Service Design in Digitization of Governmental Services

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ABSTRACT

Digitization of governmental systems and services do still not seize the opportunities that e-governance offer. The transformation is often fragmented and the digital services seldom integrate the government horizontally and vertically. This research paper discuss how governments can benefit from a holistic approach to digitization of services. The paper explores the possibility of exploiting service design and user-centric approaches, when innovating government-to-citizen and government-to-business services. Findings shed light on problems that are unique for the digital transformation of governmental services. With a case from a Norwegian governmental agency, the paper shows when and why service design can be implemented in digitization of government.

KEYWORDS: Electronic governance, Electronic services, Digitization, Service design, Norwegian government

1. INTRODUCTION

In the last decades, industrialized economies have transformed from producing physical goods to creating immaterial services. Developed countries are not able to compete on prices when it comes to producing physical goods in a global market. At the same time high-income populations has high demands of immaterial services [1]. Faster internet connections, smartphones and advances in technology such as 4G, the fourth generation of mobile telecommunications, have created a strong demand of online services, reinforcing and enabling further development of the service economies [2][3].

The private sector has fully embraced electronic and online services. Competition in the business-to-consumer markets (B2C) and business-to-business markets (B2B) has forced companies in making services available online, as it gives them a competitive advantage. Electronic services also make room for cutting costs, due to automation and making the customer co-producers of the service they consume. The rapid advances in mobile technology has also changed the way products and services are consumed. These advancements and fast pace of digitization in the private sector have paved the way for sharing economy businesses, such as AirBnB and eBay [4].

The case is not the same for digitization in the public sector. Governments in the developed countries have embraced electronic services in an effort to govern more efficiently. But the digitization of governmental services is difficult due to the sheer amount of information, services and stakeholders involved. Most of the effort toward creating electronic governments, e-governments, has not touched upon this complexity – but rather focused on making digital versions of an equivalent analogue governmental service.

The paper will first introduce service design and electronic services. Then look at models of electronic government. Further, insight from a service design case study within the Norwegian government, that was conducted simultaneously as this paper was written, will be discussed. The paper will also touch upon why the pace of digital transformation of governments still is slower than that of the digitization in the private sector. Lastly the paper will look at the possibilities that lies within electronic government combined a user-centric approach.

2. SERVICE DESIGN

As the service sector has expanded, there has been an increasing effort in the field of design to create and formalize practices, processes and tools towards designing services [5]. In the last decade the field of service design has emerged. Service design has become a popular term for describing the practice of designing services with a user-centric approach. With a user-centric approach, the user experience is a major driver for making design decisions when creating services. As the spectrum of services is wide, designing services requires interdisciplinary skills and methods, in order to go from insights to implementation.

2.1 Principles of service design

Academics have a wide variety of definitions of service design, but there is a common theme. Marc Stickdorn, a service design expert and academic, has compressed the common threads in service design into five principles: User-centricity, co-creation, sequencing, evidencing and holism [6].

In service design, user-centricity is a way to design for an end user and meet their needs. To check if the needs are met, it is important to get constant feedback from the end user. Service designers focuses much of their effort getting user insights and becoming empathic towards the user. In order to gain this empathic perspective, understanding a service through the eyes of the

user, the designer often needs draw insight from firsthand experiences.

Looking at the definition of a service, it becomes more apparent why a user-centric approach can be useful when creating services. The Oxford Dictionary defines a service as "a system that provides something that the public needs, organized by the government or a private company" [7]. By gaining insight into the user needs, it is possible to create services that fulfill these needs and demands – creating better user experiences. In the end, this can mean more efficient and better services.

In order to design something within the scope of feasibility, the service designer needs to involve as many stakeholders as possible. By involving different stakeholders, especially the ones that are going implement the service design, the designer gains insight to what is feasible to implement. Feedback from stakeholders brings new ideas and sheds light on problematic areas of the design. The involvement of stakeholders also encourages implementation of the final designs, by making the stakeholders personally invested. This is some of the ideas behind the second principle, co-creation.

Since services are vague and immaterial, visualization is needed to communicate ideas, processes and concepts efficiently. Visualization gives the designers, stakeholders and the service provider a common ground and understanding of the services that are being designed. A service, unlike a product, is not one thing – but a system of actions in a period of time. One way of systemizing these actions, is to sequence them in timelines. Sequencing makes it easier to communicate and discuss the service, as the different stakeholders and interactions with the end user can be mapped out on sequenced timelines.

