

USER PARTICIPATION IN PUBLIC SERVICES

Using personas as citizen
representatives

ANVÄNDARMEDVERKAN I OFFENTLIGA TJÄNSTER

Användning av personas som invånar
representanter

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Summary

User participation is often excluded in public e-service development, mainly due to lack of resources. It is difficult to identify the users of a public service when it consists of an entire municipality. Selecting citizens to be a part of a development project may not seem interesting to a citizen. Citizens feel that they do not have the time or knowledge to be a part of a development project. There is however a user participation approach where the users are represented by personas. A persona is a compilation of users presented in a fake character. By using personas, the citizens can be part of a development project without being present.

This study presents the usage of personas as citizen representatives in a public e-service development project. The personas are compiled of information about the target group. A development team in a small Swedish municipality is developing a public e-service. In a small part of the development the project team was handed three personas that represented the target group. The team members were then interviewed about the usage of personas as citizen representatives. A qualitative research method was applied to research the usage of personas in public services.

The personas were used as citizens representatives and helped the development team understand the target group. It is easier to create a valuable e-service when the citizens are included and their needs are considered. By creating personas based on the target group the citizens do not have to be included in the development process. It can be seen as more interesting by the citizens to be a part of a personas rather than to be part of a project team and attend meetings.

Keywords: Digitalization, Public e-service, user participation, personas

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1 Introduction

This paper presents user participation in e-service development, mainly public e-services. User participation is often excluded in public e-service development due to lack of resources. The citizens being excluded in the development of e-services can lead to distrust of government as the public services does not create any value for the citizens (Church & Moloney 2012). Most citizens do not feel they have the time to participate in a development project as well (Holgersson & Karlsson 2014). How can the citizens be included in developing public e-services without losing resources and taking time from the citizens? A previous study by Holgersson, Alenljung & Söderström (2015) researched a way of work to include the citizens in a development project without the citizens needing to be always present. Personas is a characterization of a user group; several users are compiled into one character. The personas are based on data about the target group from different sources of information (Pruitt & Adlin 2010). The study in question researched the willingness of municipalities in Sweden to use personas during development projects. The result of the study showed a positive attitude towards personas. Therefore, the purpose of this study is to continue the previous research and applying personas to a real development project in a Swedish municipality.

The purpose is to test and evaluate user participation using personas to include the users in the development process. The background presents the necessary information in four chapters: Digitalization, public services, user participation and Personas. The background is followed by a problem area specifying why this is a relevant problem and a proposed question as well as demarcations for the study.

2 Background

This chapter presents the background to the study. This chapter is divided into four sub-chapters, each with its own sub-chapters. Firstly, digitalization as a concept is introduced followed by the digitalization of public organisations, namely e-government. Public services are described and followed by user participation as a term and user participation in public services. A method for applying user participation is personas and is introduced in the final chapter.

2.1 Digitalization

During the latest decades' digitalization has been increasing drastically. Companies are changing their systems from analogue to new digital solutions to keep up with new trends and avoid being outcompeted. To succeed with digitalization everyone in the organisation needs to be on board with the new processes and agree that digitalization is the next step forward (Lotsson & Dobos 2017). It is easy for employees in an organisation to get comfortable using old analogue systems, and the acceptance for a new digital system requires new knowledge. The digitalization must be divided into smaller steps for the employees to be comfortable with new changes. The new changes must be implemented with clear dividends for each step. Digitalization can be divided into two parts: digitalization and digitization. Digitization is the process of transforming data from analogue to digital and digitalization is the increased usage of technical tools such as computers, tablets, phones etc. among companies and private persons (Edvardsson, Godhe & Magnusson 2018). Digitalization can be seen from two perspectives: social digitalization and information digitalization. Social digitalization is the increased usage of digital services and IT. It makes it possible for companies and individuals to exchange information and communicate with other companies, this is the aforementioned *digitalization*. Information digitalization is the process where analogue data is transformed to digital, therefore *digitization* (Hagberg & Jonsson 2016). According to Gartner's IT Glossary digitization is only changing the form from analogue to digital and not changing the process behind it. A paper-based task will still be the same task once digitized but will still require the same work only the information is digital instead. Whereas digitalizing a process enhances the work by sharing the data among all digital system and no longer needing to manually transfer the data.

Digitalization of our community affects how companies and private persons acts in their day-to-day life. Adapting a company to digitalization is an advantage going forward but requires a lot of work to succeed (Peláez & Marcuello-Servós 2018). Several privately owned companies and organisations are already a step ahead in the digitalization of services considering the competition on the market. This requires the public organisations to adapt to new technologies and become more technically advanced. The digitalization of public services lead to more trustworthy governments by enabling more cost efficient and interactive services. (Borg, Olsson, Franke & Assar 2018).

2.1.1 E-Government

The term E-Government is increasing in interest as it grows larger, however the use of E-Government is not only to digitalize and computerize, but also to make it more efficient and accessible. By using technologies such as new technical tools and the internet as a tool the objective of E-Government is to make it more accessible and efficient to obtain public information by the citizens. The increase of E-Government also increases the importance of user satisfaction (Verdegem & Verleye 2009). Holgersson & Karlsson (2014) describes that the ambitions for E-Government is to make it easier for the citizens to communicate and take part of the government's decisions. Instead of sending an email, citizens can have a direct line of contact with authorities. In the development of E-Government it is easy to focus on digitizing the manual routines. Which in turn does not make them more efficient, it only switches from analogue to digital (Holgersson & Karlsson 2014). The goal of a successful digitalization is to make the activities more efficient. According to Chun, Shulman, Sandovan & Hovy (2010) E-government transformation can be categorised into four stages, each stage describes patterns of interactions with the public. The first stage is digital presence, providing the public with information about the government with web-based services. The second stage is where the citizens can interact with the government through digital applications, such as emails or forms. The third stage the government provides transactions services online, i.e., license or permit applications. The last and fourth step is where the government and the citizens' work as a transparent unit, the government provides the citizens with information and the citizens' voices are heard and considered. The last step has not yet been fully achieved; Chun et al. (2010) describes that for this step to be fulfilled the citizens must be participant and there is not enough technology support for user participation. The goal of E-government is to increase the public interest and increase the transparency between government and the public. For this to work the citizens needs to be able to participate in the development of E-government. As previously stated it has not yet happened due to lack of technology. The first step of E-government is just digitizing the already existing services, the citizens can take part of the knowledge but is not yet able to communicate back. The second step the citizens can communicate with the government through digital applications, but this does not mean they can remove the previous communication channels such as mail by letters. When developing E-government it needs to be available to everyone in the public, no one can be excluded. Creating new channels of communications does not change the fact that some citizens use old-fashioned methods (Jansson & Lindgren 2012). For the fourth step of E-government transformation to happen there needs to be a way to include the citizens in the development process.

2.2 Public services

A public e-service is an electronic service for the citizens in a municipality provided by a public organisation. To digitalize a public service is not only an application for the people, but also a development progress for the organisations (Lindgren & Fleur van Veenstra 2018). Holgersson et.al (2017) discovered there are two different types of e-

services, *fake* and *real* e-services. A fake e-service is a digital form the customer can fill in via a webpage or similar, however the form must manually be submitted to a related IT system by a civil servant. A real e-service is an integrated service which are connected to related systems and there is no need for manual labour. A fake e-service or a digitized service does not create any more value than it did manually since the work will still be the same only digital. Whereas a real e-service or digitalized service the entire process is digitalized and meant to reduce the amount of work needed.

