Identifying Design Principles for Proactive Public Services in the Netherlands

DIGICAMPUS

Master Thesis
by
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TU Delft

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Identifying Design Principles for Proactive Public Services in the Netherlands

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Preface

Dear reader,

Having read different prefaces of other theses during my time as a student I have had two main observations, which I will address at the beginning and the end of this preface.

My first observation is that prefaces will often start with a quote. That is, a quote that is already widely used or known. Instead, in my preface I prefer to present a unique quote, which originates from written feedback that I received from my professor, Marijn Janssen. I have chosen to do so, as it triggered me to not only reflect on my personal biases but was relevant for the lessons I have learned during both this thesis project as well as during my master Management of Technology.

When you, the reader of this preface, read the word: *high-tech*, what do you first think of?

When I was discussing *high-tech* organisations I instinctively referenced to large private businesses and such. Marijn Janssen had to remind me: "The government can be high-tech, too (really)", (M. Janssen, personal communication, November 23, 2020)

You see. It got me thinking. As a small child, I always observed the newest and latest technology as something that defied the laws of physics in new or clever way that was never seen before, which would ultimately be commercialized by large private businesses. New technologies could create faster planes, new medicine or smaller computers. It enabled mankind to overcome barriers which previous generations were unable to challenge. Innovation was a fight between mankind and the ever-present and unalterable rules and laws of physics of the world we live in.

As a student, I learned that this is not necessarily the case. I doubt that when you previously read the word *high-tech* above, you immediately thought of e-governance or digital public services. If you did, great! If you did not, I would like to argue that, just like me, your first hunch might be wrong, as the government can very much be high-tech! However, instead of being bound by the aforementioned rules and laws of physics, e-governance is bound by the democratically established rules and laws of our country. Contrary, these are not unalterable, and will have to move along with the inevitable social and technological changes that are guaranteed to occur in our society. Developing and utilizing technology for all citizens, instead of a specific group of customers, in such a way that ensures and enables our cherished rights and values, just like defying the laws of physics, is very much high-tech, as it is exciting and challenging!

I hope that I did not ramble too much during this little introductory story, but was able to make you excited to read more about such challenges during my thesis, in which I have investigated proactivity in the context of public services in the Netherlands. This thesis represents my final step of the master programme of Management of Technology at the TU Delft, where I learned to think, act and be more than 'just an engineer'. I am happy to have developed these skills, which I will carry with me during the rest of my career and life.

Even though I imagined my experiences during my thesis project to be a little different a couple of years ago, I am happy and grateful for the opportunity Digicampus provided me, to be able to finish my master programme, despite the unfortunate COVID-19 pandemic. Although this has presented many challenges, it has presented opportunities as well, such as for me being able to pitch my thesis during the fully digital SEMIC2020 conference from home!

However, having to work from home most of the time, I was very fortunate to have amazing supervisors, who were able to motivate and assist me every week, throughout the past year. Therefore I would like to explicitly express my gratitude to Flori Spoelstra and Nitesh Bharosa, with whom I may now have spent more time on Skype than with my own parents! Thank you for your support and feedback, I could not have done this without your help!

Finally, my second and final observation of the different prefaces of the theses I have read is that students tend to thank their family. Even though I deservedly would probably have done so regardless, due to the involuntary break during my master's programme I have had to rely on you more than I would have wanted or could ever have envisioned. Thank you for being there for me.

Rhenen, December 27th, 2020.

Bas Oude Luttighuis

Executive summary

The Dutch government wants to increase the quality of interaction between citizens and their government. Proactive services could contribute to this goal by creating more ease of use for the citizen and enable governmental service providers to deliver their services more efficiently and inclusive. However, proactivity is not always desired and can not always be incorporated.

Proactivity is about moving the initiative from the citizen to the government and can be incorporated in many different ways in public services. An example of a proactive service in the Netherlands is the pre-completed tax return (VIA) of the Tax Office (Belastingdienst), where the yearly tax return is pre-filled and citizens have to check and if necessary complement the information. Fully proactive public services have proactivity incorporated in them to a degree where, without the request, but with the consent of a citizen, these are delivered automatically to that citizen. Fully proactive services are scarce in the Netherlands and best practices of proactive service design are currently unknown.

Therefore, in this thesis, a framework of design principles is developed to guide governmental organisations in raising the level of proactivity of their services. This is done by answering the following questions:

- *Main research question:* What design principles can be identified for proactive public service design for governmental organizations in the Netherlands?

In order to answer this question, three subquestions are answered.

- *Subquestion 1:* What are the different levels of proactivity for public services?
- *Subquestion 2:* What is the current state of development of proactive public services in governmental organizations?
- *Subquestion 3:* What strategies can be used to stimulate proactive service development?

This is done by combining the Information Systems Research Framework of (Hevner et al., 2004) & Principle-Based Design (Bharosa & Janssen, 2015). This means both empirical problem analysis, through case studies, as well as experiences of information system architects, through interviews, are utilized as two complementary information sources. Principles have been selected as the main contribution of this thesis since these are useful in multi-actor environments, since they focus on goal attainment, instead of providing specific solutions, which can limit the ability of information architects to develop creative solutions for their specific situation.

Firstly, the different actors, their context and environment are investigated in chapter 1: Introduction. Proactive services could be beneficial for all actors and could even contribute to a solution of existing tensions between policymakers and service providers by providing high-quality services to citizens, which are efficient and executable at the same time. Cooperation between policymakers and service providers and between service providers themselves will be required. However, not all public services are suitable to be transformed into proactive services, and proactivity is not always desired by citizens.

The available academic knowledge has been extracted from the knowledge base in a systematic literature review in chapter 2: Literature Review. While proactivity is about mov-

ing the required initiative from the citizen to the government, proactive public services have proactivity incorporated to a degree where these services are without the request, but with the consent of a citizen, delivered automatically to that citizen. However, not all services have the potential to become proactive due to their service characteristics or user acceptance. It was found however that proactivity can be incorporated in many different ways and can vary along the different variables of proactive services, which are:

(1) Triggering actor,
(2) Information required from a citizen,
(3) Interaction required from a citizen.

Therefore in chapter 3: Analytical Framework a conceptual framework was developed to be able to better classify and understand the different levels of proactivity. For a governmental organisation to be able to deliver a proactive service it must be able to complete two essential processes, without having to interact with a citizen. A governmental organisation must be able to:

(1) Determine when a citizen is eligible to receive a service: *the eligibility process* and
(2) Be able to consequently deliver the service to that citizen: *the delivery process.*

If both of these processes can be fulfilled without interacting with a citizen, the service can become a *fully proactive service.* If this is not possible, moderate levels of proactivity can be achieved through proactive provision of information to enable the citizen to determine their eligibility themselves, and by minimizing the amount of information and interaction requested from a citizen. Therefore the answer to subquestion 1: *"What are the different levels of proactivity for public services?"* can not be given exactly, but will depend on the amount of effort a citizen has to put in the *eligibility process* and the *delivery process.*

The analytical framework was consequently used in chapter 4: Exemplary cases & Case studies to classify exemplary cases of public services in the Netherlands that have proactivity incorporated. Moreover, semi-structured interviews were performed to investigate two case studies. These case studies illustrated that proactivity can be incorporated in public services for different purposes. While in the case study of the pre-completed tax return (VIA) of the Tax Office (Belastingdienst) proactivity was used to increase the quality of information and standardize processes, in the case study of the Supplementary Income Elderly (AIO) of the Social Insurance Bank (SVB), proactivity was seen as a way to create more ease of use for the citizen and make the service more inclusive. Proactive service development is a challenge however, as the citizen itself does not trigger services anymore. This must be achieved by other means, which will most often mean information will have to be exchanged to be able to trigger and deliver these services. However, this information exchange is subjected to the GDPR (AVG) to ensure the privacy of citizens. Development of proactive services in compliance with the AVG is a challenge.

Finally, the design principles were developed in chapter 5: Design Principles. Due to the reusable nature of principles, firstly existing principles for (proactive) services were analyzed and in combination with the findings of the literature review and case studies used to develop a draft. This draft was consequently evaluated and refined through evaluating interviews to be able to incorporate the experiences of practitioners. The draft of design principles was firstly evaluated through a personal interview with an academic expert, Regina Erlenheim, followed by two personal interviews with two information architects of governmental service providers having experience with proactivity and design principles and lastly though a group evaluation session with four innovation designers of the Digicampus to incorporate their knowledge and

experiences in the final framework of design principles.

Ultimately, the design principles were developed to guide governmental organisations to not only develop fully proactive services, but to achieve the highest possible level of proactivity. Moreover, the principles were designed to incorporate the different perspectives of the actors. Therefore, proactive services can be realized by achieving the different characteristics of proactive service, while at the same time ensuring user acceptance of citizens.
Proactive service characteristics can be achieved by the following principles:

- Governmental initiative,
- Minimization of interaction,
- Minimization of requested information,
- Personalized services and delivery (1).

User acceptance can be achieved by the following principles:

- Personalized services and delivery (2),
- Citizens are in control,
- Understandability.

While the developed design principles provide guidance to proactive service development, it is important to note that this can be stimulated in different ways as well, which is investigated in chapter 6: Realization Strategies. It is important to remember proactive services rely on information exchange and therefore roughly two main strategies can be identified. Either more information exchange can be enabled or the amount of information that needs to be exchanged can be reduced. This could for example be achieved by enabling the citizen to give their consent for the information exchange for proactive purposes or by developing services and policies bottom-up to be solely based on readily available and exchangeable information. Here it is recommended to not only enable the citizen to consent, but let citizens choose what can be done with that information, which means the citizen should be able to decide their desired level of proactivity.

Whether a service has the ability to become a (fully) proactive service will depend on whether a service can be triggered and delivered without or with minimal involvement of the citizen. This will often decrease as service complexity increases. Suitability of proactivity does not only depend on achievability, but on desirability as well. The maximum achievable level of proactivity will depend on the level of initiative a citizen wants to keep or give away over their personal information and service delivery. Fully proactive services can be suitable for services that are compulsory, have clear eligibility criteria and have no negative consequences for citizens (Scholta & Lindgren, 2019). Fully proactive services can however be rejected by citizens for services which use sensitive subject or sensitive personal information. Services which are rights and require the expression of will of a citizen, therefore always require interaction, which means their maximum level of proactivity will be a click-of-a-button service, where citizens are offered and can accept service delivery with a single action. For services that could have negative consequences for the citizen this interaction presents the ability for citizens to take responsibility for the correctness of the used information and to accept the possibility for these negative consequences to occur. Again, it must be remembered that different public services, situations and citizens, will require different levels of proactivity. No one-size-fits-all solution will be applicable. Therefore experimentation and continuous sharing of knowledge and lessons learnt will be important, which could take place or be enabled by the Digicampus.

Furthermore, it is clear that developments towards data exchange (eco)systems or a self-sovereign identity will affect or enable possibilities for proactive services. In the context of proactive services it is important that these systems do not only enable citizens to share

their information only once, but enable citizens to consent to future use of their information by governmental organisations for proactive purposes. Ideally, the citizen could specify their desired levels of proactivity of what could be done with that information.

Overall, governmental service providers and policymakers can use the design principles for proactive service development, which is the main contribution of this thesis. This could be beneficial for all actors, but will only be applicable in certain situations and scenarios. However, due to the reliance of proactive services on the exchange of information, more strategies can be identified to stimulate proactive public service development that will require a more centralized government-wide approach. This will require more research. Furthermore, more research can be done regarding the user acceptance and ethical issues of proactive services through the involvement of the citizen and other stakeholders, as this has not yet been investigated empirically. Again, as stated before, it must be remembered that different public services, situations and citizens, will desire different levels of proactivity. Therefore experimentation and continuous sharing of knowledge and lessons learnt will be important, which could take place or be enabled by the Digicampus.