It can be difficult to get a common understanding of the sequences of actions on a timeline, if they are not visualized. To visualize something that is intangible, physical and tangible artefacts of the

service can be used. This is often called evidencing, since the tangible products are evidences of the service. Connecting the intangible actions with a physical object or a stakeholder makes it easier to understand the sequence of actions in the service. Evidencing can also point to what changes that can be made, and how to implement these changes.

The last principle is holism, creating something with a holistic approach. A service is not only a sequence of actions, but a system of actions in an environment. If a service is understood in context, it is possible to innovate in regards to alternative customer journeys and new ways of involving touchpoints and stakeholders. When services are approached holistically, challenges in interactions with users and internal stakeholders become apparent.

2.2 The process and the tools

The service design process is not a linear process, as shown in figure 1. There can be a vague notion of what end result will be, but there is always a great amount of ambiguity. This can make it difficult to understand the value of service design before the implementation.   Before the implantation, there are four stages: Insights, ideation, conceptualization and testing.

The insights are often qualitative, based on firsthand experiences, observations, interviews and workshops. The insights are converged to ideas and concepts. Depending on the nature of the service, the design is tested or partly implemented before the service provider implements the service design fully.

3.   E-SERVICES AND E-GOVERNANCE

There is a broad range of terms and definitions of digital services. The paper will now introduce some of those terms, how different types of services can be categorized and models of service systems in electronic government.

3.1 Self-services and electronic services

Self-service technology is technology that eliminates the need for interpersonal interaction in services. Self-service services enable the consumer to produce the service themselves. This reduces the labor force needed to provide a service, and allows for services to be available at all hours. Self-services can thereby enhance the user experience and cut costs for the service provider. [8]

In literature, electronic services or e-services, are in its broadest sense a type of self-service that utilizes information and communication technologies (ITC). E-services can thereby be defined as self-services that is available online, whereas self-services also include physical electronic machines. [9] [10]

Figure 1: "The Squiggle of Design" by Damian Newman. An illustration of the nonlinear process in design, also applicable for the service design process.
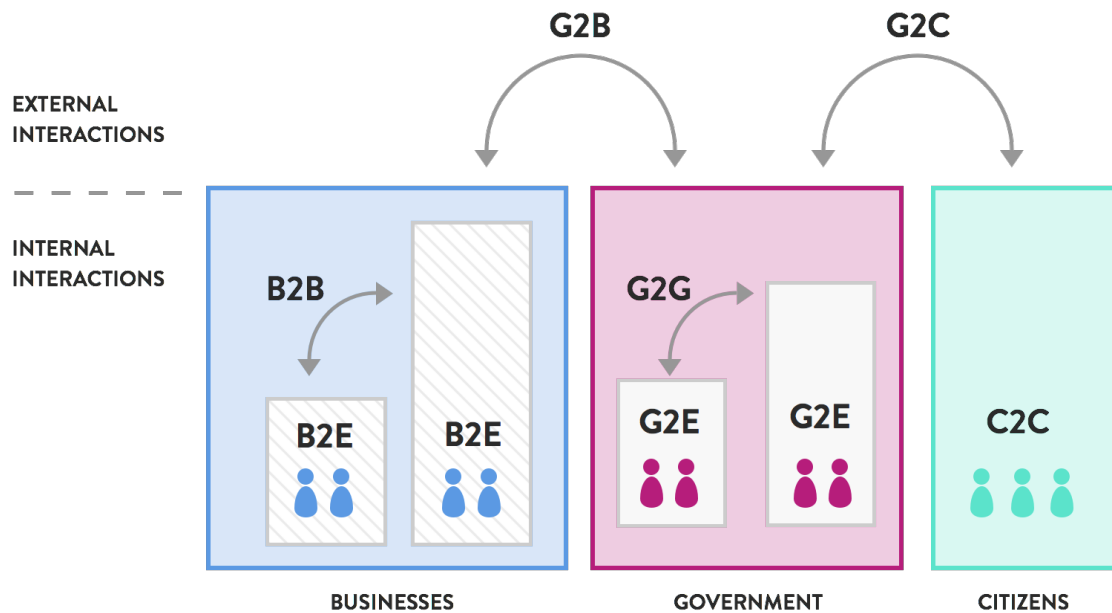
Figure 2: An illustrations of interactions within, with and without government.