The main difference between a public and a private organisation is that the public organisation is led by different regulations and laws. A public organisation needs to adhere to the opinions of the citizens, a public service needs to be available to everyone. Public organisations are guided by the 'public ethos'. The public ethos describes that the purpose of public organisations is to aid the citizens by listening to the public interest and understanding that they are funded by public resources. Transforming public services into e-services involves several factors, not only is it based on the needs of the citizens, but also what is acceptable within the law. Lindgren & Fleur Van Venstra (2018) describes that the laws are not written based on e-services, creating an e-service may require the law to change or the service to adapt. Lindgren & Fleur Van Venstra (2018) realized that some public services cannot be transformed to e-services without changing the way the service works or changing the laws, since most of the laws were written before internet existed. A difficult task when creating public services is that it needs to be available to everyone, and at the same time is not able to identify a target group (Jansson & Lindgren 2012). A difference between a public organisation and private organisations is that the citizens are "customers" that not necessarily chose to use a specific service, rather needed to use it, or had to use it. A customer in a private organisation may have chosen from a market of companies and decided which fits best for their purpose. Health care services is a legal right in Sweden, this does not mean there is not health care from private suppliers as well. The public health care must be available to everyone whereas the private health care is based on the customers that chose them. It is easy for the citizens to lose trust in their municipality when services are digitalized and seem more unstable. This can be changed by including the users in the development process. The term "E-inclusion" is a term by the European Union which implies the importance of including the users in the digitalization of a society (Church & Moloney 2012). EU: s inclusion policy address that all information- and communication technology should strive to aid companies and organisations performance, social status, and work opportunities. Holgersson et al. (2017) researched the reasons a public e-service is created, a lot of times a public service will be digitalized because there is pressure from upper management or politicians stating that services need to be digitalized. According to Heeks (2006) a public e-service should be based on the need to solve a problem with a service. A public service created based on political decisions decreases the trust from the citizens since the service does not make a difference. Quoted from an interview by Holgersson et al. (2017):

“three years ago, the county council decided that we shall install e-services. There should be at least twenty of them” (Holgersson et al. 2017, pp. 696)

A political decision can be made only to make a government more digital since there is not enough e-services, there is a greater focus on the quantity of e-services rather than quality. A political decision can be made based on other governments digitalization, in order to keep up with trends. A digitalized service can often be made to decrease manual labour to improve internal efficiency. There are other cases where external factors are prioritized, such as, creating a service for the citizens to increase user and citizen satisfaction of e-services. Whether a public service is created from an internal or external need, the user and citizen are still excluded from the process. The citizens' needs are guessed or assumed by the government, which in turn does not make the e-service valuable for the citizens. Governments face difficulties involving the citizens in the development process and it is therefore excluded (Holgersson et al. 2017).

2.3 User participation

A user can be defined as several different types of users, depending on what the user does with the system and if the user is from within the organisation or not. A system can be designed for several purposes and depending on which purpose a user must be identified (Cavaye 1995). Barki & Hartwick (1989) defined the term user participation as 'activities performed by the user' not to be confused with the term user involvement which is more a psychological state. User involvement refers to the importance and relevance a system is to a user (Barki & Hartwick 1989; Abelein, Sharp & Paech 2013).

According to Church & Moloney (2012) public value is created when the citizens' needs are met. Karlsson, Holgersson, Söderström and Hedström (2012) demonstrates the importance that a system developer understands the needs of the users in order to create a successful service and a successful digitalization. Without regarding the citizens' needs a public e-service will not generate value to the citizens. As recently mentioned in the previous chapter public services will sometimes be developed to keep up with the trends in digitalization. These kinds of services oftentimes are digitized only for them to work in the same way but instead digital. This does not generate any public value as the citizens do not see any difference in effectiveness. The civil servants will still need to do the same work. A reason for developing a public e-service is in many cases to reduce the cost of a service and reduce the time it takes to handle the manual task. This leads to the service only fulfilling the internal needs and the citizens needs are being excluded for lack of resources (Holgersson & Söderström 2014). There is a lack of discussion regarding who the users are in public services, the users are consistent of citizens from all groups. It is not possible to create a public service and disregard a group of citizens since a public service needs to be available to everyone (Jansson & Lindgren 2012). Since it is a difficult task to identify citizens as users the digitalization of public services often disregards the users' needs and ideas and this can lead to a negative vision of

digitalized services. It is hard for citizens to see the purpose of digitalized services when it does not meet the requirements (Holgersson et al. 2017).

2.3.1 What is the motivation for users to participate?

For a public e-service to be deemed beneficial by the citizens the users must sense a purpose and an ease of accessibility compared to the analogue version (Holgersson & Söderström 2014). By involving the citizens in a development process the likelihood of a satisfactory e-service is increasing. Involving the users in a development process is a challenging task and is increasingly harder when developing a public e-service, comparing to an e-service created for employees in a company the user participation can be made mandatory. The citizens' in a municipality needs to be motivated about the benefits of participating in user studies.

“In research, knowledge of citizens' needs and skills is seen as essential for successful public e-service development” (Holgersson & Karlsson 2014, pp. 396)

The citizens' needs to be included in the development of a public e-service for the service to fulfil a purpose demanded by the citizens.

Holgersson & Karlsson (2014) researched the willingness of citizens to be involved in developing public e-services. Citizens who were satisfied with the current e-services and citizens not using e-services, were not interested in participating in a development project. The largest factor of citizens not willing to participate was lack of time, they did not have the time due to their own work. Citizens who lacked knowledge of system development showed less interest in participating since they considered themselves to be of less use. Citizens above the age of 70 were not as willing to participate as they did not use public e-services as much and did not have the IT experience for it. Lack of knowledge about the authorities and municipalities laws and regulations were a factor of citizens not willing to participate. The citizens are not always able to participate in developing a public service and as recently stated does not have the proper knowledge to feel like they fulfil the requirements in participating. User participation in development of public e-services face several challenges, the users must be identified to fit the development project, and the users must be willing and able to participate (Holgersson & Karlsson 2014). Several factors are in play for citizens willingness to participate in user participation programs. The three different methods Holgersson & Karlsson (2014) based their study on comes from Karlsson et al. (2012). Karlsson et al. (2012) discuss three different user participation approaches: Participatory design (PD), User Innovation (UI) and User-centered Design (UCD). PD uses the users as advisers in the development process, UI focuses on “lead users”, the lead users are responsible for identifying problems and working out solutions. In UCD the user works as advisors as well, but they are not equal to the developer, they are instead involved as representatives for user groups. The user groups can be categorised using personas, where each persona works as a representative. Each approach presents both upsides

and downsides, involving the users is an advanced process and demands a clear incentive to the users. Both PD and UI demand time from the participating user since they must be involved in the process from beginning to end, while UCD is not as demanding and only requires the user to be available in parts of the project.

2.4 Personas

Persona was introduced in 1999 by Alan Cooper in his book *The Inmates Are Running The Asylum: Why High Tech Products Drive Us Crazy And How To Restore The Sanity* (Cooper 1999). The idea behind personas is to make it easier for the developer to create a product for one single user instead of a group of users. The difference between using a persona and using real users is that the users does not need to participate as much. In the previous chapter the citizens willingness to participate in a project were discussed and most citizens did not have the time. Personas decreases the time the users and citizens need to partake in the development and still get a grip of what the users want. The idea to only create a product for one user seemed contradictory at first.

“The thought of limiting our product design to satisfy just a few people is terrifying. What if only those few people buy our products?” (Pruitt & Adlin 2010, pp. 16)

The idea of using personas to only create products for a single user seemed like the product would only appeal to them. However, by using personas several users are compiled into one “character” and the developer therefore need only to focus on the personas. Personas act like characters on a tv show, they can inspire the developers to imagine new ideas. A persona is not a real person but with the help of the developers’ imagination the persona can become more “alive” (Pruitt & Adlin 2010).