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Introduction

1.1. Introduction

The current Dutch cabinet aims to exploit the opportunities offered by digitization in order to get their citizens and entrepreneurs more in control of their data. As part of the Dutch digitalization strategy a government-wide agenda, NLDIGIbeter, was launched to enhance the quality of the interaction between citizens and their government. This can be achieved by personalizing public service delivery, by designing it more from the perspective of citizens and entrepreneurs, for example by designing services around life and business events of citizens, during which citizens currently have to deal with multiple different governmental organizations.[1,2]

Proactive services can minimize the number of required interactions by grouping these related services together in a way that these appear as a single service for a customer. Moreover, proactive services are not 'pulled' by a citizen and provided reactively, but instead 'pushed' towards the citizen by the service provider. (Kõrge et al., 2019) This means a citizen does not request a service from the government, which is consequently provided reactively, but instead these services are triggered by a variety of other means, such as life and business events, introduction of new laws or policies, changes in circumstances or preferences of a citizen, location, related services or third parties. In some cases, public services could even go a step further and could be delivered in a predictive manner even before certain life events happen, which for example could be applicable for age-related services or renewal of mandatory legal documents for example (Scholta et al., 2019).

1.2. Problem definition

Proactive public services are scarce in the Netherlands, however several Dutch governmental organizations have different elements of proactivity incorporated in their services for different reasons in different ways. These different and varying levels of proactivity are currently unclear and will be investigated in this thesis. Overall, best practices of proactive service design are currently unknown. Proactive public services face complex challenges, being socio-technical systems operating in a multi-actor environment. Collaboration is required between the different actors as well as the different service providers as these will often have to exchange information to enable proactive services, since citizens do not trigger services

[1] Digitale Overheid. (2019). NL DIGIbeter 2019. Retrieved from: https://www.digitaleoverheid.nl/nl-digibeter2019

[2] Digitale Overheid. (2019). Onze dienstverlening maken we persoonlijker. Retrieved from: https://www.digitaleoverheid.nl/nl-digibeter2019/4-onze-dienstverlening-maken-we-persoonlijker

themselves anymore. Moreover an understanding must be developed of the different goals and values and environment in which these actors operate. Simply gathering and utilizing as much information as possible, as previously has been done by 'big-tech' companies is no option in the public sector due to legal and moral restrictions as well as the nature of the public sector. Governments have to serve all citizens and ensure their individual rights and beliefs, instead of considering them as customers. This is especially important do to the existence of an unequal power relation between the government and the citizen and lack of exit for citizens (Lindgren & Jansson, 2013).

Throughout this thesis interesting examples of how proactivity is currently applied in public services in the Netherlands will be presented, like in the text box below.

Practical example format

These text boxes will present short illustrative examples of public services in the Netherlands that have proactivity incorporated. A short summary of the service will be given, interesting elements will be highlighted and its level of proactivity will be presented. Note that the different levels of proactivity will be explained in detail in chapter 3: Analytical Framework.

Practicle example #1: Pre-completed tax return (VIA) - Tax Office (Belastingdienst)

Summary: The most well-known example of a proactive service in the Netherlands is the pre-completed tax return, where the Tax Office acquires information to pre-fill tax returns of citizens. Citizens consequently will have to check and approve the information and complement it if necessary. This example will be investigated in-depth in chapter 4: Exemplary cases & Case studies.
Level of proactivity: Moderately proactive: (E5+D3/D2).
Points of interest:
- Creating more ease of use for the citizen was not the main priority of its development.
- Pre-filling information creates more ease of use for the citizen and enables the citizen to verify its correctness and take the responsibility for this.

1.2.1. Socio-technical systems

In socio-technical systems both social and technical factors as well as their environment must be considered during development. Social and technical requirements must be considered interdependently, as certain outcomes can be desirable for one, but not for the other, which means often trade-offs are required. Both a dual focus and joint optimization is required (Fox, 1995). Regarding public e-services this means people, the information systems and their interaction as well as context must be considered. Public e-services are services that an organization can provide to citizens to enable them to comply with legal obligations or make use of legal rights through digital channels (Erlenheim et al. 2020). In order to capture the complexity of public e-services a multi-dimensional approach is required, where public e-services should be analyzed through the dimensions of it being a service, electronic and public in different combinations (Lindgren & Jansson, 2013). The incorporation of proactivity in public e-services affects public e-services in each of these three dimensions, however its precise

effects are still unclear (Scholta & Lindgren, 2019).

1.2.2. Multi-actor environment

Proactive public services operate in a multi-actor environment. In the Netherlands, governmental institutions are highly autonomous and separated in different agencies tasked with policy creation, service delivery or supervision (Bharosa et al., 2020). Different actors will have different goals and values. These differences exist between policy creators and service providers, as well as between different service providers. As citizens do not trigger services themselves anymore, proactive public services require the exchange of information and therefore both cooperation and collaboration between governmental organisations. In the section below first the governmental environment is explained, after which the different actors are discussed.

1.2.3. Governmental environment: characterized by decentralization

In the Netherlands, governmental institutions are highly autonomous and separated in different agencies tasked with policy creation, service delivery or supervision. Resource allocation and decision-making is fragmented and loosely coordinated, resulting in different digital innovation agendas along different levels of e-government. Public organisations are legally restricted to develop digital technologies for which alternatives on the market exist and innovation is mainly outsourced to the private sector. Collaboration between public and private organisations is therefore common, however it is important to note that infrastructures developed for the public sector can only be used for governmental data exchange. Information exchange between other actors such as citizen-to-business or business-to-business is not allowed through these infrastructures. These circumstances have led to the existence of multiple digital infrastructures across different public sectors and levels of government. (Bharosa et al., 2020)

An example is the exchange of information between municipal ICT-systems that make use of a complex system of links, which makes it inflexible, vulnerable and expensive, and therefore hinders innovation. The initiative Common Ground, which is inspired by the Estonian X-Road project, aims to develop a modern shared infrastructure step by step, to which municipalities can switch whenever and how they seem fit. Through Common Ground municipalities can exchange information quickly and safe both internally and externally.[3] An example is the latest addition of the data of the RDW, which by doing so is made available for all municipalities and organisations that have legal access to this data.[4]

The decentralized governmental environment of the Netherlands means multiple different governmental organisations exist, having different goals and therefore wanting to allocate their resources differently. Proactive services often rely on the exchange of information between governmental organisations to either trigger or deliver a service. This could mean that for a governmental organisation to raise the level of proactivity of a service, it can be dependent on another governmental organisation to innovate, which might not even be in the direct interest of that other governmental organisation. Therefore, a centralized approach is required to manage these potential asymmetries in benefits and allocated resources. The Dutch government is aware that developing public services from the perspective of citizens and businesses means reasoning over traditional borders of different governmental organisation and therefore requires cooperation, agreements and standardization. This means centralized control and coordination

[3]VNG. (2020). Common Ground. Retrieved from: https://vng.nl/artikelen/common-ground

[4]Digitaleoverheid. (2020). NL DIGIbeter 2020. Retrieved from: https://www.digitaleoverheid.nl/overzicht-van-alle-onderwerpen/nldigibeter/

is required and the Dutch government actively aims to improve these processes.[5]

The Dutch Governmental Reference Architecture (NORA) contains government-wide agreements which aim to enable and improve digital public service delivery in the Netherlands. It provides guidance to policymakers and information architects and ensures interoperability and the re-use of existing solutions.[6] Municipalities have a specific reference architecture as well, the Municipal Model Architecture (GEMMA), which provides guidance for information management of municipalities.[7] Furthermore, governmental organisations are obligated to the use of open standards when innovating their ICT-systems. This is called the 'pas toe of leg uit'-policy, which translates to 'apply or explain'-policy. Diverting of these open standards requires a clear substantiation in the annual reports of the governmental organisation. These mandatory open standards can be found on a governmental website dedicated to standardization.[8,9]

1.2.4. Actors: Policy creators, Service providers & Citizens

Until this point mostly two main perspectives have been mentioned, being that of the citizen and that of the government. A further specification of the governmental perspective is required however, due to the decentralized nature of the Dutch government as mentioned in the previous section. While all actors can benefit from the incorporation of proactivity in public services, the underlying reasons can differ, which means different desired levels of proactivity could exist for different actors. The analysis is not meant to give an extensive overview of the challenges and conflicting values existing in the public sector, but is specified to identifying the existing complexities of digital public service delivery applicable to the different actors, explore their relationships with proactivity and identify the main motives of these actors for the development of proactive services.

Policy creators

Public services that are provided from governmental organisations to citizens are ultimately based on the laws and regulations created by the Dutch cabinet and its ministries. Policy is not only created on a national level, but on a municipal and European level as well. Governmental service provider agencies are consequently tasked with the execution of these policies.

Public services differ from private services in several ways. Public organisations must serve all citizens equally and individual rights and obligations of citizens must be ensured. This must be done in a cost-effective way, which means democratic and economic values must be balanced. Furthermore, it must be acknowledged a lack of exit for citizens exists, as citizens can be forced by their government due to their asymmetrical power relation. (Lindgren & Jansson, 2013) This asymmetrical power relation is legitimized through democratic election and politicians can be held accountable, for which transparency is required. In the context of public service delivery, two important elements of the Dutch Digitalisation Strategy need to be discussed. The multi-level government-wide agenda for the digital government, NL DIGIbeter and the Control of Data programme from the Ministry of Economic Affairs and Climate Policy and the Ministry of the Interior and Kingdom Relations.

[5] Digitaleoverheid. (2020). NL DIGIbeter 2020. Retrieved from: https://www.digitaleoverheid.nl/overzicht-van-alle-onderwerpen/nldigibeter/

[6] NORA. (2020) NORA online. Retrieved from: https://www.noraonline.nl/wiki/NORA_online

[7] GEMMA Online. (2019) Informatie- en applicatiearchitectuur. Retrieved from: https://www.gemmaonline.nl/index.php/GEMMA_2_Applicatiearchitectuur

[8] Forum Standaardisatie. (2020). Verplichte standaarden. Retrieved from: https://www.forumstandaardisatie.nl/open-standaarden/verplicht

[9] NORA. (2020). Lijst Open Standaarden voor Pas Toe of Leg Uit. Retrieved from: https://www.noraonline.nl/wiki/Lijst_Open_Standaarden_voor_Pas_Toe_of_Leg_Uit

Government-wide digital innovation strategy: Digital Government Agenda NL DIGIbeter

As part of the national digitalization strategy of the Netherlands, the Dutch coalition has created an agenda for the digital government, called NL DIGIbeter, which is updated every year. This joint agenda, which is updated every year and applies to all levels of government, aims to assist the digital transformation the government is currently undergoing. Instead of merely looking at individual goals and responsibilities, governmental organizations ask themselves how they can contribute to wider societal problems. The starting point of digital service design will be from the perspective of citizens and businesses, by solving problems experienced in practise and improving service delivery using the life event approach.[10] The previous and current efforts of the Dutch governments are key to understand the limitations and possibilities for proactive services in the Netherlands. The agenda consists of five strategic pillars. The most recent version, NL DIGIbeter 2020, focusses on (1) investing in innovation, (2), protection of fundamental right and public values, (3) accessibility and understandability for everyone, (4) personalization of service delivery and (5) being ready for the future.[11] It is clear that the agenda and their initiatives are relevant for the development of proactive services and needs to be investigated further in some aspects. Moreover, an overview of several initiatives, pilots and accomplishments are presented in every new version.

Life event orientation: public service delivery using the citizen's perspective

The Dutch government aims to develop digital service delivery from the perspective of citizens and businesses and identifies life event orientation as a suitable approach. The goal is to let public service delivery match better to the real world. Using the citizen's perspective means reasoning over the traditional borders of different governmental organisations is required.[12]

Several examples of such initiatives can be mentioned. Overheid.nl is a website which acts as a central access point to all information about government organisations of the Netherlands.[13] Ondernemersplein.nl is a website on which information from all relevant governmental organisations is collated for entrepreneurs and businesses.[14]. Rijksoverheid.nl is a joined website of all twelve ministries. Moreover, the website has an useful information service of important information regarding 26 life events. After answering several questions, which ensures personalisation to the needs and circumstances of the citizen, an overview is given of relevant information regarding public services and things that should be arranged or taken into account during the occurrence of the selected life event.[15,16]

Currently eight different life events are investigated. 'A relative has passed away', 'I am going to move', 'I am going to university', 'I am going to start a company', 'I have to stop as an entrepreneur', 'Passing away of an entrepreneur', 'Sustainable entrepreneurship', 'From unemployment to a job'. By using the perspective of the citizen and entrepreneurs, bottlenecks

[10] Digitaleoverheid. (2020). NL DIGIbeter 2020. Retrieved from: https://www.digitaleoverheid.nl/overzicht-van-alle-onderwerpen/nldigibeter/

[11] Digitaleoverheid. (2020). NL DIGIbeter 2020. Retrieved from: https://www.digitaleoverheid.nl/overzicht-van-alle-onderwerpen/nldigibeter/

[12] Digitaleoverheid. (2020). NL DIGIbeter 2020. Retrieved from: https://www.digitaleoverheid.nl/overzicht-van-alle-onderwerpen/nldigibeter/

[13] Overheid.nl. (n.d.) Over deze website. Retrieved from: https://www.overheid.nl/over-deze-site/colofon

[14] KVK, Rijksdienst voor Ondernemend Nederland, Antwoord voor bedrijven, Belastingdienst, Centraal Bureau voor de Statistiek. (n.d.) Over Ondernemersplein. Retrieved from: https://ondernemersplein.kvk.nl/over-ondernemersplein

[15] Ministerie van Algemene zaken. (n.d.) Over Rijksoverheid.nl. Retrieved from: https://www.rijksoverheid.nl/over-rijksoverheid-nl

[16] Ministerie van Algemene zaken. (n.d.) Overzicht levensgebeurtenissen. Retrieved from: https://www.rijksoverheid.nl/onderwerpen/levensgebeurtenissen/overzicht-levensgebeurtenissen

can be identified and dealt with. The overall strategy of the Dutch government is to start small and scale up success stories.[17]

Although the pilots and solutions using this life event approach will most certainly incorporate proactivity, this is not specifically discussed.