3.2 E-governance

The term e-governance, also known as electronic governance and online governance, is used for online services provided by a governmental agency. E-governance is an extensive term, and similarly ambiguous as the term e-service. In its widest definition, e-governance includes all information that is provided by the government and is available online. This includes government websites and electronic documents. [9]

In the e-governance literature, some argue that static information and documents online provided by the government should not be included in the term e-government. The Norwegian Agency for Public Management and e-Government (Difi), does not include websites and online document in the term e-governance. In this paper, we make the same distinction between electronic documents and e-governance, the latter meaning interactive forms of communication between a government and its stakeholders. [11]

3.3 Government-to-user interactions

E-governments are large systems of information, services and stakeholders. In order to make e-governance more manageable, e-governance can be dissembled into four major groups of interactions [9]:

Government-to-citizen (G2C):
Interactions between governmental bodies and external actors, citizens. Static information on government websites is a one-way G2C interaction.

Government-to-business (G2B):
Interactions between governmental bodies and external organizations or businesses. The users of G2B services include both commercial businesses and non-profit organizations.

Government-to-government (G2G):
Internal interactions between government bodies. Including interactions between different agencies horizontally – on the same level of government, but within different domains. G2G interactions can also be vertical – agencies from different levels of government, on federal, state, county and municipal levels.

Government-to-employee (G2E):
Services provided by government used by its own employees. G2E interactions include communication between employees in the same government agency.

The different types of government-to-user interactions are often used in order to make it easier to separate services provided by e-government. Governmental services need a way to separate subservices, the role of the user and information that can be provided – in way that makes the e-governance usable and comprehensible for all parties involved. When citizens, employees, businesses and organizations interact with the government in an analogue fashion, these interactions are not always categorized in the same manner.

When governmental agencies interact with users non-digitally, they do not require distinct and discrete user roles and types of interactions in order to provide services. If roles and the type of interaction is vague and undefined, the service can become less efficient. But on the other hand, it requires less of the end user and makes room for transitional and more complex user roles. If governments require the user to define their own role and what service they need, misconceptions and inaccuracy can occur.

As shown in figure 2, the interactions in electronic services can both be with internal parties, only within the government itself, and with external users. The more sophisticated e-governance systems include several external stakeholders and internal stakeholders within a government. They also need to communicate information with different agencies on different levels of government and different domains across government. The types of interactions and integration of external and internal stakeholders is evident in models of e-governments.
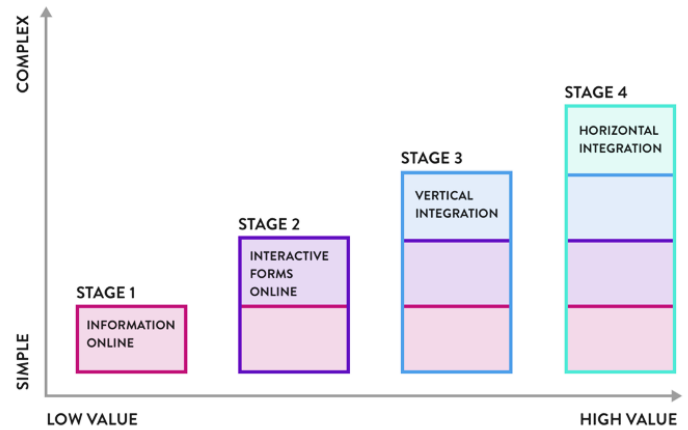

Figure 3: Illustration adopted from the suggested model of stages in e-government development, by Layne and Lee [12].

3.4 Models of e-governance

In order to valuate the quality of e-governments and its services, several models have been proposed in academic literature. Many of the proposed models include an additive approach to e-governments and its development. One of the most quoted models, was proposed by Lee and Layne in 2001 [12], where the goal of e-governance was to create a "One Stop E-government". This model proposes that services in e-government can be categorized in four stages. The four stages add more value to the service, as the service evolves from stage to stage. The model also suggests a positive correlation between the value of a service and its complexity. [9]

The stages in the suggested model are shown in figure 3, each stage adds more complexity and integration between governmental bodies:

Stage 1 - Information online
The governmental agency or service has an online presence, with general information and downloadable forms that citizens, organizations and businesses can download. Users can fill out and send in these forms physically or with electronic mail. This stage offers no interactivity with the government, and should thereby be labeled a preliminary phase of e-government.

Stage 2 - Interactive forms online

In this stage, the government offers interactive forms that are available online. The forms can be filled out and sent digitally. In this stage the service is not integrated with any other system in the e-government, which means that the end user is the only source of external information. The service is not automated, has no integration and requires the user to give information that the user might have given previously. The information given are processed manually by the government. Responses from the government can be online, thus is the communication and transaction of information a two-way interaction.

Stage 3 - Vertical integration

The third stage include vertical integration between different levels of government within the same domain of government function. This stage can include all types of government interactions previously discussed: G2G, G2E, G2B and G2C. This stage often requires centralized databases with user information. This stage enables efficient services within a specific government sector, as transaction of information between government bodies can be automated.