Understanding the user and what the user wants is an important part of a development project. Including the users’ needs in a requirement specification is a difficult task considering the specifications are often updated during the project (Pruitt & Adlin 2010). Personas is a tool to help create fictious users and easier convey information about the users’ needs and wants.

2.4.1 What is a persona?

A persona is a fictive description of a person belonging to the target group. The word “persona” comes from psychology where a persona is the role a person submits to in a certain social situation. A persona depicts how a person wants to be seen by the world (Wikberg-Nilsson, Ericsson & Törlind 2017). A persona builds on data pertaining to the user’s context. Personas makes it possible for the developers to get an understanding of what a user is and what it wants. A persona can look different depending on the context of the project, every project needs different details. The next chapter explains how to create personas.

2.4.2 How to create a persona

Building a persona can be divided into six steps: mapping out the users' context, contextualize the material, search for patterns, create a living character, create a scenario, validate the persona. Mapping out the users' context is important to understand the user's situations and milieu through interviews, observations, and surveys. Once the material has been gathered it needs to be contextualised, what does the users say or do, why do they do what they do what are their ambitions and frustrations (Wikberg-Nilsson, Ericsson & Törlind 2017). Search for patterns to categorize the personas, who has similar ideas and thoughts. Categorize them by similar aspects, relations to the project, fears, ambitions etc. Add details to make the personas more "living", describe personal details, give the character a name and a picture to visually communicate the persona. Create a short story describing the persona in a situation. Lastly, validate the persona by letting others read it and give feedback. Persona is mainly a practical method and best serves its purpose as a discussion tool in a project (Wikberg-Nilsson, Ericsson & Törlind 2017). A persona can be made in several different ways depending on the context, but some of the details should always belong in any persona. A persona should always have a name and a picture to give the developers a feeling of who the person is, characteristics of the persona helps the developers imagine what the person wants. To create a persona data needs to be gathered. According to Adlin & Pruitt (2010) there are a few general methods often used to collect data: Internal data, External data, Original data and Secondary data. *Internal data*, what information is available in the organisation about the users' is there any other sources of data readily available within the organisation. *External data*, is there previous research about the same information in another organisation. *Original data*, data gathered from interviews, which users needs to be investigated to gather the missing relevant data. The most common method is to find quantitative data in internal and external sources and use interviews to gather qualitative data. *Secondary data*, is there anyone within the organisation with knowledge about the specific area. Once the data has been collected the data should be organized in a list which includes: Name of the source, date, where the data was found and type of data (qualitative or quantitative). When the data has been collected it needs to be analysed and identified into themes. The identified data needs to be evaluated and divided into different user categories, create a skeleton of the data. When the skeletons are completed, they need to be verified by stakeholders and prioritized. The selected skeletons are then created into personas by adding individualized details and some stories to enhance the personalities. There is not a specific number of personas that needs to be created for every project as it depends on several different aspects but according to Adlin & Pruitt (2010) a good number of personas is between three to five. The created persona can be divided into primary- and secondary- personas. The primary persona is the user that should be prioritized when creating a product. While the secondary personas needs' should also be taken into account the primary persona uses the primary interface. Figure 1 shows an example of how a persona template can look, as previously mentioned the details differ from every

project. The short story of a persona should describe identifying details but not so much that it confuses the reader.

Picture	Name:
	Job:
Knowledge/Skills:	
Goals:	
Description of persona, a day in the life of...	

Figure 1: Example of a persona template.

“Think of this “irrelevant” content as you would salt and pepper or other spices used in cooking. You are adding flavor to your meal, but too much will ruin the taste” (Adlin & Pruitt 2010, pp. 71)

When a persona is created there needs to be information that makes the persona relevant and alive; too little information and it will not be enough and too much information will only make it confusing. The key to creating a probable and believable persona is to use the right number of details, the persona needs to feel alive and real.

3 Problem area

User participation in development projects of public services is something that is being excluded, often due to lack of resources. There is not enough time or budget to include the citizens in the development process. User participation is an important aspect to increase the citizens satisfaction with public e-services. Oftentimes public services are digitized because there needs to be more e-services. These services can be based on political decisions and is not based on what is needed. Heeks (2006) states that a public e-service should be based on the need to solve a problem with a service. A public service created based on political decisions decreases the trust from the citizens. When public services are created today, the citizens' needs are guessed and not based on real evidence, which does not create a valuable e-service for the citizens. An example of a service created in a small municipality in Sweden: A small municipality in Sweden developed an e-service to register where citizens want to throw their compost, either in a recycling center or in a compost box at home. Previously this service was registered with a form sent in by post to a local authority. The new e-service made it possible to fill out the form via a webpage and sent in directly to the local authority. The service still fulfils the same function as it did before the only difference is it is done via the web. The civil servants still must do the same work as they did with a paper form. This service does not create any value for the citizens nor the workers as it still is the same service as before. For e-services to be valuable for the citizens' they need to be included, but as previously mentioned most citizens does not have the time to participate. There is a study describing a way of work to include the user that has been tested in theory, personas. Personas is a way of work that compiles a category of the target group into a 'character'. Holgersson, Alenljung and Söderström (2015) conducted a study to examine the interest of using personas in a municipality in Sweden. There is an interest in testing personas to include the users' needs and wants in the development process. The authors of this article propose a pilot study to test and evaluate the use and reuse of personas and the gathering of data from user groups and creating personas. The objective of this study is to test and evaluate the usage of personas in a public e-service development project in a Swedish municipality.

3.1 Problem/question

User participation is sought after in public e-service development, the users are not involved in the development process due to lack of resources. There is however a way of work called "personas". A persona is a character created from information about real users. The developers can then use the persona to figure out what the user want. There has not been documented any usage of personas in a public e-service development previously. The intent of this study is therefore to test and evaluate the usage of personas in a public e-service development project.

The question focused in this study is: How does personas work as a user representative user participation approach in a public e-service development project.

The question can be divided into smaller sub-questions:

- (i) What are the developer's thoughts and opinions on personas citizen representative user participation approach?
- (ii) How does personas work as citizen representatives to include the citizens without the citizens being present?

3.2 Demarcations

This study will only focus on a small part of a development project in a small Swedish municipality. This is a first test of personas in a public service and is therefore only tested on a small scale.

These personas will be tested in a development project in a small municipality in Sweden. This study will only test personas on a small part of a development process as this is only a pilot study. This is a first step to increase user satisfaction and user participation in public e-services. The project team consists of four members whereas only three are working with the actual development.

3.3 Expected results

The purpose of this study is to test and evaluate a user participation approach using personas as citizen representatives in a public e-service development project. User participation has long been a discussion in developing public e-services, it has not yet been defined how it should be made in an efficient method. One of the main reason's user participation is not integrated in public e-service development is due to the lack of resources.

Hopefully, personas will prove to be useful and can convey the citizens ideas in a understandable manner. If this works as intended there will be reason to conduct a bigger version of this study, on a bigger scale. The next step will be to test personas in a larger scale in a bigger project. When the personas have been more refined and evolved into a sustainable work method it will be possible to create a personas repository. The repository can then be shared among other municipalities.

4 Method

4.1 Purpose

The purpose of this research is to study how user participation in development of public e-services can be included using personas. A way of work called personas will be tested by a development team that is developing an e-service. The personas will work as representatives of citizens. What is interesting is to discover if personas can be used as citizens representatives and if the developers can understand the needs of the citizens using personas.

A service for notification of concerns is being developed as an e-service in a small Swedish municipality. A notification of concern is when someone reports that someone might be in trouble at home, at work, at school or being abused. A notification of concern is often made by someone in an authoritative position, a principal, police or physician, and is often regarding children. The e-service will enable citizens to send in notifications of concerns through an application instead of calling. Information about the target group will be discussed with the social administration and which citizens to be interviewed will be decided as well. The personas will be created using original data gathered from interviews and combined with data from the organisation about the target group. The data will be analysed and transformed into completed personas. The development team will use the personas during a small part of the development project. Afterwards, the members of the development team will be interviewed one by one in a semi-structured interview. The interviews will be focused on the developer's perception of the personas and what they think about this way of work.