Regie op Gegevens programme (Control of data programme): get citizens and businesses more in control of their data

A growing need exists to enable citizens and organisations to share information easily and responsibly, both publicly and privately. The programme focuses on developing sets of agreements of how this can be achieved in a technically, responsibly, legally complaint and morally justified way.[18] The Dutch government aims to get their citizens and businesses more in control of their personal data, which means data can be viewed, (re-)used, edited or deleted by these citizens and businesses.[19]

At this moment in time, concepts have been developed and experiments are taking place in different forms, such as by enabling citizens to download and share their personal information from governmental sources, or by enabling citizens to consent to service providers to directly access their personal information from the government.[20] For proactive services the exchange of data is required without involvement of the citizen. This requires legal compliance and ethical desirability should be assessed. If, when and how citizens should consent to the required exchange of data is a challenge. A major benefit of proactive services is that these are initiated without any effort required from a citizen. However, in order to trigger or deliver these services often citizens will have to consent to the exchange of information first or accept the delivery of a service, which means effort is required from citizens. This creates a kind of paradoxical conflict. Always allowing governmental organisations to exchange all available data of citizens is undesired, but if citizens will have to initiate or consent to the exchange of all of their information every time, in practise it still is the citizen that initiates the service delivery process. The question arises how citizens can be in control of their personal data, but still enjoy the benefits of proactive service provision. This will most probably differ for different public services or citizens, which means no one-size-fits-all solution will be applicable. Several different options will be explored in chapter 6: Realization Strategies.

Service providers

Service providers are tasked with the execution of policy. These organisations must be able to provide the public services it is tasked with and do so in an efficient manner. These service providers are often the place where citizens interact with their government, which can vary from digital channels to personal contact with civil servants.

In the Netherlands several governmental service providers, such as the Tax Office, UWV and CBR have experienced a variety of issues resulting in inappropriate service delivery, such as false accusations of fraud and long waiting times for the extension of driver's licenses. At this moment in time, a parliamentary inquiry is held to determine the underlying reasons of these issues. Not only the causes of the inappropriate service delivery are investigated, but the role of the House of Representatives as well, where an emphasis lies on determining how

[17] Digitaleoverheid. (2020). NL DIGIbeter 2020. Retrieved from: https://www.digitaleoverheid.nl/overzicht-van-alle-onderwerpen/nldigibeter/

[18] Digitale Overheid (n.d.) Wat doet het programma 'Regie op Gegevens'?. Retrieved from: https://www.digitaleoverheid.nl/overzicht-van-alle-onderwerpen/regie-op-gegevens/vraag-en-antwoord/wat-doet-het-programma-regie-op-gegevens/

[19] Digital Government (n.d.) Regie op Gegevens, RoG ('Control of Data'). Retrieved from: https://www.nldigitalgovernment.nl/dossiers/regie-op-gegevens-rog-control-of-data

[20] Digital Government. (2019) Personal data management. Retrieved from: https://www.nldigitalgovernment.nl/document/personal-data-management/

the feasibility and executability of policy can be guaranteed.[21] Policymakers always aim to realize their political ambitions, but have lost track of the complexity and feasibility of their promises. This has resulted in an imbalance between the promises made by policymakers and their realizations by service providers, which has led to dissatisfaction of citizens, businesses, and policymakers. Therefore, service providers should be involved more during policy development. Moreover, a recommendation has been given for a simplification of existing complex laws and regulations in which attention must be paid to executability.[22] (Van der Vlist & Heerschop, 2020a; Van der Vlist & Heerschop, 2020b)

Fully proactive services could contribute to solutions for the problems represented above, for example by increasing efficiency. Developing more proactive services could result in feasible services in which the ambitions and promises of policymakers can still be realized. Modifying or simplifying policies and public services to a point where proactive service delivery can be enabled would be a method to achieve this goal. This will be investigated in more detail in chapter 6: Realization Strategies.

Besides aligning policymakers and service providers, the goals and values of service providers should be aligned as well, as cooperation and collaboration is required for the exchange of information needed to trigger and deliver services to citizens. Governmental organisations can be dependent of each others information to the point where if one organisation wants to raise the level of proactivity of their services another organisation must innovate as well, possibly without enjoying direct benefits of that innovation themselves. This is the same as for the development of services from the perspective of citizens and businesses of which the Dutch government, as mentioned before, is already aware of that reasoning over traditional borders of different governmental organisation means requires cooperation, agreements and standardization. This means centralized control and coordination is required and the Dutch government actively aims to improve these processes. This is applicable to services based on life or business events as well as proactive services, which often are based on those events as well.

Citizens

As stated before, public e-services are services that an organization can provide to citizens to enable them to comply with legal obligations or make use of legal rights through digital channels (Erlenheim et al. 2020). From this sentence it can directly be observed that citizens can be forced to make use of public services. The power of a citizen is limited as there is a lack of exit as citizens are forced to make use of certain compulsory services or are dependent of certain non-compulsory public services for which no alternative exist (Lindgren & Jansson, 2013). When citizens refrain from using an e-service this can be due to the service itself being undesired, the outcome of the service is undesired or a combination of both. Both the outcome as well as the method of delivery of a public service must live up to the expectations of citizens (Lindgren & Jansson, 2013). These expectations however continuously increase and technological innovations offer opportunities to governments to meet these expectations (Linders et al., 2018). In the Netherlands, citizens want their future government to be simplified, which means the use of simple language and procedures, preferably through a single channel. Moreover, most citizens in the Netherlands want their government to act proactive towards the citizen instead of the other way around (KANTAR, 2019). Proactive services contribute to achieving these expectations.

[21] Tweede Kamer. (n.d.) Tijdelijke commissie Uitvoeringsorganisaties. Retrieved from: https://www.tweedekamer.nl/kamerleden_en_commissies/commissies/tcu/over_de_commissie

[22] Rijksoverheid. (2020) Advies: Vereenvoudig wet- en regelgeving en meer oog voor uitvoerbaarheid. Retrieved from: https://www.rijksoverheid.nl/actueel/nieuws/2020/09/11/advies-vereenvoudig-wet–en-regelgeving-en-meer-oog-voor-uitvoerbaarheid

Proactive services promise a yet unforeseen level of quality (Kõrge et al., 2019). However what does this quality mean? The advantages can differ for each actor will be investigated further in chapter 2: Literature Review. It must be remembered public services must create value for the citizen and it is that citizen that assesses the quality of a service. However, due to heterogeneous nature of public services this means different citizens will have different expectations and views of what a good service entails. Ultimately, service quality must be determined based on the experiences of its consumers. (Lindgren & Jansson, 2013)

Actor	**Main motives**
Policymaker	Enhance the quality of the interaction between citizens and their government.
Service provider	Efficiency & executability.
Citizen	Ease of use.

Table 1.1: Overview main motives of actors for the development of proactive services

Concerns & conflicts
Although proactive services might be promising, several advantages and values could conflict with each other. For more proactive services and their advantages to be realized and these concerns have to be addressed. While some concerns such as guaranteeing the privacy of the citizen require legal compliance, others concerns will turn out to be trade-offs between different competing values.

- According to employees of the UWV, the Dutch government wants citizens to be self-reliant. Fully automated processes could lead to less transparent decision making and incorrect information could lead to undesired consequences.
- According to an employee of the Belastingdienst, automation can be costly.
- It is hard to determine what citizen will accept what level of proactivity for what kind of service.
- Different public services will require different solutions, no existing one-size-fits-all solution. Customization is required.
- Proactive services require cooperation and central coordination. If one governmental organisation wants to innovate their services often another governmental must innovate as well.
- Shared responsibility of governmental organisations.
- Privacy. (Linders et al., 2018; Scholta & Lindgren, 2019; Scholta et al., 2019)
- Provision and understandability of consent.
- Trust is required for user adoption (Scholta et al., 2019; Sirendi et al., 2018).
- Uniformity of government-wide service delivery can decrease.
- Conventional (reactive) service delivery must be available as well (Linders et al., 2018; Erlenheim et al., 2020). When services are delivered in multiple different ways, such as reactive and proactive, equal provision of service must be ensured.

Trade-offs

- Patronization vs. Self-reliance.
- Inclusion vs. Privacy.
- Efficiency vs. Privacy.
- Ease of use vs. Privacy.
- Ease of use vs. Transparency.
- Ease of use vs. Intrusiveness.
- Ease of use vs. Costs.
- Ease of use vs. Control.
- Goodwill vs. Intrusiveness. (R. Erlenheim, personal communication, August 31, 2020)

1.3. Research Objective & Scope: Developing a framework of design principles

The overall objective of this research is to identify a framework of design principles to be able to guide governmental organizations in the Netherlands in transforming their services towards a higher level of proactivity. Digital public services delivered from governmental organisations to individual citizens will be investigated. Collective public services, which are provided simultaneously to all members of society, such as public order or street maintenance are not discussed in this thesis. Moreover, as this thesis focuses on public services provided to citizens, services for businesses or entrepreneurs will not be investigated specifically. Throughout this thesis digital public proactive services, or proactive public e-services will simply be referred to as proactive services.

This thesis contains two main deliverables, firstly an analytical framework which can be used to classify public services on their level of proactivity, secondly a framework of design principles of how governmental organisations can transform their services towards a higher level of proactivity. Furthermore, recommendations are given for several strategies to stimulate proactive service development and for further research.

1.4. Research Questions

- *Main research question:* What design principles can be identified for proactive public service design for governmental organizations in the Netherlands?

- *Subquestion 1:* What are the different levels of proactivity for public services?
- *Subquestion 2:* What is the current state of development of proactive public services in governmental organizations?
- *Subquestion 3:* What strategies can be used to stimulate proactive service development?

1.5. Research Approach: Combining the Information Systems Research Framework (Hevner et al., 2004) & Principle-Based Design (Bharosa & Janssen, 2015)

In this section the methodology of the project will be explained. First the two used methodologies are motivated and described shortly. Afterwards the project methodology and used methods are described in more detail.

The general project methodology is the Information Systems Research Framework of (Hevner et al., 2004). The framework has been adapted to only incorporate the elements of this project and can be seen in figure 1.2 below.

This methodology was chosen to both be able to design an IT artefact to solve an existing problem, which in this thesis is the framework of design principles, which is the main contribution of this thesis, but as well to capture knowledge from this process.

These principles are extracted using the Principle-Based Design methodology of (Bharosa & Janssen, 2015), which means both empirical problem analysis, through case studies, as well as experiences of information system architects, through interviews, are utilized as two complementary information sources. Furthermore, existing (proactive) public service design principles will be extracted from the environment and knowledge base and will be utilized as information sources as well.

The decision for a framework of principles as the main contribution of this research is due to several reasons. Governmental organizations in the Netherlands are operating in a multi-actor environment in which different organizations have different goals, which ultimately can conflict with each other. Principle Based Design is useful for such environments since it focuses on goal attainment. Principles are more abstract than requirements and constraints, which increases the possibility for actors to agree upon them, since it leaves more room for architects and IT developers to adapt their systems to the specific business environment of their respective organizations (Bharosa & Janssen, 2015).