Stage 4 - Horizontal integration

The fourth stage of e-governance includes interactivity, as well as vertical and horizontal integration of government. This enables total automation of information processing within the e-government. All information stored within the e-government can be obtained, which makes precise and efficient systems. The user never needs to fill out the same information twice, and services can provide instantaneous feedback and responses. This is a "One Stop E-Government".

The suggested model above has been criticized for overvaluing integration of different systems within government. Difi, a Norwegian digitization agency, has made an alternative model for evaluating e-governance, as shown in figure 4. This model was presented in a report in 2013 [11]. Difi's model is based on the previously proposed model by Lee and Wayne. Difi categorizes e-governmental services in five groups. In this model, Difi suggest that integration means more sophisticated and complex services. At the same time, this model suggests that some services should be standalone services – if integration with other systems in government is not adding any significant value.
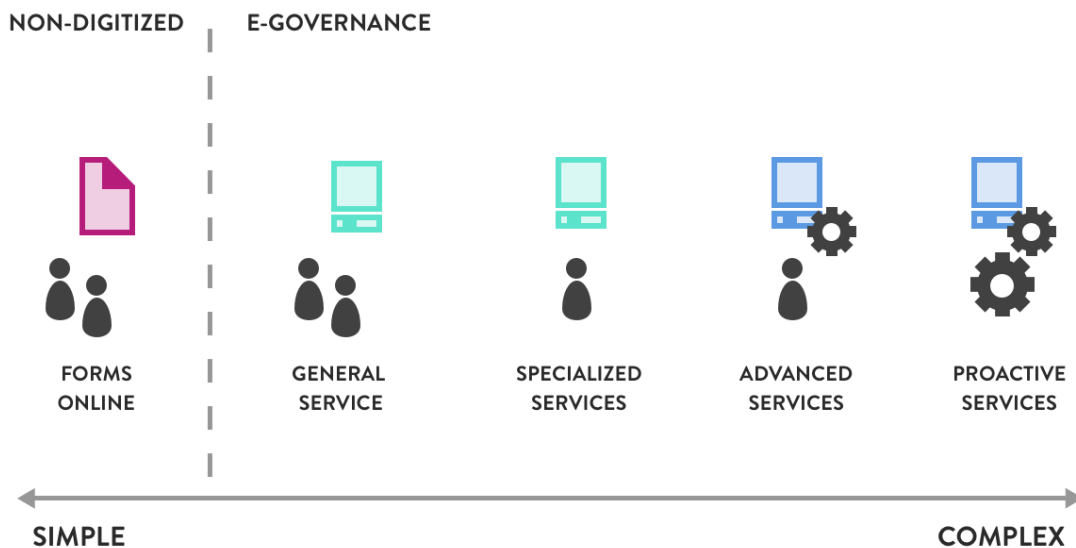

Figure 4: Illustration of a suggested e-governance model by Difi.

Group 1 - Online forms
Including government websites, and forms that can be downloaded. Difi do not recognize this as a digitized service.

Group 2 - General services
Interactive services such as maps, calculators, information filters and search. One-way communication and self-service that does not require employees in government to process any information.

Group 3 - Specialized and tailored services
The service is user-tailored and often requires the user to log in to a government system. The role of the user is specified as citizen, business or organization. The service is integrated vertically.

Group 4 - Advanced and tailored services
The user needs to log in, giving the service access to information across several governmental agencies. The services are integrated horizontally and vertically as needed, and the G2G interaction is automated. Interactive forms fill is filled with user information that the government already holds. Responses can be instantaneous.

Group 5 - Proactive services
The service is automated, and does not require the user to do anything. An example of a proactive service in e-governance is giving parents child benefits automatically when a child is born, without requiring any user requests for the compensation.

4.   SERVICE DESIGN IN E-GOVERNANCE

In an e-government survey published in 2014, the United Nations stated that; *"Government institutions and their functions are still largely shaped by early 20th century models of public administration in which ministries and their leaders work in 'silos' and issues are tackled through a sectoral rather than a collaborative perspective."* [13]

In the same survey, the United Nations concluded that new technologies such as ITC is enabling government collaboration between all sectors and levels of government. In order create better e-governances, the UN states that governments need to transform holistically, as well as engaging both internal and external stakeholders in the process. Both holism and stakeholder engagement is central principles in service design. Still, the UN does not directly propose utilizing service design as a solution to problems in e-government. [14]

When looking at e-government in general, ITC infrastructure is essential. There is a clear correlation between countries that has high scores in international e-government surveys and their advancement and use of ITC. Other major factors are social acceptance and trusting the government to hold personal information of its population. [14]