4.2 Research method

When choosing a method for a study it is important to investigate all aspects of data that needs to be collected. A quantitative research method focuses on a large amount of data to be analysed and is often focused on answering a presupposed theory. Quantitative data is usually collected from several sources oftentimes from surveys (Bryman 2012; Patton 2015). In a qualitative research method, the common objective is to find new ideas and theories from the collected data. Qualitative research is usually connected with interviews and observation where the people in the study are important. A common saying is that quantitative data is numbers and qualitative data is words (Bryman 2012).

Considering the nature of this study where the usage of personas to include the users in a development process. The interesting part is to understand what the developers think about the usage of personas to include the users in a development process without the users being present. In this study the service is a public service, and the users are citizens. Since the thoughts and ideas of the developers are the focus in this study a qualitative method was chosen. In the development team there are three developers, it

is an extremely limited amount, and it is interesting to fetch all their ideas and opinions. Therefore, a qualitative method was the best fit, to understand the developers.

A qualitative method often uses interviews and observations as means to collect qualitative data. Qualitative interviews can be made in different ways, with an interview guide or through an open-ended discussion. Observations are a great way to discover information about the subjects by observing their behaviour. Observations together with interviews can create valuable information. Using observations in this study could bring an insight into how the developers are working with the personas from a third person perspective. However, observations were not possible due to Covid-19 (MSB 2021). Every participant of this study was working from home and it was therefore not possible to observe their working behaviour while using the personas.

4.3 Personas

Three personas were created for this study. The personas were based on real information provided from the social administration and interviews. The interviews were made on citizens of authoritative positions, since they were mainly the ones sending notifications of concerns. The information provided from the interviews were the knowledge on IT from these citizens, how do they use IT in their everyday life. For a persona to feel real and alive it is important that it is based on some real information, as presented in chapter 2.4.2. Figure 2 shows one of the personas that are used in this study, in total there are three personas. Each persona has the same layout but with different characters. The pictures in the personas is from a webpage that delivers copyright free pictures. No license is needed to use these pictures for commercial or non-commercial purposes. Adlin & Pruitt (2010) described the importance in making a persona feel alive, preferably with a picture of a real person.

The social administration provided information about which type of citizens mainly use the service that is being digitalized. In this service it is mainly authoritative person, e.g., principals, police, physicians. Therefore, the three personas that were created for this study are, a police officer, a principal, and a physician. Figure 2 shows the police. The biography and the frustrations is where the information about the real users are displayed. The remaining information is created to make the personas feel more alive and real.

4.4 Interviews and discussions

There are different types of interviews to conduct in a qualitative method but for this study a mix between structured interviews and unstructured interviews were chosen. A structured interview is based on a prepared script and is followed through the entire interview. Every question needs to be the same for every interview subject. An unstructured interview is more of an open discussion where the interviewer only tries to keep the relevant subject at hand. There might be questions prepared but the interviewee should be the one to lead the subject and the interviewer is only a guide. A

semi-structured interview is a mix between the two types where there is an interview guide with prepared questions, but not every question needs to be asked. The interviewer leads the next question depending on the answer from the interviewee (Patton 2015). The semi-structured interviews were the most fitting for this study considering the narrow subject. The interviewees were only interviewed about the usage of the personas and what their personal thoughts and opinions were.

Interviews can be made in several different ways. Depending on how an interview is conducted the result may vary, a phone call is not as personal as a face-to-face meeting. When interviews are conducted face-to-face it is more personal than a phone call or an online meeting. Every interview was recorded with permission from the interviewee and was later transcribed. During the interviews, the interviewer wrote down keywords from the interview to remember more details when it was transcribed.

When creating interview questions, it is important to ask the questions in a manner that does not lead the interviewee to an answer. An interviewer must be able to remain unbiased and maintain objectivity throughout all the interviews. In a structured interview it is important that all question will be asked in the same manner for all interview subjects (Patton 2015). A semi-structured interview can be changed into a discussion where the interviewer helps keep the important topics at hand. For a semi-structured interview to be kept going it is ideal to ask open ended questions as not to get “yes or no” answers.

The interviews in this study is focused on discussing the usage of personas in a public e-service development project.

4.5 Work process

Since this study used a semi-structured interview, the question will be the same for all subjects, but the order of questions may change depending on the answers from the interviewee.

The process can be divided into smaller steps. The green rectangles in figure 2 are not part of the data gathering process but are necessary to do beforehand since the personas needs to be created.

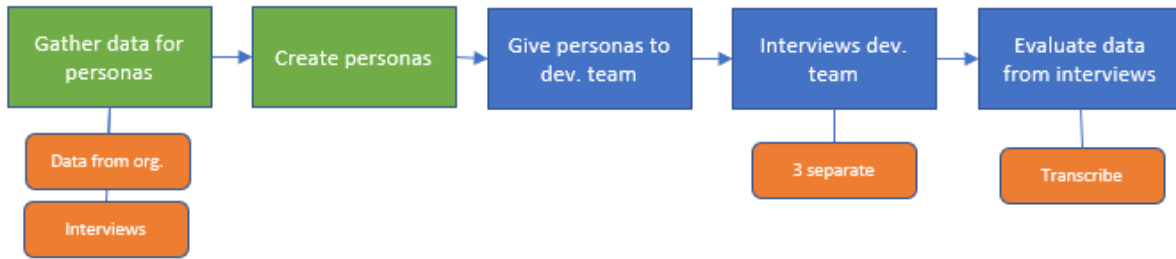


Figure 2: Work process.

Firstly, personas need to be created, for personas to be as accurate as possible they need to be based on real information. As mentioned in chapter 2.4.2 there are four methods to gather data. In this study two of them will be used, internal data and original data. Internal data is information about the target group available within the organisation, secondly original data is information gathered from interviews with respondents from the target group. The internal data will be used to gather specific information about the target groups most common occupation, as this is relevant to the development project. The interviews will be conducted on Swedish citizens in order to get information about the IT knowledge of the target group. The citizens to be interviewed will be chosen based on information provided from the social administration. Most notifications of concerns come from persons of authority e.g., principals, police or physicians. Together internal data and the original data will be combined to create personas. The interviews were structured with a template and is the same for all interviewees. The main objective of these interviews was to accumulate information about the IT knowledge of these citizens. These interviews are not part of the final result, but they are necessary to create the personas. When the personas were created the development team used the personas in a part of a development project. The project team were interviewed about the usage of personas.

The next step as seen in Figure 2 is to give the personas to the development team. The team was presented with the personas in a short presentation about the characters in the personas. The development team was instructed how to use the personas and was able to ask any questions. The personas were then used by the developers to understand the users' needs and capabilities when they were developing the e-service. They used the personas for one week and was afterwards interviewed.

The development team were interviewed after they used the personas in their development project. The interviews were made to research what the developers thought about using personas as user representatives to include the users in the development process. The development team consists of four members and each one was interviewed. An observation of when the developers used the personas could give a greater insight and help the developers in the usage of personas. Due to covid-19 (MSB 2021) all developers are working from home and it was not possible to do observations

while they were working with the personas. If it were possible to observe the developers when they are using the personas a more holistic approach would be possible. A holistic approach views the process by observing different parts and piecing them together (Patton 2015). By observing how the developers use the personas and afterwards interviewing them would grant a larger insight in how the personas are perceived.