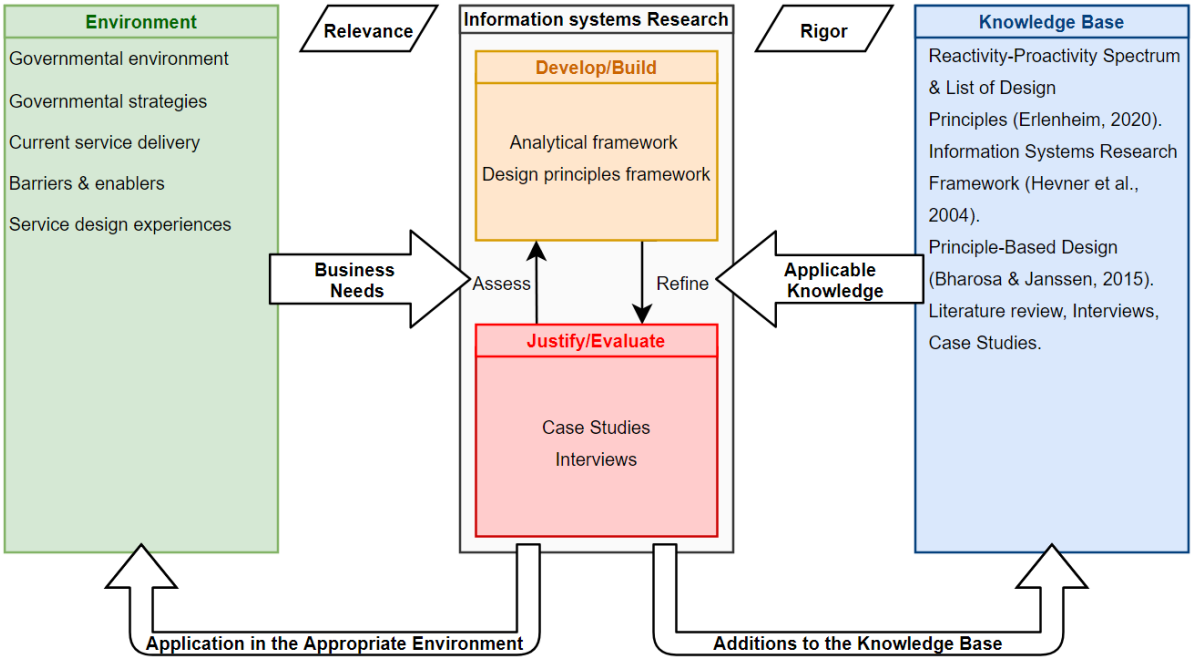

Figure 1.2: Information System Research Framework. Adapted from (Hevner et al., 2004).

Overview of Research Approach

The framework of (Hevner et al., 2004) has been applied to structure the elements of this project and can be seen in a flow diagram in figure 1.3 below.

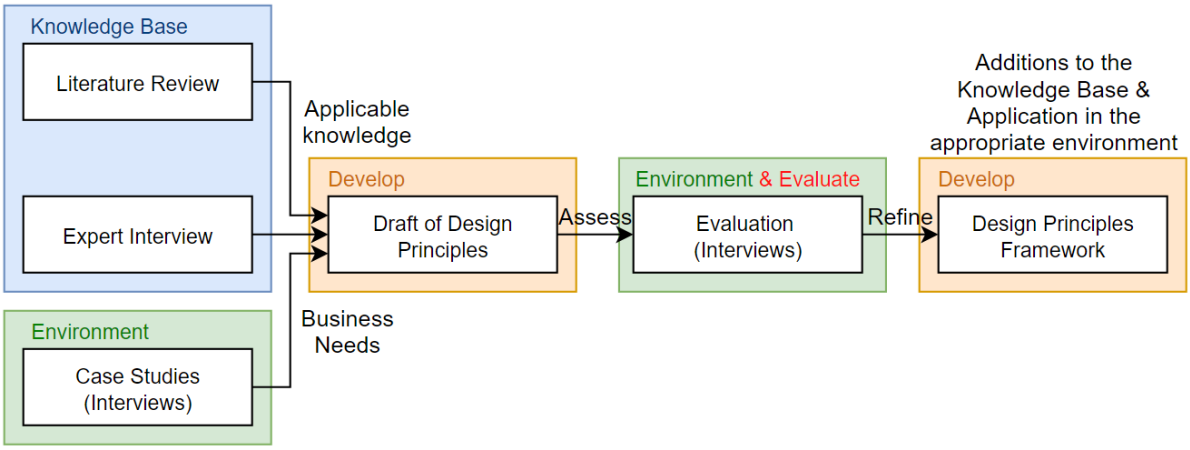

Figure 1.3: Flow diagram of project methodology based on Information System Design Science Framework of (Hevner et al., 2004)

First applicable knowledge will be extracted through a systematic literature review, combined with a personal interview of an academic expert, Regina Erlenheim, who has published several articles regarding proactive services. The business needs are determined by performing exploratory case studies of the (proactivity of) public service delivery of governmental organizations in the Netherlands through a combination of interviews and desk research. Exemplary cases of public services that have proactivity incorporated will be investigated through desk research to get an overview and understanding of the current state of proactive services in the Netherlands. Furthermore, in order to gain a more thorough understanding of the business needs in-depth case studies have been performed, in which personal interviews were conducted with employees of the respective governmental service providers. Qualitative case studies are a suitable approach for exploring a phenomenon within its context through a variety of perspectives in order to understand it (Baker & Jack, 2008). Understanding the different perspectives of the governmental organisations is important as cooperation will be required.

The selection criteria cases for the case studies were selected based on the aforementioned scope of this thesis, which means only public services provided by a governmental service provider to a citizen through digital channels could be selected. Furthermore, cases were selected based on their potential for or incorporation of proactivity and willingness to cooperate with the study and for the findings to be made public. Ultimately two cases of service providers, the Belastingdienst (Tax Office) and the SVB (Social Insurance Bank) fulfilled these criteria and were selected.

Consequently the obtained information will be used to develop the first draft of design principles, which is consequentially evaluated and refined through evaluating interviews to be able to incorporate the experiences of practitioners. The draft of design principles was firstly evaluated through a personal interview with an academic expert, Regina Erlenheim, followed by two personal interviews with practitioners of governmental service providers having experience with proactivity and design principles and lastly a group evaluation session with four innovation designers of the Digicampus to be able to incorporate their knowledge and experiences in the final framework of design principles.

1.6. Link with study programme

The Management of Technology programme teaches students how technology can be utilized within high-tech organisations and complex real-world settings. High-tech organisations continuously have to innovate their services, products or business models to stay relevant. Students obtain the skills to be able to both explore and exploit new scientific knowledge and technological opportunities.

During the second year of the study programme, a technological specialisation is selected by students, which for the author of this thesis was the ICT Management & Design specialisation in which courses such as Information and Communication Architecture Design (SEN1611) and Information and Communication Service Design (SEN1622), in which the specific skills needed for this thesis were added on top of the skills learned in the first year of the study programme.

The problem presented in this thesis requires a multidimensional approach, as the technology affects and provides benefits to actors differently. Moreover, it can not be viewed separately from the complex environment in which it operates. A combination of these insights is required to determine how the technological opportunity can be exploited or shaped in a way that is beneficial for the involved actors. The framework of design principles for proactive public services that is developed in this thesis fulfills that purpose and assists and guides governmental organisations during the design and development of proactive public services.

2

Literature Review

2.1. Systematic Literature Review

Method & Scope

The systematic literature review will give a structured overview of the available literature, will help in creating a conceptual understanding and give insights in what topics are to be addressed in this thesis. Ultimately the goal of the literature review is to answer:

Subquestion 1: *"What are the different levels of proactivity for public services?"*

The scope of this literature research is similar to the scope of the thesis, which is to investigate proactive public services delivered by governmental organizations to citizens through digital channels. Using this scope together with the keywords of already discovered articles and their corresponding keywords the following keywords were selected: 'Proactiv*', 'E-govern*' and 'Service*'. The asterisks are placed to get results containing both 'Proactive' and 'Proactivity', 'Service' and 'Services' and 'E-government' and 'E-governance'. Scopus was queried using these keywords which resulted in 59 articles. The results were manually filtered based on their abstracts to include only those articles that focused explicitly on proactive public service delivery or development, which resulted in the selection of 11 papers. An at that time unpublished paper from Erlenheim et al. (2020) was added to the analysis as well, resulting in a total amount of 12 applicable research articles.

In order to be able to answer Subquestion 1, the following strategy is used. First the academic attention, existing conceptualizations, advantages, concerns and competing values are investigated. Afterwards existing frameworks and models and their limitations are discussed. Finally, conclusions are drawn from the research and the research question is answered (partially).

Academic attention: Limited but rising

The concept of proactive services in the public sector has not received much academic attention (Sirendi & Taveter, 2016; Sirendi et al., 2018). However attention regarding the subject is rising, with the world's leading digital governments (Digital 7) investigating proactive public e-services (Sirendi et al, 2018). While the conceptualization of digital public service delivery is currently known, the influences that proactivity will have on it are not (Scholta & Lindgren, 2019). Although proactive services have the potential to change the way e-governments provide services towards citizens (Scholta & Lindgren, 2019; Erlenheim et al., 2020), only few studies exist and theories are still being developed (Kõrge et al., 2019). Recently increasingly more governments, organisations and authors have started exploring proactivity in the context of public service provision (Erlenheim et al., 2020). The number of academic authors that

currently focus on proactive public services is limited however. Overall it can be stated that a limited but rising amount of academic and non-academic attention is present concerning proactive public services.

Overview of articles focussing on proactivity and public services

Although the authors in this literature review all describe and discuss proactive public services, it is important to realize their perspectives differ slightly, due to the use of different conceptualizations and terminologies. Scholta & Lindgren (2019) address this and propose to use their framework and its terms to create a shared vocabulary for communication and to stimulate further development of theory.

Linders & Wang (2013) investigate the conceptualization and implementation of Taiwan's fourth e-government strategy, which aims for proactive e-governance, along three short case studies. Linders et al. (2018) investigate the implementation of this strategy as well along three cases and use observed patterns and trends to develop a conceptual framework for proactive e-governance. Reactive and proactive recommendation techniques are proposed to achieve more personalized e-government services (Ayachi et al., 2015). Sirendi & Taveter (2016) propose a methodology for proactive service design by using the approach of Agent Oriented Modeling to analyze service design thinking and proactivity in the context of public service provision. Sirendi et al. (2018) investigate two case studies in Estonia and Australia to understand proactive public e-service development, which resulted in the development of a reactive-proactive framework and general guidelines for development of proactive e-services. Scholta & Lindgren (2019) present a framework which aims for a shared vocabulary to serve as a stepping stone for more theoretical development concerning the concept of proactive service delivery. Kõrge et al. (2019) give recommendations for proactive business event services in the public sector based on experiences in the Estonian company registration portal. Scholta et al. (2019) propose an extension of existing e-government stage-gate models in order to include proactive and predictive service delivery. Erlenheim et al. (2020) present both a reactivity-proactivity spectrum to classify public services as well as a ten-step list of design principles for their development.

Conceptualizations: Moving the initiative away from the citizen

Most of the aforementioned academic sources aim to provide conceptualizations of the combination of proactivity and public service delivery. As stated before these do not all make use of the same perspective. It is observed that it is hard to define how public service delivery is affected by proactivity. In order to understand the different levels of proactivity it is important to discuss and analyze these conceptualizations how they vary from each other.

Linders & Wang (2013) & Linders et al. (2018) describe the vision of proactive e-governance, where the service delivery model of the government is shifted from the traditional reactive "pull", to the novel proactive "push", where instead of citizens having to request a service from the government, the government delivers information and services proactively to its citizens, depending on several aspects such as (individual) needs, preferences, circumstances, life events and location. Kõrge et al. (2019) identify a change of perspective in this metaphor, since the reactive "pull" is performed by the citizen, but the proactive "push" is performed by the government. Therefore it is proposed to use the same perspective, being that of the citizen, so the paradigm shift caused by proactivity could instead be described as from "pull" to "pushed".