In developed countries, the pace of digitization in government can be slow, even with highly advanced ITC infrastructure and social acceptance and familiarity with e-governance. To understand this, we will look at e-governance in Norway, a highly developed country. [15]

4.1 Service design in Norway

In Norway, the municipalities have been the greatest drivers in utilizing service design in digital transformation and service innovation. An organization for the municipalities in Norway, KS, has collaborated with major design firms in order to create service design tools available and usable for employees in municipalities without a design background. The initiative is called "Samveis", and a website with the same name containing the tools and information about service design was published in late 2015. [16]

After a major success in implementation of service design in a hospital in Oslo, where the time needed to diagnose breast cancer patients was reduced by 90% [17], the interest in service design innovation increased significantly. Undersecretary

Paul Chaffey in the Norwegian Ministry of Local Government and Modernization has commented on the use of service design. In 2014, he stated in a Norwegian e-governance publication that "the government is fragmented and problems tend to be solved in silos. [..] Service design tools can help us to find and solve these problems, and make the government and municipalities more user-focused". [18] (Citation is translated from Norwegian.)

Innovation in the Norwegian e-government has often been due to advances in ITC technologies and implementation of those technologies. Undersecretary Chaffey states that combining ITC and service design can be effective when solving problems in e-governance.

The Ministry of Local Government and Modernization is not the only part of the Norwegian government that has shown interest in service design. Difi, a major governmental organization in Norway, has stated that utilization of service design can be applicable in the digitization processes.

4.2 Digitization of government in Norway

In Norway, the government agency Difi advices the authorities and public service providers on digitization and e-government. Difi uses three indicators in order to evaluate the condition of the e-government as a whole: User-focus, service quality and collaborative ITC foundations. Difi states that user-focus in the Norwegian e-government is weak [19] and that services provided by e-government needs improvements [20]. On the other hand, the agency states that the ITC infrastructure and foundations for e-governance is at a satisfactory level [21].

Difi states that the population's competency regarding ITC is high, only few groups within the population lacks skills in order to interact with the e-government. At the same time Difi states that people would rather interact with the government offline, and suspects this is due to

the lack of user-focus when the G2C services has been created.

In surveys conducted by Difi and studies done by external parties on behalf of Difi, there is an apparent conflict between the advice given by the agency and what the public sector does regarding digitization. In 2013, 76.4% of all services provided by the Norwegian e-government was in group 1 in Difi's model of e-governance categorization. Only 8.3% of the services in e-government was categorized as group 4 or group 5. Since Difi does not recognize services within group 1 as digital services, the agency has stated that there is significant potential for digitization in the public sector. At the same time 7 out of 10 ITC leaders within governmental agencies say that all their services are fully digitized. 60% of these leaders have also stated in surveys that they see no value in further digital transformation. [11][22][23]

When looking at e-government sectors separately, one of the administrative sectors stands out concerning the number of group 1 services. This governmental body is called NAV, it has a total of 163 G2C services, but more than 95% of those are digital documents, in group 1 [11]. In parallel to writing this paper, a case study was conducted in collaboration with NAV, looking at services they provide with a user-centric approach.

4.3 Recruitment services in NAV – a case study

NAV is the Norwegian Labour and Welfare Administration, it administers a third of the Norwegian national budget through schemes such as unemployment benefit, work assessment allowance, sickness benefit, pensions, child benefit and cash-for-care benefit. [24]

As mentioned, NAV has a substantial potential for digital transformation. This was confirmed when an appointed expert committee published a report in 2015, "Et Nav med muligheter" [25]. The report criticized NAV's efforts in digitalization, especially regarding G2B services, the services that are targeting businesses. The committee

stated that NAV's relationship with the private sector is too weak, and this is problematic when NAV is helping unemployed getting occupations in the private sector. The report says as low as 7% of vacancies publicly advertised were available in NAV's systems. Thereby, the committee suggested that NAV should improve their current systems that matches jobseekers and private companies.

The study was conducted in order to map out why companies are not using recruitment services provided by NAV. Interviews with stakeholders within NAV and with several companies in Trondheim were held. The study also gained qualitative insight by conducting interviews about the recruitment processes with an expert in the recruitment company Cut-e.

The study ended with presenting the study's insights, concepts and principles to stakeholders in NAV. The study found that 96% of businesses in Norway had less than 50 employees. Many of those companies recruited through their network, rather than publicly announcing vacancies. The service design presented, proposed that NAV should not only make efforts towards their current services of digitally matching companies and jobseekers. NAV should also make some efforts in making services that would cater the needs of these numerous small companies, that do not want or need to recruit publicly.

