios rather than general personas. However, they do not discuss the possibility of reusing general personas as a means to tackle limited resources for the implementation of user participation in public e-service development.

Bredies (2009) used personas to investigate the application of cybernetic systems analysis within the healthcare sector and with the intent to inform the design of an electronic patient record. Herein, personas were created for five groups of patients. However, Bredies (2009, p. 184) clearly states that "*A persona description gives a sufficient average impression of the addressed user group without restricting the designer to some status quo requirements derived from user interviews*." This perspective differs from our paper, where we argue that personas, in order to be useful and reusable, must be empirically grounded. Dearden et al. (2006) report on the use of focus groups to provide insights used to help the design team create realistic personas and analysis scenarios for the use of various technologies. Some personas were derived from the focus groups, and designers were then asked to develop their own personas based on the target group. In other words, Dearden et al. (2006) use personas in the development process, but do not incorporate the reuse perspective, and is not based on the same extensive empirical grounding that we propose.

The benefits of personas have been highlighted, for example in Grenci and Watts (2007), where implications and recommendations for the development of mass customised e-consumer services are discussed. The authors describe how personas can be very useful if employed as a decision support tool that allows customers to select the fictionalised characters to whom they most relate. This approach differs from ours in that we propose the creation of personas that are inclusive and for the use of designers and developers.

In Spagnoletti and Resca (2012), personas have been used to develop highly interoperable IT for supporting online communities. In their work, the personas were used to identify user categories. Our work takes a different perspective in terms of our focus on reuse and a more profound empirical grounding. Some reflections on the use of personas and that they must come with more than just a description can be found in Sperling et al. (2009). They used developed and used personas in design for a prototyping session, and found that this method requires special explanatory attention. Our work proposes the use of personas along with the requirement for process support for how to use them.

To summarize, we find little guidance in existing research discussing how empirically grounded personas can be used and reused in public e-service development as well as how the usage of personas can be integrated in existing development processes of public e-services in municipalities.

3   Research design

This study is based on meetings and interviews. The meetings were between the researcher group and representatives from a Swedish municipality, who is intended to be the primary contributor to and receiver of the persona repository, hereafter called the primary municipality. The meetings consisted of

in-depth discussions of the proposed concept, its applicability, and the project setting. Notes were taken during the meetings, and the meetings resulted in a co-authored project description.

Six interviews were conducted; one with the regional alliance of the municipalities and five with small[4] and medium large sized Swedish municipalities. The focus of the interviews was the perception and attitudes of the municipalities towards using a persona repository as means to simulate user participation in public e-service development. Each interview lasted for about an hour and followed the same basic structure, where we first presented the concept via a PowerPoint presentation. The presentation part was interactive, in the sense that the interviewees were free to interrupt whenever they wanted to pose questions or get any clarifications, which they also did. After the presentation, a set of themes was discussed with the interviewees regarding their impression of the proposed concept, including possible positive effects as well as potential challenges of using the concept in public e-service development. The interviewees were selected, with help of the primary municipality project partner, based on their current involvement in public e-service development projects and had work roles such as project managers and business developers. Thus all interviewees had not only experience from specific phases of public e-service development, but also from being involved in everyday IT operations where public e-service development is one of many work duties. All interviews were carried out face to face, were recorded and then transcribed by the research group.

The documents from the meetings together with the transcripts were then analysed in order to identify opportunities as well as challenges related to the usage of the proposed concept in public e-service development. In order to enhance credibility, investigator triangulation (Patton, 2002) was used in two senses; firstly, the interviewers (two persons at five interviews and one person on one interview) where not the same in all occasions, instead, we varied, and, secondly, one of the responsible researchers made the first analysis of the transcripts in order to identify themes related to opportunities as well as challenges and then it was iterated between the remaining responsible authors until consensus was reached between them.

4 Analysis of municipalities' attitudes towards a persona repository in public e-service development

The findings of the data analysis have been structured into opportunities and challenges. The analysed data stems from the interview transcripts, from the notes taken during meetings with the primary municipality as well as the parts in the co-authored project description that were written by the primary municipality.

4.1 Opportunities

In general, the interviewees are positive to the proposed concept. This is exemplified by the following quotes[5]: "*Your thoughts are spot on*", "*I cannot see something wrong with it, it sounds great*", and "*I think it will be very positive. Exciting!*". Besides a general positive attitude towards the proposed concept, a number of different themes describing opportunities of using the proposed concept have been identified.