Scholta et al. (2019) explain that proactive service delivery happens when a government delivers its citizens services triggered by life events instead of citizens having to request services themselves, which is in line with the definition of Linders et al. (2018). However Scholta et al. (2019) extend the concept by proposing the concept of predictive service delivery, where

a service can be delivered even before certain life events happen, which could be applicable for age-related services or renewal of mandatory legal documents for example (Scholta et al., 2019). It is concluded that the nature of a service influences their suitability for proactivity. For example, certain life events, like getting married or starting a business can not be predicted by the government. Another example is that informational services can be classified as proactive when a citizen receives information without requesting it, but services in which a transaction takes place can only be considered proactive when the citizen receives a governmental decision on their case without having to perform an action afterwards themselves (Scholta et al., 2019). Proactive services can only be considered as such, if proactivity is used transactional instead of just providing information (Kõrge et al., 2019). Moreover, it was found that single services can have multiple levels of proactivity at the same time (Scholta et al., 2019).

Overall it can be observed that the proactivity of a service can be raised by moving the initiative from the citizen to the government, which is necessary to start the service, delivery away from the citizen. It is important to realize that this does not necessarily mean the service delivery process has to be initiated by the governmental organization, as it can be initiated by a third-party organization as well (Scholta & Lindgren, 2019). However, since the conventional trigger of public service delivery is taken away from the citizen a new trigger is required.

Life and business event orientation: An important element of proactive services
When life events, such as getting married or the birth of a child, occur most often interaction between citizens and their government is required, often with multiple governmental organisations. With proactive e-governance life events, as well as context-specific conditions, such as location or changes in a citizen's profile, can trigger services. This can even be used to preemptively react to problems or opportunities in an early stage (Linders et al., 2018). Scholta et al. (2019) address this as well, as with predictive service delivery, a government can predict a life event will take place and in some cases could deliver services to prevent undesirable life events from happening. Another way services could be provided even before a life events occurs is by enabling the citizen the register that life event beforehand (Klievink & Janssen, 2009). After the registration of that life event related services could be provided without any extra effort required from that citizen. Although this is not a proactive service as initiative and effort is required from citizens it enables the provision of public services around a certain life event beforehand.

Orientation on life and business events is considered an important element of proactive services. Not only does life event orientation enable e-service portals to be structured in a more citizen centred way, but by grouping services related to the same life or business event, these services can appear as a single service from the point of view of the citizen and minimize the number of required interactions (Kõrge et al., 2019). Collaboration and providing services together can enable governmental organisations to deliver citizens a holistic service experience (Sirendi et al., 2018).

Even though structuring public service delivery around life event orientation has several advantages it is not a necessary requirement for becoming a proactive service. Not all public services are either suitable or will benefit from being centred around a certain life event, but can benefit from the incorporation of proactivity. While life event orientation can be beneficial for public services, it is not a requirement. Proactive services can be triggered by the introduction of new laws or policies, location or other changes affecting a citizen.

Practical example #2: Neighbourhood notification service - UBR

Summary: Citizens can opt-in to be informed when municipalities, water authorities and counties publish decisions about provided permits, zoning plans or policies that are applicable in an area. The citizen can individually select which types of public decisions, in what area and from what governmental organizations it wants to be notified of.[a]
Level of proactivity: Before opting in: Reactive (E1D1), After opting in: Fully proactive (E5D5). Note that this is an informational service.
Points of interest:
- This is a good example of how spatial information can trigger proactive information provision.
- The citizen must opt-in, and must specify exactly about what, where and by whom it wants to be informed of.

[a]Overheid.nl (n.d.) Berichten over uw buurt. Retrieved from: https://www.overheid.nl/berichten_over_uw_buurt_eenvoudig_zoeken

Digital public services: Citizens can not be treated the same as consumers
Within the concept of proactive service design is incorporated that this entails digital public services or public e-services. The name entails three different dimensions, it being a service, electronic and public, and a multi-dimensional approach is required to capture its complexity (Lindgren & Jansson, 2013). While services can be defined as any act or performance that one party can offer to another, which is intangible and does not result in the ownership of anything, public e-services are services that an organization can provide to citizens to enable them to comply with legal obligations or make use of legal rights through digital channels (Erlenheim et al., 2020). These digital public services are considered a core component of the aim of public organizations to utilize digital technologies to increase their efficiency and several academics view proactivity as the next step to take. How proactivity will affect public service delivery is unknown however. (Scholta & Lindgren, 2019)

Another consequence of dealing with public services is that users should not be considered as customers, but as heterogeneous citizens having different needs, rights and obligations (Scholta & Lindgren, 2019). Kõrge et al (2019) address this as well and determine further research towards user adoption is necessary in which users should be considered as citizens instead of consumers. Citizens must be able to both understand and consent to the use and sharing of personal data between governmental organisations. Therefore, safeguards and standards must be developed in order to ensure their privacy and rights both now as well as in the future (Scholta et al., 2019).

Advantages of proactive public services: Increased ease of use and efficiency
While several academics view proactivity as the next step to take in the development of e-government (Scholta & Lindgren, 2019), it is important to assess whether this is actually a desirable outcome. First the advantages of proactive public services will be investigated, after which concerns and competing values are discussed.

Citizens can benefit from proactive services for several reasons. Proactive services promise a yet unforeseen level of quality (Kõrge et al., 2019) and have the potential to reduce the amount of effort a citizen has to spend on bureaucratic activities (Erlenheim et al., 2020). Convenience is maximized by minimizing the amount of required interactions, letting citizens react at key points using their preferred channels (Linders et al., 2018). The number

of required interactions can also be minimized by grouping related services together around a life or business event in a way that these appear as a single service for a customer (Kõrge et al., 2019). Grouping services together in a one-stop shop is insufficient however, since citizens remain unsatisfied with the reactivity and repetitivity of the offered services. Citizens therefore increasingly demand proactive and personalized services from their governments (Scholta et al., 2019). Proactive e-governance could fulfill these demands. By making use of new ICT innovations governments can increase their service quality, operational efficiency and digital inclusion (Linders et al., 2018).

Instead of trying to replace frontline civil servants, proactive e-governance can be used in a complementary role, which can enable them to focus more on identifying the needs of citizens proactively, thereby enabling them to deliver more holistic and inclusive services (Linders et al., 2018).

Proactive services do not only enable governments to fulfill the expectations of their citizens, but can increase the efficiency of their processes as well, saving both time and costs and decrease the amount of needed customer support. Moreover can the service provision the inclusivity of their services be raised by taking the initiative to provide services to citizens who would not have used these services otherwise, due to reasons such as not being aware of the service or discomfort perceived in the application process.

Main advantages of proactive services	**Achieved by**	**Source**
Higher quality of public services:	Enabling civil servants to deliver more holistic and inclusive services	Linders et al. (2018)
	Live up to citizen demand.	Scholta et al. (2019)
Increased operational efficiency:	Enabling civil servants.	Linders et al. (2018)
Increased ease of use for citizen:	Reduction of effort required for bureaucratic activities.	Erlenheim et al. (2020)
	Minimization of required interactions.	Linders et al. (2018)
	Grouping services around life or business events.	Kõrge et al. (2019)

Table 2.1: Summary of advantages of proactive services observed in the literature

Concerns and competing values: Not a one-fits-all solution, complementary role & privacy

Proactive services are not a one-fits-all solution. Not all services have the ability to become proactive or predictive and since governments have limited resources, governments should focus on transforming services that yield the highest value. Future research is necessary to identify service eligibility (Scholta et al., 2019).

Scholta & Lindgren (2019) found that proactivity is suitable only for services, which have clear criteria concerning the eligibility of the recipient. Considering the governmental organization is the one to initiate the service delivery process it is desirable that the governmental organization can be absolutely certain that the citizen is eligible to receive a service. Delivering services proactively can therefore be done with services that are compulsory for the recipient, or have clear benefits and no disadvantages for the recipient. The delivery of an

undesired service could be even worse than not delivering a service that has been requested (Scholta & Lindgren, 2019). Privacy is a concern regarding proactive public services (Linders et al., 2018; Scholta & Lindgren, 2019; Scholta et al., 2019). Citizens do not want proactive assistance in certain parts of their lives and should always be able to both refuse excessive data sharing and proactive services. However, even if citizens are comfortable with the use of personal information, proactive service delivery can be experienced as undesired (Scholta et al., 2019).

Digital public services are considered a core component of the aim of public organizations to utilize digital technologies to increase their efficiency. Focussing on increasing the efficiency of public services could however lead to a decrease of service quality and inclusion. Therefore proactive e-governance uses technology to complement and empower, instead of trying to replace conventional public service delivery in Taiwan (Linders et al., 2018). While digital channels are the default for proactive services, other channels should be available as well if citizens desire this (Erlenheim et al., 2020). As mentioned before, governmental organizations cannot consider users of their public services as customers, but instead as heterogeneous citizens, having different needs, rights and obligations (Scholta & Lindgren, 2019). This is addressed by (Kõrge et al., 2019) as well, who determine further research towards user adoption is necessary in which users should be considered as citizens instead of consumers. Combining these insights, it is concluded that the acceptance and adoption of proactive services will not only depend on the characteristics or circumstances of a service, but will depend on the personal preference of a citizen as well. It is hard to determine when and for what services proactive service delivery or merely proactive information provision is perceived as useful or intrusive. Moreover if proactive services are delivered based on incorrect information or have undesired outcomes it is unknown which actor will be responsible. This could range from the governmental organisation that is providing the service to the actor that is responsible for the incorrect information, which can be another governmental organisation, third-party or citizen.

Consent is another concern. As stated before, citizens must be able to both understand and consent to the use and sharing of personal data between governmental organisations (Scholta et al., 2019). Accompanying a predetermined services with information to enable a citizen to make the choice whether it consents is one thing. But when these services are still to be determined and whether a citizen is able to understand for what purposes their data can and will be used and what consequences it will have is another. How consent is to be given for either the exchange of information or receiving proactive services is unclear and is to be investigated.

Frameworks & Models: Identifying and extending levels of proactivity

E-government stage models, which are widely present in the literature, are both valuable in both research and practice as it can guide governments in developing their e-government, as well as serve as a trigger for future research within the e-government domain (Scholta et al., 2019). Moreover, these could be helpful in creating an understanding of the transition from reactive towards proactive service provision (Erlenheim et al., 2020). Traditional e-governance models viewed the concept of the *one-stop shop*, which is a unified, personalizable online portal, as its final stage. However, with advanced governments now in the process of realizing this final stage and current technological innovations and rising expectations of citizens these traditional models are now considered insufficient in guiding future developments of e-governance and new forms are now required. (Linders et al., 2018)

Scholta et al. (2019) therefore propose an extension of the existing stage-gate models. Two new stages are proposed that go beyond the existing one-stop shop, being the *limited no-stop shop* and *no-stop shop*. In the no-stop shop stage citizens no longer have to perform any actions to receive governmental services, as these are delivered both proactively and pre-

dictively. An intermediary step is the limited no-stop shop, where the government does provide services both proactively and predictively, but actions from the citizen are still required after the service delivery. This stage model can be seen in figure 2.2 and is able to classify everything ranging from single services to government service systems along the three dimensions of integration of data collection, integration of data storage and purpose of data use (Scholta et al., 2019).

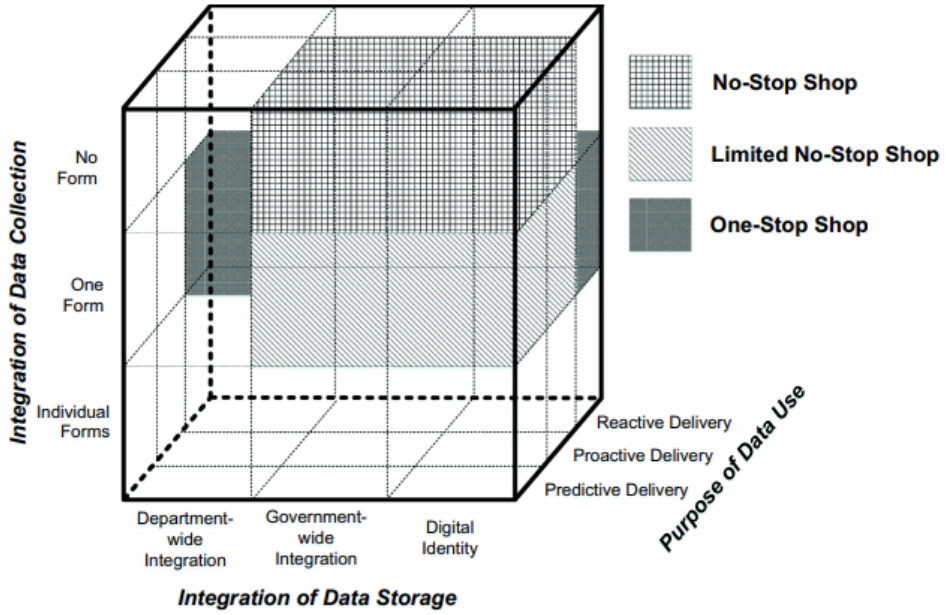

Figure 2.2: E-government stage model (Scholta et al., 2019)

Scholta & Lindgren (2019) translated and discussed the framework of Brüggemeier (2010), which can be seen in figure 2.3, in which different types of government are presented having varying degrees of bundling of services and degrees of proactivity. Interestingly, these types of government are ordered based on the level of interaction effort of recipients, which decreases as bundling of services and proactivity increases. Three levels of proactivity are observed. In the first stage, the *outreaching government*, information is exchanged between governmental organisations instead of requesting it from citizens. The second stage, *attentive government*, recommendations are provided to citizens, such as complementary services and suggests entries to forms, by pre-filling forms. In the third and highest stage of proactivity, the *no-stop government*, services are offered proactively and ideally recipients do not have to put in any effort or transmit data to receive services, but in most cases only give their consent (Brüggemeier, 2010; Scholta & Lindgren, 2019).