5. FINDINGS

Academic research, e-government surveys and case studies all indicates that there are several factors that halts the pace of digital transformation in government. These factors are specific for e-governance, and are not prominent in the private sector.

Service monopoly:
Governments are often the sole provider of specific services. This often due to the fact the the services they provide are not able to create profits, or due to the fact that the law prohibits private companies to provide the specific service.

When government is the sole service provider, innovation to keep users is not needed.

Analogue counterparts of the services in governments already exist:
Digital services provided by the government have to compete with their own services provided offline. Some citizens might lack computer skills or prefer interpersonal interaction. If governments only offer basic digital forms, services that fits in the stage 1 in the "One Stop E-Governance" model, there are few incentives for citizens to use the digital service.

Lack of continuous, instantaneous and specific feedback:
Governmental agencies often conduct surveys in order to get feedback from its users. In the private sector, the feedback from users are often more instantaneous – as users can swap from one service to another if they are not satisfied. If only one particular service exists, users tend to keep using the service, even when they are dissatisfied with the service they are consuming.

Services need to fit all users:
Governments are required by law to make services available for all citizens in greater extent than private companies. Private companies often target a specific niche of the population with their services. Governments on the other hand, need to create "one-size-fits-all" services. Thereby governments often focus on accessibility rather than the usability of their services. A user-centric approach is also difficult when the target group is too broad. [26]

Lack of centralized authority to make decisions regarding digitization:
Governments tend to spread the responsibly of digital transformation of services to the particular governmental agencies that provide them. Without overarching strategies for how the different services should be digitized, integrating systems across levels of government and functional domains can prove challenging.

Lack of ITC competency:
Without technological competency in governmental agencies, understanding the value of a digital transformation and how to create collaborative e-governments can prove difficult. In Norway, where ITC knowledge in the population in general is high, the governmental bodies still lack competency regarding ITC. As much as 77% of all governmental organizations in Norway say their leaders lack ITC competency to further digitize services efficiently. [23]

6. DISCUSSION

When looking at digitization of governments, there are clear obstacles that make the digital transformation difficult. The lack of consensus regarding terms and models of evaluating e-governments also make the transition to electronic services challenging. At the same time, governmental bodies with great ITC competency see the clear benefits of digitization, while the governmental agencies that are supposed to conduct the digital transformation lack incentives for doing so.

The case study shows that a specific governmental body does not always see the bigger picture, and only focuses on digitizing existing services that they currently provide. Service design can be used to clarify the value of horizontal and vertical integration of e-government, but often the different agencies lack mandate to implement such collaborative services.

When most of the effort towards digitization has been creating digital forms of existing physical forms, it is clear that governments lack a user-centric approach to creating services that meet the needs of its citizens. While the reason for this type of digital transformation may be of a political nature, governments and its agencies should strive to create services that are valuable both for the users and the government.

The focus of digitization should not be converting existing services so that they become available online. If the user experience worsens when a services is digitized, the government should not make the transition. Governments should look at the digital platforms as one of many options of providing a service.

The four stage model presented in this paper, should not be used in order to evaluate e-governance. While its true that highly sophisticated systems with high levels of integration can create superior user experiences and highly efficient government, some services do not get any added value when integrated with large e-government systems. The model created by Difi, can often be a better solution. This model is still categorizing services in groups, in order to make it easier to understand what types of services that exist in an e-government.

Difi and its model of categorizing e-governance suggest that services within group 2-5 can provide good user experiences and be effective. On the other hand, they suggest that digital transformation of services to digital forms, might not add any significant value to the service, if the transformation stops at group 1.

6.1 The Digitization paradox

When governments transform their analogue services into digital forms, they should be aware that they also remove the face-to-face interaction between government employees and the end user. When the user looses this interpersonal interactivity, they are transformed from solely a consumer of the service to a service producer. The transition from consumer to producer changes the user experience drastically.

The change from consumer to producer, requires more of the end user. Firstly, e-governance require the user to have computer equipment, internet access and knowledge on how to use ITC systems. Difi has stated 20% of the Norwegian population lacks knowledge of how to use ITC systems. Secondly digital services often need discrete information to be efficient. The user is liable for giving the correct information when using the services provided by e-government, but

since digital systems often lack the ability to correct misunderstandings, there is often a higher risk of involuntary misinformation.

Governments need to be aware of the paradox that occurs when digitizing services. While the goal of digital transformation can be both more efficient systems and better user experiences, services can be rendered unusable for users without ITC knowledge or access to internet. Digitization for the sake of making services available online, can thus create a less efficient government.