One opportunity the interviewees were discussing was that a use of personas in the public e-service development process will **increase the visibility of the intended users**, i.e., the citizens. When discussing with the interviewees on how user interests are included in public e-service development today

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4 Municipalities with less than 10000 residents are referred to as small whereas municipalities with more than 10000 and less than 50000 residents are referred to as medium large

5 All quotes are translated from Swedish.

it became evident that there is a tendency to either assume or guess the needs of the users, or not addressing them at all in the development process. This conforms to the findings presented by, e.g., Kotamraju and van der Geest (2011) and Scandurra et al. (2013b) and is exemplified by the following quotes: "*civil servants believe they have a very good understanding of what their customers look like*" and "*you may think you can do it just as well yourself, since you also is a citizen*". Also the primary municipality shares this view of how public e-services currently are being developed within their organisation when stating: "*The work so far has been driven by business needs and citizens have not been directly addressed. This means that it is primarily the business knowledge of the citizens' needs that have been used. We are lacking a structured and resource efficient way of working that takes into account the citizens' own needs.*" The interviewees view their own lack of a user perspective in the development process as problematic, exemplified by the following quote: "*sometimes it may seem like that the civil servants believe they have a very good understanding of what their customers look like. Often they are right but sometimes their guesses are not that accurate*". Based on these shortcomings, the interviewees consider that by using the proposed persona concept in public e-service development the visibility of citizens would be increased in a way that is not present today, as the following quotes state: "*it is these people you work for and this is how they think*" and "*you highlight them, they became visible*".

One other aspect discussed by the interviewees was that the proposed persona concept makes it possible to have a more **equitable representation of citizens** in the public e-service development process. This discussion is based on previous experiences of citizen participation in other matters than public e-services, e.g., citizen forums. The interviewees indicate that some groups are more prone to take part in citizen forums, while other groups hardly ever participate. By using the proposed persona concept, such problems may be avoided, or as one of the interviewee's state: "*Now I can reach other user groups then my usual "white male with two children living in a house"*". Hence, it is important that the persona gallery also consists of groups, whose voices seldom are raised or heard.

Comparable to the discussion above regarding increased visibility of the intended users, the e-service developers themselves act on behalf of the citizens when eliciting requirements and performing various design activities. By using personas in the development process, **a basis for arguments is formed**. Design decisions will be based on something more than just intuitive guesses. Instead, design decisions questioned both internally and externally can be justified since they will be based on empirical data. This will increase the trustworthiness of the arguments of the e-service developers, as the following quotes exemplify: "*One might think that even if you can convince people internally, it may be easier to point at a persona; how do you think this persona would react to this or that on this kind of stuff then?*" and "*then it had been great to blame something else: this is how Agda [a persona] want it*".

One further aspect discussed by the interviewees is that using a persona repository provides municipalities with an opportunity to **share and reuse knowledge** obtained in previous development projects, e.g., how a certain set of personas have been used in a specific development configuration. This is exemplified by the following quote: "*If you only show a few successful examples I believe that it is quite simple to get it going also in other places*". This is in line with e-Government research, in which user participation is put forth as an essential component for development of successful public e-services, in terms that they actually are used by citizens once implemented. However, so far, existing research in the field provides limited advice for public administrations regarding how to implement user participation in practice; some directions are provided, but no concrete guidance that actually shows public administrations how to do it can be found (Holgersson, 2014), or in the words of the primary municipality: "*In order to produce actual benefits for citizens it is required a systematic approach that ensure that public e-services are designed with a focus on the needs of citizens*". The proposed concept is an attempt to remedy this gap.

4.2   Challenges

One challenge discussed by the interviewees is the difficulty of **keeping the personas current and alive over time**. Most often, personas are designed and used within a specific development project setting and are thereafter retired (Adlin and Pruitt, 2010). Such usage of personas differs from the proposed concept since the personas are meant to be used and reused both within and between municipalities. This means that a persona must be possible to use today as well as a year later, but at the same time being able to reflect dynamics of society, which may give raise to new trends and needs which the personas must be able to represent. Some of the interviewees concerns is presented by the following quotes: "*I don't know how you think but it cannot be too static. Maybe the personas will change over time I guess?*", "*I think it will change faster than one can imagine. One might think it is static but it is not, life changes rapidly*", and "*development goes rapidly, they [the personas] must not get outdated*".

Another challenge called attention to by the interviewees is the difficulty of **making the personas trustworthy and vivid**. They emphasise the importance of that the personas are experienced as real and represent actual citizens in order to be acknowledged and taken seriously by the e-service developers who are going to use them. An interviewee put it this way: "*I think it is worthwhile to put some effort in the photos, to not use a studio photo bought from an American image agency but instead taking your own photos in order to get that documentary feeling. I think that will enhance the persona*". Furthermore, the interviewees stress that the personas has to be "alive" in order to be accepted. One interviewee suggested that the personas should be somewhat interactive: "*if I click on Nina [a persona], I will get all her personal information and maybe she will talk a few words to me*".