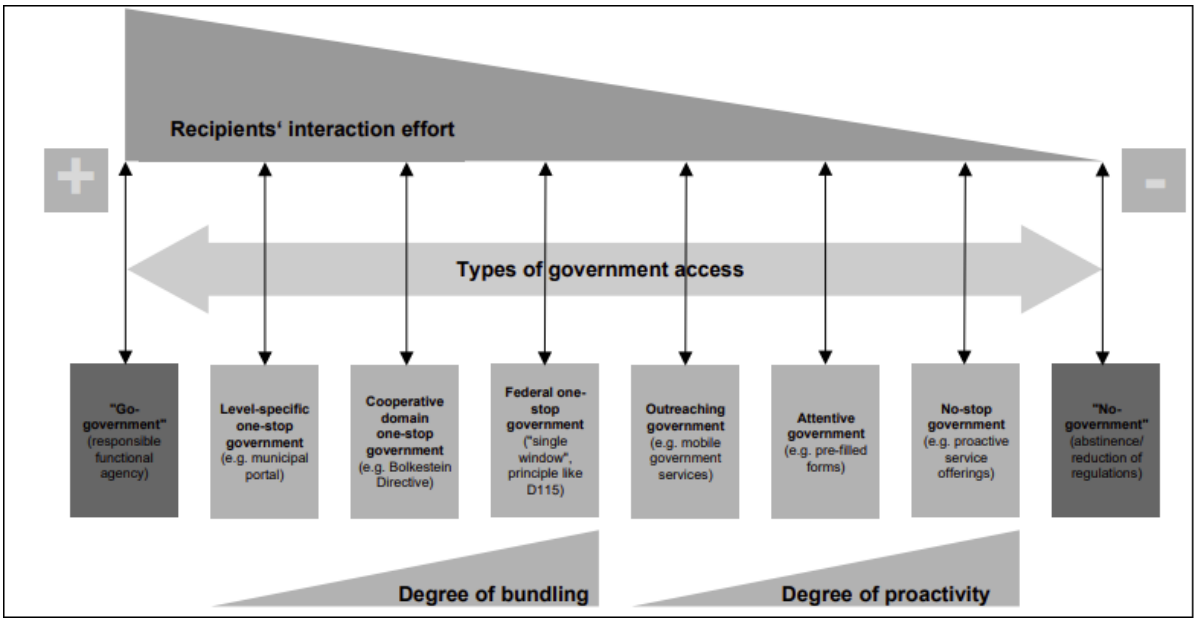

Figure 2.3: Brüggemeier Framework (Brüggemeier (2010), translated by Scholta & Lindgren (2019)

Erlenheim et al. (2020) have developed the Reactivity-Proactivity Spectrum which can be used to classify digital services in seven stages based on their proactivity and can be seen in figure **??**. The first four stages are empirically witnessed, while the last three stages are considered aspirational. In the first *"Pulled"* stage, services are fully reactive, followed by the second *"Informational"* stage, in which information services exist, information is collated and internet links are provided. In the third *"Interoperable"* stage, services can be used after citizens express their will to do so. In the fourth *"Pushed"* stage, the government provides services on their own initiative. The three aspirational stages do not have separate names, but all are *"Life-event-based-services"*. In the fifth stage, life-event-based services can be used with expressing will, in the sixth stage, life-event-based services can be accepted by citizens and in the seventh and highest stage life-event-based services do not require any input from the citizen (Erlenheim et al., 2020).

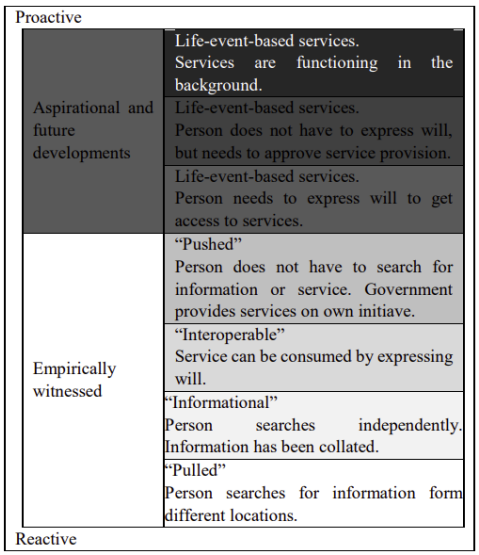

Figure 2.4: Reactivity-Proactivity Spectrum (Erlenheim et al. 2020)

While the frameworks of Brüggemeier (2010) and Scholta et al. (2019) use a governmental perspective, the framework of Erlenheim et al. (2020) uses the perspective of a citizen. Instead of focusing on full governmental-wide service provision it is more oriented towards the classification of individual services. Moreover does it include the notion of life event orientation and it possesses a wider range of levels of proactivity. The used perspective of the citizen means however that only the outcome for citizens is represented, which leaves room for interpretation of how a governmental organisation is to achieve that stage. A wide range of stages, as is even more the case in the framework of Brüggemeier (2010), leaves room for governmental organisations to determine individual, case-specific solutions to achieve a certain goal, but for the classification of individual services and developing an overview and understanding of all different levels of proactivity, more specific stages, or levels of proactivity could be desirable.

Limitations of existing frameworks

The frameworks of Brüggemeier (2010), Scholta et al. (2019) and Erlenheim et al. (2020) all address proactivity in the context of public service delivery and provided useful insights. However, these frameworks are insufficient when trying to classify individual proactive public services in the Netherlands. Considering different public services have different desired levels of proactivity and total proactivity of a public service can vary along different variables, it is useful to be able to differentiate on a more detailed level than is currently possible in the existing frameworks.

The aforementioned frameworks are of a more general nature, partly due to the used governmental perspective of the frameworks of Brüggemeier (2010) and Scholta et al. (2019). The framework of Erlenheim et al. (2020) uses the perspective of the citizen, which is the same perspective the developed framework will have, as this is in line with the citizen-centred public service delivery envisioned and used by the Dutch government.

The three observed stage models are high level and have a general nature. This has the advantage of being applicable in multiple environments or situations. Especially for frameworks that describe certain prescriptive, or to be achieved stages, such as the predictive delivery stage in the framework of Scholta et al. (2019) or the life-event-based stages in the framework of Erlenheim et al. (2020) leaving room for different solutions or applications to achieve a certain stage is useful.

However, when trying to analyze the different levels of proactivity of public services in the decentralization governmental environment of Netherlands more detailed stages are desirable, as having more specific stages will enable us to differentiate more between services and consequently allow for a better understanding of the existing differences. Therefore, for the purpose of this thesis a more detailed, analytical framework will be developed. This framework will be developed based on the existing frameworks and findings observed in the literature. As proactivity can be incorporated in public services in different ways it is wise to able to differentiate more closely, along the observed variables that affect the level of proactivity. The analytical framework will consequently link its developed theory with empirical analysis by its use in the case studies of public services in the Netherlands.

Proactive service development & implementation

Now that we know about the advantages, concerns and different levels of proactivity in the existing frameworks is important to investigate how proactivity can be incorporated, or what is holding it back in public service delivery. Firstly barriers and enablers are categorized into different groups, secondly principles and guidelines discussing what proactive services should look like are discussed.

Technological advancements have the potential to transform public administration and the adoption of ICT and rising expectations of citizens present both a challenge as well as an opportunity for e-governments (Linders et al., 2018). Information provision and accessibility is essential for the development of proactive services (Erlenheim et al., 2020) For developing proactive e-governance three technological enablers are identified. Firstly, a proactive e-government is reliant on and built on top of a mature e-government, which has experience in sharing information across organizations, data standardization, database consolidation and shared platforms and services (Linders et al., 2018). Secondly, the use of mobile technologies allows governments to connect with their citizens at any place and time. Smart devices are identified as enablers for this purpose as well (Scholta et al., 2019). Thirdly, developments in data analytics should be used to achieve personalization and proactive problem identification (Linders et al., 2018). Although information-sharing between governmental departments has been widely researched, the integration of data is still a major challenge for governments since privacy and security have to be ensured. Only few governments have achieved high levels of data integration. However, interconnected information systems are required for developing proactive and predictive services. (Scholta & Lindgren, 2019)

Unintegrated back-end processes and incompatible legacy systems are technological barriers for developing a no-stop shop (Scholta et al., 2019).

Overcoming these barriers is not purely technological as organizational and political decision-making has a big influence. Sirendi & Taveter (2016) state that tailoring the ICT infrastructure to the needs of citizens is essential for proactive and public service development and services should be designed to support automation and processing of already existing information. This is not done easily however and organizations that want to develop proactive services require an organization to carefully assess their current situation and capabilities (Sirendi et al., 2018) and employees must possess sufficient competencies to manage the increased complexity of the IT systems (Scholta et al., 2019).

Distributed power and limited resources hinder the development of proactive services (Scholta et al., 2019). Support from the top management is necessary (Scholta et al., 2019; Erlenheim et al., 2020), which for proactive services means political support is required (Scholta et al., 2019). This is addressed by Sirendi et al. (2018) who determine that strong political support must be ensured for the transformation. However, the decision for proactive service provision must not only come from top-level management, but from the community as well

(Erlenheim et al., 2020).

Furthermore legal regulations can hinder a full implementation of proactive services. For example, In Austria services must be triggered by citizens by law, which is also the case in Estonia in which citizens first have to consent thereby indirectly triggering a service. Legislation which includes concerns for privacy, security and the requirement of consent hold back proactive service development. In order to understand how governments can overcome these barriers more research is required (Scholta et al., 2019).

However, even if all organizational, political, legal and technological barriers can be overcome, the developed proactive services still have to be accepted and adopted by their users, being the citizens. The required exchange and storage of their personal data will be a concern for citizens. Trust is considered an important requirement for the adoption of proactive services (Scholta et al., 2019; Sirendi et al., 2018). This trusting relationship must be ensured by transparency, development of safeguards and standards to ensure privacy and principles for data security. For example, the implementation of the concept of a digital identity, where a citizen would manage their own data, would enable proactive and predictive service delivery (Scholta et al., 2019). Citizens will only trust their government if they feel in control of their data. Therefore citizens must be able to control how their data is being used in the present, has been used in the past and citizens must always be able to opt-out of proactive service delivery (Sirendi et al., 2018). As mentioned before this would mean other service delivery channels must always be available as well, which is in line with the complementary role Linders et al. (2018) observe for proactive e-governance.

Keeping these barriers and enablers in mind, the next step in proactive service development is to determine how these could be designed best. After all, identifying how this can be done in the Netherlands is the main goal of this thesis. Erlenheim et al. (2020) propose a set of ten design principles for the development of proactive public services, which already have been implemented in the public sector by the Ministry of Economic Affairs and Communications in Estonia.