In order to speed up digitization in government, I propose that governments should focus on fewer systems at a time. Instead of transforming all analogue forms into digital forms, categorized in group 1 of Difi's model, governments should create fewer and more sophisticated systems. If the governments still choose to have a decentralized approach to digitization, making few sophisticated systems can prove difficult.

6.2 Top-down and bottom-up digitization

The decentralized way of digitizing, a bottom-up model, might be a major reason for the slow pace of transforming governments to e-governments in developed economies. In the case of Norway, Difi lacks authority when it comes to making decisions regarding digital transformation throughout the government. At the same time, the governmental agencies apart from Difi, lack both competency and incentives to digitize their services.

Instead of spreading the responsibility of digital transformation across all governmental bodies, I would suggest that governments create a specific agency that would be the driver of digitizing in government. The local government and specific governmental agencies should still be digitizing services they provide. The specific digitization agency should be a central hub for all services that would be integrated across levels and sectors of government.

If governments had a central digitization hub, a holistic approach to digitization would become more feasible. It could also require less ITC competency within the different governmental bodies, as they would not be responsible for the most complex e-government systems. In a top-down approach to digitization of the public services, governmental agencies could share their domain knowledge to the central digitation agency, and thereby create a collaborative and efficient e-government.

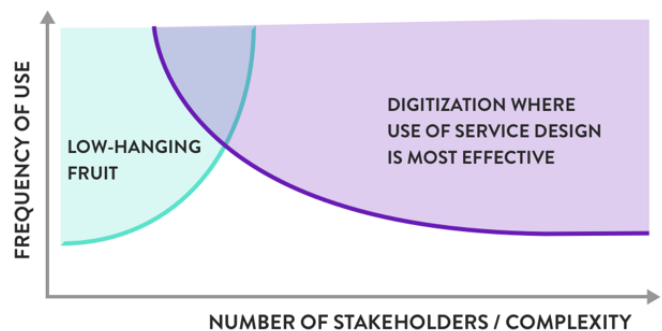## 6.3 When to implement service design in a digitization process

Figure 5: Graph showing when service design is effective in digitization of government.

When looking at the effect of service digitization, governments should look at which agencies that could benefit from integration with the service, as well as how frequent the service is used both externally and internally. Digitization of a service will often have most effect if the service is frequently used and includes many governmental agencies. This way the G2G interaction could be automated and the service could be co-produced by citizens and businesses – creating an efficient e-government.

Since a service design process often is lengthy and full of ambiguity, implementation of service design methodology will not have any major effect, if the service is too simple or used infrequently. Simple and highly used services are low-hanging fruit that government should digitize, even without any service design implementation. When governments should use service design, is shown in figure 5.

7. CONCLUSION

This paper has explored how service design can be utilized when governments are making a digital transformation of their services. It is apparent that there are some restrictions and unique problems within government, that makes digitization more difficult for governments compared to the private sector.

Due to the natural complexity of governments, service design can often be useful in relation to governance innovation. Service design can be a great way to clarify the value of horizontal and vertical integration within an e-government. At the same time, governments need to be aware of the problems related to separation of governmental bodies that operates as silos and the lack of mandate to create a collaborative e-government. Utilizing service design is most effective if the there is a mandate to make changes across government.

The scope of this paper has been broad, due to the nature of complexity shown in digital transformation of governments. Since governments are structured differently in different countries, creating a specific model of e-governance and how its services should be evaluated may be unmanageable. Further research on the topic of service design in e-government could instead look deeper into case studies in specific governments, and creating a model for the given government. In order to create awareness of service design and its benefits in a digitization process, further research could also look at statistical data in cases where service design has had a significant impact.

REFERENCES

[1] The World bank. *The Growth Report: Strategies for Sustained Growth and Inclusive Development. 2008.* Online: http://www.worldbank.org/depweb/beyond/beyondco/beg_09.pdf, retrieved 30.10.15.

[2] West, Darrell M. *Going Mobile: How Wireless Technology is Reshaping Our Lives*. Brookings Institution Press, 2014.

[3] Brynjolfsson, Erik, and Adam Saunders. "Wired for innovation: how information technology is reshaping the economy.", 2010.

[4] Grzunov, Jurica, and Ljiljana Zekanović-Korona. "Evaluation of Shared Digital Economy Adoption: Case of Airbnb." *MIPRO International Convention (37; 2014)*. Hrvatska znanstvena bibliografija i MZOS-Svibor, 2014.

[5] Mishra, Saurabh, Susanna Lundstrom, and Rahul Anand. "Sophistication in Service Exports and Economic Growth.", 2010.