The interviewees highlighted the need to clarify how the personas should be used and that the persona-related activities have to be **included in existing development processes**. As discussed in Section 4.1, the users of public e-services are seldom represented in the development process; instead their needs are guessed or assumed if reckoned at all. It is indeed a challenging task to include the usage of personas in existing development processes. As discussed by Holgersson (2014), to make the users participate in development of public e-service is a complex task that may be negatively affected by, e.g., inter-organisational resistance to change (Lapointe and Rivard, 2005, Keen, 1981) or a techno-centric approach to public e-service development (Sæbø et al., 2008). Such factors must be taken into consideration when introducing new thoughts and ways of working in existing public e-service development processes, just as the following quote shows: "*to get it into the processes and how municipalities really work, that might be the hardest part, to get them thinking like this*".

5   Summary

The purpose of this paper has been to empirically explore municipalities' perceptions and attitudes towards figurative user participation in public e-service development via the usage of a persona repository based on empirically grounded personas.

Public e-services are mainly developed from an internal government perspective and user considerations are not appropriately addressed. Millard (2010) state that most public e-services are only digitalised versions of existing services. This means that existing processes for developing and maintaining e-services are not included, and, hence, that true innovation and effects cannot be obtained. Based on notes from meetings with and text written by the primary municipality together with interviews with the regional alliance of the municipalities and five other municipalities, we have explored the usefulness and effects of the proposed concept *figurative user participation through the use and reuse of empirically grounded personas with help of persona repository including usage guidance that is shared among several municipalities*. The results show a general positive attitude among the interviewees towards the concept and several opportunities have been identified. It is clear that the interviewees are frustrated; they want to work closer to the users when developing public e-services, but

they lack resources and concrete knowledge about how to do so. Therefore, they see the use and reuse of personas as an opportunity for increased visibility of the users in the public e-service development process. Using personas is also seen as an opportunity for increased trustworthiness, thus providing e-service developers with grounded arguments instead of intuitive guesses when debating user-centredness with various stakeholder groups. Furthermore, the opportunity of gaining knowledge from previous experience of using personas has been highlighted by the interviewees. By sharing knowledge and experiences from using personas in public e-service development, municipalities will have an opportunity to jointly create concrete guidance in how to represent a citizen perspective.

In addition to the positive aspects of a persona repository, a number of challenges have been revealed that must be addressed. The interviewees highlight the importance of keeping personas current and alive over time. This means that the repository itself is not enough, but a process for managing and maintaining it is required as well. If such a process is excluded, the idea of a repository with reusable personas cannot be met. The importance of making personas trustworthy and vivid has also been stressed by the interviewees. This aspect may be less challenging, but nevertheless needs to be acknowledged. A third challenge includes how to incorporate the usage of personas into existing public e-service development processes is acknowledged by the interviewees. Obviously, this is a critical challenge to tackle. We believe that introducing a persona repository provides municipalities with an opportunity for process redesign. As described by the interviewees, current processes for developing public e-services are not standardised and may change from time to time. We believe that now is the time for introducing the usage of personas. Most likely, it will be harder to accomplish this change within a few years since public e-service development processes may be more standardised, and thus harder to change.

In summary, the study shows that a persona repository in public e-service development can be a promising alternative to other more resource consuming methods of user participation. The results extends existing research on personas in public e-service development by discussing the possibility of reusing existing personas as a means to handle limited resources for implementing user participation in public e-service development. Furthermore, the importance of extensively grounding personas in empirical data from citizens is highlighted. Also, we argue that process support for how and when to use and reuse personas is a necessary and vital component.

6 The road ahead

The need for and the potential usefulness of a reusable persona repository with adjacent guidance and process descriptions has been established in this paper. In order to take our research further, the next step is to make a pilot study including testing out the empirical process to use for gathering data about a specific user segment. Based on the results, a full-scale study will be conducted in the primary municipality. This study will include empirical data collection, development of the persona repository in the form of an IT tool with a process description for how to use, maintain and manage the repository, and continuous evaluation of the personas, tool and process. Once this part of the research has been completed, the resulting repository (tool) and process will be implemented and tested in the primary municipality. Naturally, this phase of the research will need to include educational aspects in which necessary training for public employees is an integral part.

Throughout the research project, continuous contacts will be established and upheld with other municipalities in the same region. In this way, the research results will be spread and evaluated within more than one municipality, which also guarantees transferability of the results, and validates the quality and usefulness of them. This will also help us to identify potential adaptation requirements when transferring the repository between municipalities.

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