The interviews were semi-structured with a template, but the goal was an open discussion. In the semi-structured interview, there was a script as a guideline to keep the interview on the correct topic. Before the interviews, the respondents were told their rights in participating. The respondent's participation was completely voluntary, and they could cancel the interview at any time. The ethical aspects will be discussed more in chapter 4.7. The interviews were recorded with permission from the respondents and was later transcribed. Each interview was approximately 30 minutes. In the interviews the questions were focused around what they thought about the personas. If they could see the purpose of using personas as user representatives and if this is something they would want to keep working with. And what they thought was good and bad with personas as a user participation approach. Each interview was transcribed afterwards. The transcriptions were then translated to English.

After the interviews have been transcribed, they will be analysed using inductive analysis. Inductive analysis discovers patterns and themes in the data. Find new patterns with the patterns and create theories by patching patterns together (Patton 2015).

4.6 Data analysis

In this study an inductive analysis was used to interpret the collected data. Inductive analysis means that patterns and themes come from the data and not from previous ideas. A qualitative approach is focused on discovering new ideas and with an inductive analysis the data is used to find new ideas and patterns (Patton 2015). A common method in qualitative data analysis is coding. Coding means that certain words or phrases that appear often are marked and categorised (Bryman 2012). When a transcript is coded words or phrases are marked and put in different categories or topics. Coding can make analysing the data easier when the important parts of a transcript is marked. Originally coding was made with paper, scissors, and glue. Which meant that words were cut out and glued onto a new paper, and together a bunch of words created important data. Coding today is made in the same way but with a word processing program (Bryman 2012). When the transcripts have been coded, they can be compared with each other and themes can be discovered. Thematic analysis is often used together with coding. Thematic analysis consists of themes where a theme is a group built up from codes (Bryman 2012). Thematic analysis together with coding makes it easy to analyse qualitative data.

The transcribed data from the interviews was analysed using coding. The transcripts were read through several times and important keywords were colour coded.

Every interview was done in Swedish. After the interviews had been transcribed the answers were translated to English and shortened to make it easier to read, as a lot of it was spoken language.

4.7 Ethical aspects

It is important that all research can be presented in a valid and reliable manner. By following ethical research practices the validity of this study is increased. The four common ethical aspects that have been integrated in this study are information requirement, consent requirement, confidentiality requirement and utilization requirement (Vetenskapsrådet 2002). The ethical aspects mean that the respondents must be informed about the purpose of the study and their rights. Their involvement is purely voluntarily and can choose to cancel at any given time without an explanation. That all information is gathered purely for research purposes and their personal information will not be shared. Before every interview, the respondents were given information about their participation and gave oral consent. The respondents were made aware that the information gathered is only used for research and the recordings will be deleted after the study is finished.

5 Implementation

This chapter presents the implementation of the method presented in the previous chapter. The implementation is divided into three steps: Creating the personas, interviewing the project team, and data analysis.

5.1 *Creating personas*

The personas were created with information from the social administration about the target group. The social administration showed statistics that most notifications of concern are from principals, police and physicians. With that information, a total of five respondents were chosen. Three principals, one police and one physician were interviewed. The interviews were structured with a template of questions.

How often do you use the internet
What technical tools are you using when you are using the internet
What technical tools do you use most
Do you use any technical tools in your occupation?
What do you use the internet for most?
How would you rate your own technical skills?

When the interviews were finished the information was summarized and written down in a separate document. The personas were created with the template presented in chapter 2.4.2. The information that was gathered from the interviews were presented in the frustrations and the biography. The personas were then completed with made-up information to make them seem more real and alive. The inspiration for the rest of the personas was with help from Adlin & Pruitt (2010) and Wikberg-Nilsson, Ericsson & Törlind (2017). This resulted in three separate personas, one from each occupation.

	Name: Alfred Aronsson 32 years old
	Occupation: Police
Goals/Visions:	
<ul style="list-style-type: none"> • Become chief of police • Marry his partner • Create a family • Get a rottweiler 	
Frustrations:	
<ul style="list-style-type: none"> • Dishonest people • When technics is not working properly • Slow internet 	
Biography:	
<p>Alfred is 32 years old and work as a police in Alingsas. His goal is to one day become chief of police and he works as hard as he can. Alfred is a driven man who loves his job and helping people. At work he uses a workcomputer in the office and a phone while on patrol. On his work computer he uses various Office applications. In his free time he watches a lot of movie and series on his smart TV. Sometimes he plays videogames aswell. At home Alfred has a computer that he uses to look up information about people and different events through Google or LinkedIn.</p>	

Figure 3: A persona used in this study.


	Name: Stina Svensson 60 years old
	Occupation: Physician
Goals/Vision:	
<ul style="list-style-type: none"> • Longing for retirement • Move to the summerhouse in Spain • Grow grapes and brew wine 	
Frustrations:	
<ul style="list-style-type: none"> • When new things are not working as they should • Unclear user intructions/manuals 	
Biography:	
<p>Stina is 60 years old and has worked as a physician at the local hospital for 25 years and will soon retire. Stina is driven by helping other people feel healthy. At work she writes the patient journals in a new system on the computer. Stina thought it was difficult to learn the new system at first, but she got help from her younger colleagues. Today Stina thinks the journal system is fantastic. In her free time she reads the news on her phone and sometimes listens to audiobooks. At home she has a computer that she uses occasionally. Her daughter taught her about the computer and what she could do with it. Stina uses her computer mostly for online shopping.</p>	

Figure 4: Physician persona

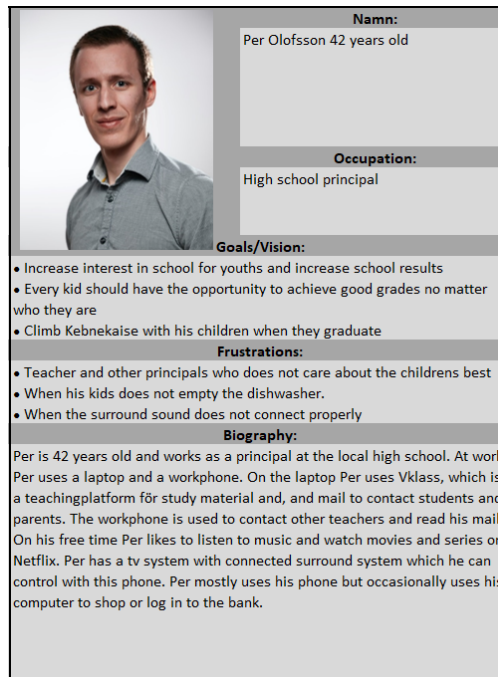


Figure 5: Principal persona

5.2 Interviews

The project team was then handed the personas and was given a short presentation about how to use them. The project team then conducted their own meeting where they discussed the personas. The project leader presented the personas to the project group, and they discussed their thoughts about it. The project team presented their collective thoughts in a short summary sent by mail. The summary is presented in the next chapter, analysis. In the project group there were four members. However, only three of them worked with the personas. The project group used the personas for two weeks and after that they were interviewed one by one. Each interview lasted 30-40 minutes. The purpose of the interview was to research their thoughts about the usage of personas. The interviews were semi-structured with a question template to keep the interview on the correct topic. The questions were used as a guideline during the interviews.