Proactive services should be triggered by a life or business event and provided entirely automatically or with a single communication time. This is done proactively based on the presumed will of a citizen and makes use of the “once-only principle”, where, with permission of the citizen, already provided information is extracted from other government databases to ensure citizens do not have to provide information more than once. Services should be provided mainly through digital channels, but other channels must be available as well. Citizens should always have the possibility to opt-out and again opt back in as well. Moreover should these be personalized and centred around the circumstances of the citizen, such as their preferences and occurring life events. Furthermore the service should be simple, intuitive and efforts must be made to clarify how the service is processed and what the different tasks of the stakeholders are in order to ensure transparency. The included information should be recent and it should be made clear when the information was last updated. The service must be secure and reliable in order to ensure a trusting relationship between the citizen and the government. Lastly should the service be available in the most used languages. (Erlenheim et al., 2020)

Analysis

The literature review yielded interesting insights and identified topics related to proactive services that require further investigation. First of all it is observed that incorporating proactivity into public service delivery is related to and affected by different other topics and developments regarding e-governance and digital public service delivery, such as intra-governmental information exchange, cooperation and collaboration, third-party information exchange, personalisation of public services, life event orientation, inclusivity, user acceptance and adoption, privacy

and consent. Many of these overlapping topics are both sufficiently complex and interesting to be investigated on themselves, but this does not fit within the timeframe of this thesis. During this thesis the focus will be on how these topics affect and influence proactive public service delivery, but will not be investigated in depth separately.

From the literature review it is observed that the conceptualization of proactive services is not simple. A clear definition of these concepts is essential to be able to understand these, as well as required in being able to investigate these in more detail within this thesis. Two definitions will be used alongside each other, bearing in mind the context of public service delivery.

Proactivity is about moving the required initiative from the citizen to the government.

Proactive public services go a step further and have proactivity incorporated in them to a degree where a citizen does not have to put in any effort, excluding consent, in order to receive a service.

Proactive public services are services which, without the request, but with the consent of a citizen, are delivered automatically to that citizen.

This could be triggered by life events, which is useful as life event orientation offers several advantages, but this is only useful for certain public services and is not necessarily required for proactive public services.

These proactive public services have the potential to raise public service delivery to a new higher level where governmental organisations can provide their services more efficiently to citizens, who experience more ease of use. However, not all public services have the potential to be transformed towards proactive services and proactivity is not always desired by citizens (Scholta et al., 2019). Therefore, it is important to understand what services are suitable to be transformed towards proactive services and which are not. First results indicate that proactive services that require no interaction with recipients is only suitable for services, which are compulsory and have clear eligibility criteria. For non-compulsory services, such as rights for example, these services should have clear advantages and moreover no disadvantages to recipients. (Scholta & Lindgren, 2019) Furthermore, it is proposed to use proactive services to complement rather than replace conventional service delivery (Linders et al., 2018). This is addressed as well by Erlenheim et al. (2020), which suggests that allowing citizens to always be able to opt-out from and opt back into proactive service delivery, meaning alternatives must remain available. This is also a requirement for developing trust, which is required for adoption by citizens (Sirendi et al., 2018). Moreover, transparency and well-articulated and principles concerning privacy and security are required (Scholta et al., 2019).

Proactivity can however be incorporated in public service delivery in multiple ways, and public services can range from reactive to proactive services and can in the future even become predictive. Knowing different kinds of services will have different desired levels of proactivity, it is important to understand what levels of proactivity exist. Several levels of proactivity as well as proactive elements have been identified in this literature review. Two groups can be distinguished here, being the variables that determine the level of proactivity of the public service and the nature of the public services that influences or limits its suitability for the incorporation of proactivity.

Firstly, the proactivity of a service is determined by how it is delivered to a citizen. As stated before regarding public service delivery, proactivity is about moving the initiative from the citizen to the government. This can be the case for triggering the service itself, as well for the provision of information that is required to be able to deliver that service. How or by whom a service is triggered, the amount of information and interactions that are requested

from a citizen therefore all influence the proactivity of the service. Grouping related services together around a life event can minimize the amount of required interaction for the recipient (Kõrge et al., 2019). Within the framework of Brüggemeier (2010) an interesting pattern can be observed, which is that an inverse relationship exists regarding proactivity and the amount of interaction effort a citizen has to put in the service delivery process. This can be observed from the previously mentioned examples to increase proactivity as well, as all examples aim to reduce the effort that is required from a citizen that is required to receive a service.

Service delivery variable	**Reactive service**	**Proactive service**
Triggering actor	Citizen	Third-party / Governmental organisation
Amount of information requested from citizen	All	None
Number of interactions required from citizen	Multiple	None
Effort required from citizen	**High**	**None**

Table 2.2: Public service delivery variables influencing proactivity

Secondly, the characteristics of public services can influence or constrain the values that the variables presented above in table 2.2 can become. Moreover, do the characteristics influence another aspect of proactive services, which is user acceptance. Although many other characteristics influence the way a public service can be delivered, only the characteristics influencing the suitability for proactivity are described below.

Scholta & Lindgren (2019) found that proactive services are only suitable to compulsory services which have clear eligibility criteria. Fully proactive services enable equal treatment of citizens, but when eligibility is assessed by IT-systems no room for discretion is possible. This means fully proactive services delivered by IT-systems can be undesirable for certain sensitive services or when human consideration and assessment is required due to citizen specific context. Fully proactive service delivery is therefore more suitable, for duties or rights which have only positive and no negative consequences for the citizen (Scholta & Lindgren, 2019). Having no negative consequences has to be considered thoroughly however. For example, at first sight simply granting money to citizens, seems to only have positive and no negative consequences. However if it later turns out that these citizens were not eligible and that money is to be reclaimed, it can most definitely have negative consequences for those citizens. In the Netherlands for example, citizens have experienced negative consequences after granted child daycare benefits have been stopped and reclaimed after citizens were (incorrectly) accused of fraud, without investigating the personal situations of each case (van den Berg et al., 2017). This means the consequences of incorrect information or incorrectly delivered services and how these issues should be solved need to be addressed beforehand. Furthermore, responsibilities and obligations should be clear beforehand. If consequences can be negative for the citizen it would be wise to either give the citizen the possibility to ensure the correctness of the information on which a decision is made, or the government should be able to deal with or accept the consequences of incorrect decisions themselves.

For services that can have possible negative consequences for citizens this means often a lower level of proactivity is desired where citizens either first accept or approve service provision or ensure and take the responsibility for the correctness of the used information. An example of this is the pre-completed tax return, which will be explained in chapter 4: Exemplary cases

& Case studies, where information is provided and presented proactively, but it is up to the citizen to ensure its correctness and take responsibility for it. The same can be said for rights that require the expression of will from a citizen whether it wants to exercise that right, as this expression of will mean effort is required from a citizen.

Other important elements that determine the suitability of the underlying required information needed to trigger and deliver the service. Whether this information is available at another source than the citizen and whether it is legally allowed to be exchanged for the predefined purpose of that service. Often around life events citizens have to interact with many different governmental organisations. This means often information is available that can trigger other service delivery processes related to that same life event. Moreover, the more complex a service becomes, the less suitable it is for full proactivity.

Ultimately the underlying information required for triggering and delivery of a service is essential for determining the suitability to become a fully proactive service. Looking at the underlying required information enables the identification of several different strategies which can stimulate the development of proactive services, which will be investigated more in-depth in chapter 6: Realization Strategies.

The goal of a public service influences its ability to become a proactive service. Informational services tend to not require interaction with a citizen, where transactional services potentially do. The focus during this thesis is on transactional services, but it is good to still be aware of this difference. The same can be said for the requirement of consent. When consent is required for either the exchange of information or acceptance of service delivery this means effort is required from a citizen.

The compulsoriness of a service influences this as well. Public e-services can enable citizens to make use of their legal rights or comply with legal obligations (Erlenheim et al., 2020). Rights on the other hand can require the expression of will or acceptance from citizens, which means interaction with the citizen is required in some way or another. This is not always necessarily so. Proactive services that are delivered without the consent of recipients should provide clear benefits and no disadvantages for recipients (Scholta & Lindgren, 2019). These services can be rights. When citizens have to face negative consequences from a service they will probably resent the proactive delivery of a service much sooner. However, ultimately user acceptance can differ for each service, citizen or situation. Even if citizens are comfortable with the sharing and use of their personal information, they can resent proactive assistance in certain aspects of their lives (Scholta et al., 2019).

The same can be said about public services that allow citizens to comply with their legal obligations, or duties. Citizen will accept proactive services sooner when it has no negative consequences for them. Moreover, these duties often mean that it is easier to determine when a citizen has to fulfill their legal duties. For example, it can not be determined when a citizen wants to start a company and services are desired, but it is known that whenever a baby is born it must be registered with the municipality.

The complexity of the eligibility criteria is of influence as well. Clear eligibility criteria are required for proactive services as no discretion can be made in the process (Scholta & Lindgren, 2019). Moreover, if the information that is required from a citizen is complex and can only be determined by the citizen itself it becomes hard for a governmental organisation to trigger public services. For example, if the total value of all possessions of a citizen is required to calculate the amount of benefits a citizen is eligible to receive input and interaction with that citizen is required. Simple services with clear eligibility criteria which can be determined without having to interact with the citizen are suitable to be transformed to proactive services. As can be observed throughout the section above, these service characteristics are not standalone, but contain interdependencies. Overall, the suitability of services to become proactive

services, which means their suitability for the service delivery variables to obtain the value in the right column in table 2.3, is influenced by these characteristics for different reasons, such as user acceptance or nature of the service.

Service characteristic	**Low suitability for transformation to proactive service**	**High suitability for transformation to proactive service**	**Influences service delivery variable**
Goal	Transactional	Informational	Number of interactions required from citizen
Consent required	Yes	No	Number of interactions required from citizen
Compulsoriness	Right	Duty	Number of interactions required from citizen, Triggering actor, User Acceptance
Consequences for citizen	Disadvantageous	Advantageous	User acceptance
Complexity of eligibility criteria	High	Low	Number of interactions required from citizen, Triggering actor

Table 2.3: Public service characteristics influencing suitability for proactivity

2.2. Chapter conclusion

Combining everything, overall the most important factor that determines the level of proactivity of a public service is the amount of effort that is required from a citizen, which is dependent of the triggering actor, amount of information and number of interactions requested from a citizen. Therefore it is concluded that public services can not simply be dichotomously classified as either reactive or proactive and more levels of proactivity exist along these variables. Moreover, a wide range of service characteristics influence its suitability to be transformed to a proactive services.

Unfortunately, this means the first subquestion can not be answered completely yet. A preliminary answer can be given however, by combining the insights from the identified frameworks with the identified variables affecting proactivity in public services. Public services can not simply be dichotomously classified as either reactive or proactive and a range of levels of proactivity exist from completely reactive to proactive and even predictive service delivery. However not all public services are suitable to be transformed towards proactive services and several different moderate levels of proactivity were observed, having proactivity included along different variables, which ultimately all aim to reduce the effort required from a citizen in order to receive a public service.

Several topics will be interesting to investigate further in the thesis. As aforementioned it will be investigated whether all different identified variables of proactivity are represented sufficiently in the framework of Erlenheim et al. (2020) to be able to determine all different levels of proactivity for public services in the Netherlands. Furthermore it is learned that proactive

services overlap or incorporate elements of a wide range of topics related to e-governance. How these topics are related and relevant to proactive services is to be addressed.

3

Analytical Framework

Although the applicable knowledge has been extracted from the knowledge base and has resulted in a good conceptual understanding of proactivity and proactive services, it was insufficiently able to represent all varying levels of proactivity. Consequently subquestion 1: *"What are the different levels of proactivity for public services?"* could only be partially answered by identifying the variables affecting the level of proactivity. In order to be able to fully answer this question an analytical framework will be developed, based on the already identified frameworks, in order to be able to classify all levels of proactivity in public services. This framework will be used as a classification tool during the case studies.

This chapter is structured as follows. First the limitations of the existing frameworks observed in the literature are discussed. After that the analytical framework is developed by combining the conceptual understanding with the observed variables affecting proactivity. This framework will be validated in two ways, of which the first is covered in this chapter, by presenting it to an academic expert, Regina Erlenheim, in an interview. The second way will be by applying it in practise during the case studies of the following chapter. Furthermore are the limitations of the framework are discussed. Lastly, the chapter is concluded.