[6] Marc, Stickdorn. *This is service design thinking: Basics-Tools-Cases*. Bis Publishers, 2012.

[7] Oxford Dictionaries. Defition of Service. Online: http://www.oxforddictionaries.com/definition/learner/service, retrieved 30.10.15.

[8] Andreassen, Tor W., Line Lervik Olsen, and Giulia Calabretta. "Elektroniske offentlige tjenester: En studie av folks holdninger til og erfaringer med teknologi." 2010.

[9] Hassan, H. S., Essam Shehab, and Joe Peppard. "Recent advances in e-service in the public sector: State-of-the-art and future trends." *Business Process Management Journal* 17.3 , 2011, pp. 526-545.

[10] Meuter, Matthew L., et al. "Self-service technologies: understanding customer satisfaction with technology-based service encounters." *Journal of marketing* 64.3 , 2000, pp. 50-64.

[11] Njøs, Cecilie, et al. "Digitale tenester I staten – statuskartlegging". Difi, 2013, pp. 1-53.

[12] Layne, Karen, and Jungwoo Lee. "Developing fully functional E-government: A four stage model." Government information quarterly, 2001, pp. 122-136.

[13] United Nations. *United Nations E-Government Survey 2014: E-Government For The Future We Want.* New York: UNITED NATIONS, 2014, p. 7.

[14] United Nations. *United Nations E-Government Survey 2014: E-Government For The Future We Want.* New York: UNITED NATIONS, 2014, pp. 75-93.

[15] Libell, Henrik P.,"Norge i tet", Stat & Styring, 2011, Vol. 02, pp.10-11.

[16] KS. "Tiden inne for tjenestedesign?". 2015. Online: http://www.ks.no/contentassets/51fc62a118304d0fbdbd43f976064f49/idekatalog_fou_aho_ks.pdf, retrieved 30.10.15.

[17] Solli, Ingunn. "Designet bort helsekøen". 2013. Online: http://www.norskdesign.no/nyheter/designet-bort-helsekoeen-article25351-8849.html, retrieved 30.10.15.

[18] Andresen, Kari. "Strekmenn mot byråkratifloker", Stat & Styring, 2014, Vol.03, pp. 7-9.

[19] Difi. Brukerorientering. 2015. Online: https://www.difi.no/rapporter-og-undersokelser/statistikk-og-undersokelser/nokkeltall-om-digitalisering/rikets-tilstand-digitalisering/brukerorientering, retrieved 30.10.15.

[20] Difi. Tjenester. 2015. Online: https://www.difi.no/rapporter-og-undersokelser/statistikk-og-undersokelser/nokkeltall-om-digitalisering/rikets-tilstand-digitalisering/tjenester, retrieved 30.10.15.

[21] Difi. Fellesløsninger. 2015. Online:
https://www.difi.no/rapporter-og-
undersokelser/statistikk-og-
undersokelser/nokkeltall-om-
digitalisering/rikets-tilstand-
digitalisering/felleslosninger, retrieved
30.10.15.

[22] SSB. IKT I Staten 2014. Online:
https://www.difi.no/sites/difino/files/kort
_fortalt__ssbs_ikt_i_staten_2014.pdf, retrieved
30.10.15.

[23] Rambøll. IT I Praksis 2014. Online:
https://www.difi.no/sites/difino/files/it_i_prak
sis_2014.pdf, retrieved 30.10.15.

[24] NAV. What is NAV? 2013. Online:
https://www.nav.no/en/Home/About+NAV/W
hat +is+NAV, retrieved 30.10.15.

 [25] NAV. "Et NAV med muligheter". 2015. Online:
https://www.regjeringen.no/globalassets/depa
rtementene/asd/dokumenter/2015/sluttrappo
rt-ekspertgruppen-nav_9.4.15.pdf, retrieved
30.10.15.

[26] Kotamraju, Nalini P., and Thea M. van der Geest.
"The tension between user-centred design and
e-government services." *Behaviour &
Information Technology* 31.3, 2012, pp.261-
273.

FIGURES

Figure 1: *Damian Newman, "The Squiggle of Design",
retrieved at 30.10.15 from*
http://cargocollective.com/central/The-Design-
Squiggle

Figure 2: Martin Skarbø Sangolt, 2015. Adopted from
Hassan, H. S., Essam Shehab, and Joe Peppard.

Figure 3: Martin Skarbø Sangolt, 2015.

Figure 4: Martin Skarbø Sangolt, 2015. The illustration
is adopted from a model made by Difi.

Figure 5: Martin Skarbø Sangolt, 2015.