Interview template:

<i>What did you think worked good with the usage of personas?</i>
<i>Have you considered user participation previously?</i>
<i>Can you see any advantages/disadvantages working with user participation?</i>
<i>Do you think personas fulfil the citizens needs?</i>
<i>Did you think personas could add a user perspective?</i>
<i>Could you understand who the users were when you were looking at a persona?</i>

<i>Did you see any disadvantages with personas?</i>
<i>Is there anything you would like to change or add to the personas?</i>
<i>Is this something you want to keep working with?</i>
<i>How would you like to work with personas in the future?</i>
<i>Previous studies have shown that citizens are not motivated or don't have time to participate, do you think personas is a good complement for the citizens to feel involved?</i>
<i>Do you think the e-service will achieve better response from the citizens with the personas?</i>
<i>Personas has not previously been tested in public organisations, so a goal is to create a catalogue of personas that is shared with every municipality. Is this something you see can be used in the future?</i>
<i>Could you come up with new ideas about the persona?</i>
<i>A persona could be like a character from a tv show were you get a mental image of how they are outside the show.</i>
<i>Would you have wanted more technical details in the personas?</i>
<i>What challenges did you face with the personas?</i>
<i>Any ideas of your own?</i>

5.3 Data analysis

Each interview was transcribed and translated into English. When the transcripts was translated some words had to be changed to make the sentences coherent. The translated interview transcripts were analysed with coding. The transcripts were read through several times and important information were colour marked. During the analysis there was several similarities in the interviews and these were created into themes. The themes will be presented in the next chapter, analysis.

6 Analysis

This chapter presents the collected material and is compared to relevant literature.

During the analysis of the collected data, four themes were discovered. These themes are: Information presented in the personas, Interaction with personas, Usage of personas, Future usage of personas.

The goal of this study was to test and evaluate personas as a user representative user participation approach. For this to be done, three personas were created with information from the social administration. The personas were given to a project team who then used the personas in the development of a public e-service.

Key points from the project team:

- The target group acquire a “face” and feels more alive/individual.
- Is a tool that is used to give a clearer picture of who we are working for/to.
- Makes it easier to aim for the right objective in the development project.
- Facilitates to eventually give the right effort and support.
- The original personas that you made for us can be updated and used in another context. Can be seen as a living document.
- Personas help to create content and context.

Developable:

- Would wish for more personas to use in the same occasion/work task/e-service development.
- More refined personas to improve our work.
- Tools are needed to create our own personas.
- Produce a workmethod with the personas in the administration.

The personas were used as user representatives, which means that they represent the real users and are expanded by made up information to make them feel more alive.

1. Information in the personas

In chapter 2.3.1 three different types of user participation is described by Karlsson et al. (2012): User involvement (UI), participatory design (PD) and User-centered design (UCD). In UCD the users are advisors to the developers, and they are often representatives for user groups. These representatives can be in the shape of personas. The user, or in this case the citizens, are involved to create the personas. The personas are then used as advisers. Respondent two (R2) said *“It was good to be able to look at the frustrations and then look at the e-service and see if it is a viable solution”*. R2 was mostly interested in looking at the frustrations to see if the e-service could work. R2 however did not think that the background was as relevant as this only made the personas confusing. R2 would have wanted more frustrations or other technical aspects. Whereas respondent one (R1) liked the backstory and thought that it made sense to include a

story about the personas. R1 thought that it made the personas feel more alive. R1 liked the backstory and would have wanted more information but also said that you must not read the backstory but for those who are interested it is good. A persona can be used in many ways depending on who is using them. As R1 said that it was easier for those who knew about personas to understand the context than for those who did not. For those who did not know how to use the personas the backstory information was mostly irrelevant. However, for those who knew the purpose liked the backstory and said it helped them visualize who the person in the persona was. Figure 6 shows a persona about the physician.


	Name: Stina Svensson 60 years old
	Occupation: Physician
	Goals/Vision: <ul style="list-style-type: none"> • Longing for retirement • Move to the summerhouse in Spain • Grow grapes and brew wine
	Frustrations: <ul style="list-style-type: none"> • When new things are not working as they should • Unclear user instructions/manuals
	Biography: Stina is 60 years old and has worked as a physician at the local hospital for 25 years and will soon retire. Stina is driven by helping other people feel healthy. At work she writes the patient journals in a new system on the computer. Stina thought it was difficult to learn the new system at first, but she got help from her younger colleagues. Today Stina thinks the journal system is fantastic. In her free time she reads the news on her phone and sometimes listens to audiobooks. At home she has a computer that she uses occasionally. Her daughter taught her about the computer and what she could do with it. Stina uses her computer mostly for online shopping.

Figure 6 Physician persona

A persona contains a limited amount of information because too much information can make them confusing (Adlin & Pruitt 2010). Information in personas can be seen as salt and pepper in food. Too much of either will ruin the food but just enough makes it perfect (Adlin & Pruitt 2010). This is both an advantage and disadvantage. The advantage is that it only contains the necessary information. The information in the persona is limited to only convey the important parts, such as usage of IT at work and at home. It also includes some personal aspects to create a living character.

2. Interacting with personas

Disadvantages with personas is the lack of human interaction. Interacting with real humans often include social cues from both sides and these can imply things that is not possible to catch in a persona. As respondent 3 (R3) said *“For example the Police is a part of the target group our e-service is aimed at. What is interesting is when meeting humans in real life*

we can have perceptions of how the person might be before we meet them and then our perceptions change. Every human is very individualistic, and that is part of the noise that personas might be able to remove. It might be fun to imagine how a person might be, but it does not add anything. And that is why I think personas can be a good clean tool to help clean out the unnecessary noise. E.g., the police, I do not have to think, ah police are like this or that, because that is not important.” A persona removes the human interaction which can be both good and bad. A persona only shows the important information from the citizens. R3 also said *“If I flip over what I previously said that a persona is a package of important information but it lacks the human interaction and that is something personas can never live up to. But maybe when creating the personas add a few more “parameters” or something similar. It is good that it is not too much information, but I think a little more might be good. But I think if people will adopt personas they need to be more human.”* When a persona is used to create a public e-service the developers can look at the personas, but they cannot ask the personas anything. They might be able to imagine new ideas, but the persona can never answer a question. As R1 said, it is important for personas to evolve together with digitalization for them to remain valuable assets for user participation. Discussion with real humans can often include noises which might add confusion to what they are saying. All noise is not inherently bad, but the persona can be used to only find the ‘good’ noise. As R3 said *“mental images are a good description and that is where I think you can get a greater depth in the personas, it is those things that make them more human. But I do not think I would have been bad to add a little more information about the personas, to create some good noise so to speak. You do not need to read all information in a persona, but I could be good if you want to read more.”* According to R1 it is easy to have presumptions about other humans before meeting them. *“we humans might have ideas about a person before we meet them, e.g., what an IT nerd does”* this is also referred to by R3 as mental images. Mental images can be ideas about a person, or presumptions. R1 could see that the principal persona liked orderliness, and this could be true since they looked at the picture of the principal. The personas can help reduce presumptions and bring forward positive mental images instead. This was positive since they could not confirm their presumptions by looking at one of the personas. A persona is not a real person but with the help of the developers’ imagination the persona can become more “alive” (Pruitt & Adlin 2010). Including the users’ needs in a requirement specification is a difficult task, but personas can help convey information about the users’ needs and wants (Pruitt & Adlin 2010). The idea of using personas to only create products for a single user seemed like the product would only appeal to them. However, by using personas several users are compiled into one “character” and the developer therefore only needs to focus on the personas. Personas act like characters on a tv show, they can inspire the developers to imagine new ideas. A persona is not a real person but with the help of the developers’ imagination the persona can become more “alive” (Pruitt & Adlin 2010).

3. Usage of personas

A reason for developing a public e-service is in many cases to reduce the cost of a service and reduce the time it takes to handle the manual task. This leads to the service only fulfilling the internal needs and the citizens needs are being excluded for lack of

resources (Holgersson & Söderström 2014). There is a lack of discussion regarding who the users are in public services, the users are consistent of citizens from all groups. It is not possible to create a public service and disregard a group of citizens since a public service needs to be available to everyone (Jansson & Lindgren 2012). Since it is a difficult task to identify citizens as users the digitalization of public services often disregards the users' needs and ideas and this can lead to a negative vision of digitalized services. It is hard for citizens to see the purpose of digitalized services when it does not meet the requirements (Holgersson et al. 2017). For a public e-service to be deemed beneficial by the citizens the users must sense a purpose and an ease of accessibility compared to the analogue version (Holgersson & Söderström 2014). Before this e-service was created citizens had to call to the social administration to issue a notification of concern. Most citizens want to be anonymous when issuing a concern as most of the reports are about children. Calls can therefore be very delicate, and it can be difficult to be anonymous. With the e-service the reporter can choose to be anonymous, and they do not have to call. Transforming a public service into an e-service involves several factors, not only is it based on the needs of the citizens, but also what is acceptable within the law (Lindgren & Fleur Van Venstra 2018). This e-service handles sensitive cases with information about citizens and children. Therefore, it is important for the citizens that they can remain anonymous if they wish. By including the users in the development of the e-service it can deliver as useful a service as possible. Also, create an e-service that fulfils the laws. With personas the users are presented as representatives. By involving the citizens in a development process the likelihood of a satisfactory e-service is increasing. Involving the users in a development process is a challenging task and is increasingly harder when developing a public e-service. Compared to an e-service created for employees in a company the user participation can be made mandatory. A lot of times citizens are not willing to participate in a project and come with their own ideas. The reason might be that they do not have the time, or they do not think they have the proper knowledge (Holgersson & Karlsson 2014). By creating personas based on real citizens and users of a certain service the citizens can be participating without being present. R1 said *"Maybe with personas it is a more de-dramatized form than going to the social administration, it might be a more charged form. But if you instead could be caught in the city and asked what you think about a certain subject or area, be a part of a personas might be more attractive than if I were to ask citizens to be part of a user group and develop an e-service. I think it will be more fun for citizens to participate in creating personas, it is kind of creating an alias in a game of sorts. And I also think about the younger target group might think it would be funnier. It is more in time to build a digital condition."* Citizens are easier to represent using personas since they are not often interested in participating. Holgersson & Karlsson (2014) researched citizens' willingness to be part of a development project. Most citizens were not interested in participating due to lack of time or knowledge about the subject. With personas the citizens do not need to know anything about the service they just need to spare a few minutes to answer some questions about themselves. A persona can be used several times and therefore the citizens only need to be part of a persona information

collection once. The citizens' in a municipality needs to be motivated about the benefits of participating in user studies.

The personas provided a face on the target group when the project team were working with them. Even if the project team knew who their target group is they did not have a profile of who they are. They knew that the target group consisted mainly of authoritative persons e.g., principals, police, physician. However, they did not specifically know anything about the target group other than their occupation. The personas provided an insight into who the users are. R1 said that *"I think it has been good to be able to have something to fall back onto when developing an e-service. Usually, we do not always work completely client or user focused. What I mean is that we can talk about the technical prerequisites that would not be as interesting for the clients/users/citizens to affect. Instead, it is easier to use personas as representatives rather than creating a group of people to listen to ideas they might not be interested in and still may not be able to affect it as much as they could in another context. I think that is a big advantage to always be able to pick a persona from a box."* It is easier to achieve public value when the citizens and users can be picked out from a box. According to Church & Moloney (2021) public value can be created when the citizens' needs are met. It is important for system developers to understand who the users and what they want to create a valuable public e-service (Karlsson et.al 2012). If the users, and in this case the citizens, needs are not considered a public e-service will not generate any value to the citizens. Including the citizens in a public e-service development is a challenging task and requires resources both from the citizens and the organisations. R1 said that *"If I can only see to my area as a digitalization strategist and leading e-service development projects. The development process is taking a lot of time as it is and if we want to include user participation, we cannot involve real citizens in the process. It is not only in e-service context that we need this but also in other digitalization measures that we work with daily. Personas or something similar is definitely something we need."* It takes time to create a valuable e-service and it takes even more resources to include the citizens. A public service must be available to everyone in the public, otherwise it is not considered a public service (Lindgren & Fleur Van Venstra 2018). R1 said that public organisations are driven by politics which in turn is voiced by the people, this means that a public organisation is guided by the people and must adhere to this. This is the same that Lindgren & Fleur Van Venstra (2018) said that public services and organisations are led by the public 'ethos'. A public organisation is not driven by profits as compared private organisations. In chapter 2.2 the difference between a private and a public organisation is described. Lindgren & Fleur Van Venstra (2018) described the difference as the customer of a public organisation did not necessarily chose to use the specific service. Customers of private organisation can choose the service that fits their purpose best. A private organisation is driven by profit whereas a public organisation needs to be available to everyone. It is important that all aspects of the citizens are considered when a public service is created. It needs to be an interesting service that fulfils the requirements. A difficult task when creating public services is that it needs to be available to everyone, and at the same time is not able to identify a target group (Jansson & Lindgren 2012). With the personas it is possible to identify the target group with

characters representing the citizens. User participation is a must for public organisations but is a difficult task. Using personas as citizen representative creates imaginary citizens that the developers can use to test if a service fulfils the citizen's needs.

4. Future usage of personas

All participants believe in the idea of continuing to work with personas as a user representative participation method. Although R1 also mentions that *"I believe that everything can be improved, we can probably improve personas even more, but I think this is a great foundation."* It is dangerous to say that the personas that were provided were perfect as they were. But this is a good step forward for user participation in public services. The foundation for the personas can be continuously used to be improved upon. As both R1 and R2 said, there is potential for development with the personas that were provided. R1 wanted more information about the 'characters' whereas R2 wanted less story and more frustrations. As R1 mentioned it is possible to add more of both and only those who wants to can read the story. The personas created for this study only focused on one certain target group. From the target group five citizens were selected. By interviewing even more citizens, the personas can become more detailed and more specific without including too much information. When the personas become even more extensive a catalogue can be created to gather all personas. The personas can then be used and reused when necessary. A persona can be seen as a living document, they need to be updated after a certain time to remain credible. The citizens in a municipality will change overtime and the personas needs to be updated to mirror the new ideas. As R1 said as a digitalization strategist, personas need to evolve alongside digitalization to become even better. Together with personas and digitalization the public organisation can evolve further. *"I see this as an opportunity to evolve and develop further in our organisation as we are already working with user participation and how we can do this with the prerequisites of digitalization."* Creating a catalogue of personas to be shared among municipalities is a next step in this process. R1 believes in this idea *"I can see a great potential in creating a catalogue with personas. We need a greater depth in the personas and this will create opportunities to be able to choose from several personas. And I can see a potential in public organisations working together and sharing personas. Private organisations can use the personas in a different context, maybe using it in a different way than in a municipality. It is a much slower work process in a municipality, it is not driven by interest in profit. But I think that with a catalogue of personas it would be easier to explain and apply for other public organisations. And this is in my area and is definitely something I will bring up regarding digitalization questions."*

A persona is a living document that needs to be updated to remain credible. For personas to work as a work method everyone in the organisation needs to be on the same page. Once everyone knows and understands the purpose of personas can they be used at their full potential. The same goes for digitalization. Everyone in an organisation needs to understand that it is the next step forward. Lotsson & Dobos (2017) describes that a successful digitalization means that everyone in an organisation is on board with the new processes and agree that digitalization is the next step forward. When personas

as a user representative user participation approach is adopted into the organisation it will be easier to create public e-services that fulfil the citizen's needs. *"The challenge has been to bring along the others in our small group that is working on the e-service and make them think something about this. They do not have to say it is good but to just say something. But it has been difficult, and I think that is how it looks in a public organisation."* R1 describes that the most difficult challenge was to make everyone understand how personas can affect the organisation and their work processes. It might be difficult to understand in a public organisation where the citizens are the users to be able to include them. Once everyone has accepted personas as citizen representatives it will be easier to evolve the work method further.

7 Results

This chapter presents the result of the analysis of the collected data.

7.1 Summary

User participation is often excluded in public service development projects. There are not enough resources in the organisation or the citizens are not interested in participating. User participation is an important aspect in developing public e-service to increase citizen satisfaction. A lot of times a public service is digitized from a political decision. Digitized services are only a digital version of the same analogue service. By digitalizing a service all processes are enhanced by sharing the data between systems (Peláez & Marcuello-Servós 2018). Digitalizing a public service from a political decision can decrease the trust for public organisation as the citizens does not see the purpose of the service. Heeks (2006) states that a public e-service should be based on the need to solve a problem with a service. When public services are created the citizens' needs are guessed and not based on real evidence. This study is focused on testing a user participation approach called personas to include the citizens. A persona is a fake character based on real information from the target group.

The question focused in this study is: How does personas work as a user representative user participation approach in a public e-service development project.

The question can be divided into smaller sub-questions:

- (i) What are the developer's thoughts and opinions on personas citizen representative user participation approach?
- (ii) How does personas work as citizen representatives to include the citizens without the citizens being present?

The purpose of this study has been to test and evaluate a user participation approach using personas as user representative in a public e-service development. Three personas were created for this study to be tested by a development team consisting of four members.

In the previous chapter four themes were presented: Information presented in the personas, Usage of personas, Interaction with personas, Future usage of personas.

1. Information presented in the personas.

The information in a persona is limited to a certain amount, Adlin & Pruitt (2010) described the information as salt and pepper in food. The respondent had different ideas to what information they thought was relevant. Some wanted less information about the personalities and more frustrations, and some wanted more of everything. It is a difficult task to include all aspects but as R1 said, it is not necessary to read all information in a persona, but it could be good to have if you want to. All respondent wanted more frustrations as it helped them understand the users' technical abilities better.

2. Interaction with personas.

With a persona it is impossible to ask a question and receive an answer. The personas lack human interaction, but they make up for it by removing all unnecessary information that might be irrelevant. A persona is created to inspire the developers imagine new ideas with help from the information presented.

3. Usage of personas

With the personas it is possible to identify the target group with characters representing the citizens. User participation is a must for public organisations but is a difficult task. Using personas as citizen representative creates imaginary citizens that the developers can use to test if a service fulfils the citizen's needs. The personas can help create a picture of who the users are when creating a public service. It is important for the developers to understand who the users are to create a valuable public e-service. The persona can help the developers understand who the users are and can aid the development of valuable e-services.

4. Future usage of personas

For personas to work it needs to develop alongside the organisation's digitalization. Everyone in the organisation needs to understand the purpose of personas in public e-service development. All respondents could see a potential working with personas in the future. The respondents wanted the personas to be more refined in the future with more details and less made-up information.

7.2 Conclusion

Personas is a work method that can be used to represent the citizens in a municipality. According to the project team the personas gave the target group a "face", and it was easier for them to understand the users. The developers are interested in continuing to work with personas in the future, but they believe it can be improved. The respondents believed that it is more interesting for the citizens to be a part of a persona rather than to be a part of a project team and attend meetings.

There is however work to do to create even better personas. This has been the first application of real personas in a public e-service development project. To continue this study would be to create more personas on a bigger scale and test on a more extensive project. This study was limited to only three people using the personas and that makes it difficult to draw a conclusion. The target group for this project was very specific and it would be interesting to create personas on a more diversified target group. Create personas on a target group where the citizens are more diversified.

The result of the study is that the persona can work as citizens representatives. This can lead to better e-service in the way that the service can fulfil a purpose demanded from the citizens. Instead of creating an e-service based on a political decision it can be based

on need. As Heeks (2006) stated, a public service should be created to solve a problem. When the personas are available as citizen representative the citizens can feel that their thoughts and ideas are considered when a service is being created. This can increase the trust in public organisations and in public e-services.

8 Discussion

This chapter discusses the study. What could have been improved or how the work went overall. Ethical aspects of the study is discussed and how personas can be used in the future. The results of this study and future research is discussed aswell.

8.1 Work process

To be able to work together with a public organisation has been interesting. Their work process is different from a private organisation, there has been difficulties with contact in the beginning. Considering it is a public organisation they have other projects going on at the same time. The project group consisted of four members, one was project leader, two were from the social administration and one was a developer. Only one from the social administration worked with the e-service the other was there to provide information about the current service. The developer was not part of the e-service planning but was only doing what the social administration wanted. The developer did not know anything about the service and was told which functions the social administration wanted. The developer could however come up with ideas from previous experience, e.g., a form should look a certain way. Before the personas were created the social administration had to provide information about the target group. Some steps in this process took longer than necessary. I established the first contact in October 2020 and we had a meeting in December 2020. There was a lot of back and forth and it took time between meetings after that. I was sent to different people and in the beginning of March 2021 I started talking with the project leader. Thereafter we had meetings with parts of the project team and I presented my ideas.

The municipality was interested in continuing to work with personas and they could see a purpose with it. They were happy to have been a part of this study. They expressed their process with working with a student has been a new experience for them as well. They had to adapt to my time schedule and when time was running low, I had to inform them of this. I am happy with my work, and they are happy to have been included.

8.2 Results

The result of the study is that personas can help public organisations create better and more valuable e-services for the citizens in a municipality. The method chosen for this study was a qualitative approach. It was chosen to acquire information from a few selected sources. A quantitative approach would mainly collect numeral data. If personas is continuing to evolve in the public organisations it would be possible to do a quantitative study to research the acceptance of personas. There has not been any previous documented usage of personas in public e-service development. Hopefully, this study can act as a start to achieve better user participation with personas in the future. Personas can help decrease the time it takes to include the users. By only conducting interviews or surveys to collect information on the citizens personas can be created and

reused several times. The developer do not need to actively seek out the citizens they can only pick a persona from a box.

8.3 Ethical aspects

This study has followed the principles for good research practice from ALLEA (2018) where the keywords are, reliability, honesty, respect and responsibility. Which mean that the researcher must present honest and reliable information by presenting all research openly and objectively. Also treating everyone with respect and is responsible for their own work. All participants in this study were informed of their rights and that their participation was completely voluntary. No information can be traced back to a person since no one is named and the municipality is unnamed. When the study is completed, all recordings will be deleted.

The respondents could have been informed by their rights in a paper and given written consent of their participation. It would have been easier to achieve written consent if the interviews were a physical meeting.

It is possible for personas to be used in a “wrong” way. If a persona repository is created the developers can pick and chose whatever persona they want. They could pick persona that they want to use themselves rather than personas from the target group. It is important that everyone understand that the personas are there to help them create better e-services. Using personas in such a way involves a lot of trust in the public organisations and the civil servants. If the personas are chosen based on personal preference rather than actual need the e-services will not fulfil the correct requirements.

8.4 Future research

User participation is seen as an important aspect in e-service development. Even more so in public e-service development. It is important for all the citizens in a municipality to be included. In a public organisation it is not possible to exclude a certain group of citizens. It has been a difficult task to include all citizens in a development project. With personas this can be improved. The personas work as citizen representative, that means that an entire group of citizens can be categorized into a personas. By continuing to work with and improve personas as a citizens representative user participation approach public e-services can be improved. It is important for an e-service to fulfil a purpose that is asked by the public for it to be deemed useful. To continue this study would be to create a persona repository with more personas that can be used by several municipalities. This can help achieve better user participation in public e-service development. This was a limited study to test personas in a small municipality, it would be interesting to test personas on a larger development project from the beginning. By continuously testing and improving personas it can become a resourceful user participation approach. Enriched personas can then lead to a catalogue of personas that can be shared among municipalities. The personas in this study were only tested in a small part of a development process.

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