3.1. Theoretical development

The definitions of proactivity and proactive services are now clear. While proactivity is about moving the initiative from the citizen to the government, proactive public services are automatically delivered without the request of, but with the consent of a citizen. Moreover, it is now understood that not all public services can be transformed to proactive services. However, many services can benefit from the incorporation of proactivity to a certain level. These different desired levels of proactivity will depend on their characteristics and acceptance of the citizen. Furthermore, it is observed that all actions governmental organisations can take in order to increase the proactivity of their services, result in the minimization of the effort a citizen has to put in the process in order to receive a public service. Combining these insights together leads to the desire for an analytical framework through which all different varying levels of proactivity can be classified.

For a governmental organization to be able to deliver a proactive service it must be able to complete two essential processes, without having to interact with a citizen. A governmental organisation must be able to:

(1) determine when a citizen is eligible to receive a service: *the eligibility process*

&

(2) be able to consequently deliver the service to that citizen: *the delivery process*

In order to achieve this, the trigger for the service delivery must be moved away from the citizen and no input must be necessary from the citizen.

Firstly, when the trigger is moved away from the citizen to a governmental organization or third party, a governmental organisation must be able to determine when a citizen is eligible to receive one of their services. In order to determine the recipients' eligibility and trigger the delivery process, information must be exchanged between governmental organisations or third parties. This is called the *eligibility process*.

Secondly, in order to deliver a service to a citizen without their input, information is required as well, to be able to deliver that service, such as an address, income statement or bank account number for example. Moreover, it could be the case that it is determined that a citizen is eligible to receive a service, such as a grant for example, but more information is required to determine the precise amount the citizen should receive. The service delivery must be observed as an automated process from the perspective of the recipient. For this to happen information must be exchanged between governmental organisations and third parties as well. This is called the *delivery process*.

Four exemplary situations can be identified in situation where only one actor, being the government or citizen, is fully responsible for the fulfillment of a process, as can be seen in table 3.1. If the government is able to fulfill both processes, without the input of a citizen, a service can become a proactive service. Contrary, if a citizen must determine their eligibility themselves and provide the information for both processes, a service is a reactive service. Two interesting situations occur when the government is able to fulfill either the eligibility process or the delivery process, but not both. In these situations moderate levels of proactivity are incorporated in the service.

Eligibility process	**Delivery process**	**Effort required from citizen**	**Level of proactivity**
Government	Government	None	Proactive service
Citizen	Government	Moderate	Moderately proactive service, "Click-of-a-button service"
Government	Citizen	Moderate	Moderately proactive service, "Recommended service"
Citizen	Citizen	High	Reactive service

Table 3.1: Levels of proactivity in public services

With *"Click of a button services"* it is the citizen who determines that it is eligible to receive a service (E1/E2), of which it informs the government, which consequently delivers the service to the citizen, without the citizen having to put in more effort (D5). This level of proactivity is similar to the 'Interoperable' stage in the Reactivity-Proactivity Spectrum of Erlenheim et al. (2020), where citizens only have to express their personal will to receive a service and do not have to put in any other effort. This does not mean an individual service must be selected by the citizen. For example, in the joined-up government stage of Klievink & Janssen (2009), citizens could specify a need, change their status or register an event. After that relevant

services can be provided without any effort of a citizen. A citizen determines it is eligible and at the "click of a button" the service is delivered automatically to that citizen, at least from the point of view of that citizen. Whether this is done through an automated process, automated system or manually by a civil servant does not matter for the citizen, as long as the process is experienced as automated from the perspective of the recipient as it no longer has to put in any effort to receive the service.

With *"Recommended services"* the government decides that a citizen is eligible to receive a service, so it informs the citizen and initiates the service delivery process. This level of proactivity is observed in the 'limited no-stop shop' stage in the framework of Scholta et al. (2019), where the government decides on a citizen's eligibility and informs the citizen, but input from the citizen is required to complete the service delivery process.

It is important to realize that these four discussed services, being reactive, proactive, recommended and click-of-a-button services, are extreme cases in which only one actor fulfills one of the two processes completely on its own. Often this is not the case. If the government is not able to fulfill a process completely themselves and input from the citizen is required, the government can assist the citizen in the steps it has to take to fulfill the process. This means the government can reduce or minimize the effort that is required from a citizen.

The amount of effort that a citizen has to put in the eligibility process is influenced by the level of provision of information by the government. When the government can not determine whether a citizen is eligible, the citizen must do so themselves and can be provided with information to make this decision easier. A citizen has to put in less effort in the eligibility process if information is collated or information services exist (Erlenheim et al. 2020), information is provided to it proactively, or it is given recommendations of (complementary) services (Brüggemeier, 2010). The quality and proactivity of the provided information affect the amount of effort a citizen has to put into the process.

The amount of effort that a citizen has to put in the delivery process is influenced by the amount of interaction effort that is required. This can be reduced by minimizing the amount of information a citizen has to submit by acquiring this information from another source than the citizen itself. Forms can be prefilled to allow citizens to complement, check or approve the acquired information. Moreover can the required interaction effort be reduced by minimizing the amount of interactions. Besides having a shared trigger, grouping related services together around a life event can minimize the amount of required interaction for the recipient (Kõrge et al., 2019).

3.2. Analytical framework

The insights described above, combined with elements of the frameworks of Brüggemeier (2010), Scholta et al. (2019) and Reactivity-Proactivity Spectrum of Erlenheim et al. (2020), lead to the analytical framework that can be seen in figure **??**. Depending on the proactivity incorporated in the eligibility and delivery process, and therefore the amount of effort a citizen has to put in these process, the level of proactivity of the service is determined. *Fully proactive services* (E5+D5) require no input from a citizen, and reactive services (E1/E2+D1) require citizens to put in a high amount of effort. All other combinations achieve moderate levels of proactivity.

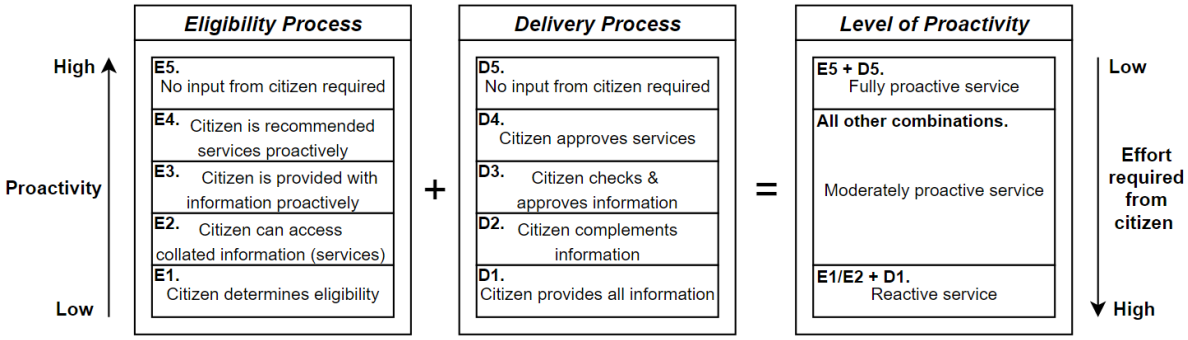

Figure 3.1: Levels of proactivity in public services - Derived from frameworks of Brüggemeier (2010), Scholta et al. (2019) and the Reactivity-Proactivity Spectrum of Erlenheim et al. (2020)

The left column represents the eligibility process and consists of five stages, which have a ranging level of proactivity and effort that is required from a citizen. In the first stage (E1), the citizen must determine whether it is eligible to receive a service themselves and has to search for and combine multiple information sources to be able to determine their eligibility. In the second stage (E2), the government assists the citizen in this process by collating information or providing information services that the citizen can utilize. In these first two stages the government does not act proactively, meaning it does not act on its own initiative. The third stage (E3) the government proactively provides the citizen general information regarding available public services. Although information provision through general channels such as advertising or press releases could be viewed as proactive information provision, no certainty can be achieved whether the citizen has received that information. Therefore the information provision in this stage must be targeted to individuals through channels in which the government can be certain it will be received, such as a (digital) letter or notification. In the fourth stage (E4) this proactive information provision is further personalized and information regarding specific services for which the citizen might be eligible is provided. For example, when a citizen moves to a new municipality, the municipality checks with the RDW whether that citizen possesses a car, and if so recommends their parking permit service. Whether the citizen is ultimately eligible to receive a specific service is to be determined by that citizen. In the fifth stage (E5) the government is able to determine that the citizen is eligible and no input of that citizen is desired. Any effort required from the citizen from that point on depends on the level of proactivity in the delivery process.

The middle column represents the delivery process and consists of five stages as well, which again have a ranging level of proactivity and effort that is required from a citizen. In the first stage (D1), the citizen provides all the information that is needed to deliver the service. In the second stage (D2) the government assists the citizen by acquiring information from another source, after which the citizen only has to provide the complementary information. In the third stage (D3) the government is able to acquire all the required information, but the citizen must check and approve this information. While the first three stages can consist of multiple interactions between the government and the citizen, ideally this is minimized. The fourth stage (D4) is limited to a single interaction and in the fifth stage (D5) there is no interaction at all. In the fourth stage (D4) the citizen does not have to check any information at all and only has to approve or accept the service. In the fifth stage (D5) the government is able to deliver the service without any input or effort from the citizen.

The combination of a stage in the eligibility process with a stage in the delivery column leads to the classification of a level of proactivity in the right column. The combinations of

E1/E2 with D1 lead to reactive services. The combination of E5 with D5 leads to a proactive service, since no input is required from the citizen. All other combinations have elements of proactivity incorporated in them and lead to moderate levels of proactivity.

3.2.1. Substantiation

The author of this thesis argues that understanding how proactivity is incorporated in both the eligibility and delivery process is essential for understanding the total level of proactivity in a public service. This is important since, as observed earlier, proactivity can not be fully incorporated in all services due to their characteristics, or proactivity is not always desired by citizens in services. Therefore this framework can be used for two reasons. Firstly, it provides more understanding of the incorporation of proactivity in public services. Secondly, it can be used to classify public services based on their proactivity in more detail, as it enables more differentiation between moderate levels of proactivity, which will help understanding the barriers and enablers that exist for raising the level of proactivity of public services.

The author of this thesis argues that both of the two processes, the eligibility process and the delivery process must be made fully proactive in order to achieve a proactive service. If only one of these two processes incorporates proactivity only a moderate level of proactivity is achieved.

Knowing that the definition of proactivity is to take the initiative away from a citizen, it could be argued that if the citizen must decide about the eligibility process themselves and has to approach the government on their own initiative to start the service delivery process, no proactivity is incorporated in the service. However, the author of this thesis argues that if a service can consequently be consumed at the 'click on the button', thereby saving the citizen of having to go through a frustrating process of having multiple different interactions with different governmental organisations in which it has to submit the same information multiple times, the author of this thesis argues that that service incorporates proactivity. By taking the initiative of accumulating and submitting the required information away from the citizen and collecting these themselves from sources other than the citizen, governmental organisations can incorporate moderate levels of proactivity in their services without having to trigger the service themselves.

It could be argued that transforming a service to be able to be consumed at the "click of a button", is merely about automation. Traditionally this automation of a public service is considered from the perspective of the governmental organisation. Contrary proactive services rather concern automation from the perspective of the citizen. Whether the underlying processes are completed through fully automated systems or through physical civil servants working at governmental organisations is not of importance for the citizen. It only cares about the effort it has to put in the process.

The other way around, if a service is triggered by a governmental organisation and a citizen is approached that it is eligible to receive a service, but must consequently must go through an extensive, unclear, or repetitive service delivery procedure, the service does incorporate a moderate level of proactivity, but again can not be considered a fully proactive service.

3.3. Validation

3.3.1. Expert interview

An interview has been conducted with Regina Erlenheim [Sirendi] in order to develop a deeper understanding of the Reactivity-Proactivity Spectrum and receive feedback on the developed analytical framework. Regina Erlenheim is a lecturer at Tallinn University of Technology (TalTech) and earned her PhD on the topic of “Designing Proactive Public Services” (Erlenheim,

2019). As a (co)-author of several papers concerning proactive public services (Sirendi, 2016; Sirendi et al., 2018; Kõrge et al., 2019; Erlenheim et al., 2020), Erlenheim is an expert on the topic of proactive public services.

An interview was conducted in which the Reactivity-Proactivity Spectrum was discussed and the analytical framework was presented for feedback and validation. The overall feedback received regarding the analytical framework was positive, as it was seen as a good collation of Erlenheim's work and the work of the author of this thesis. Specific points of feedback regarding consent and the moderate levels of proactivity were given, which are discussed below.

Erlenheim noted that the analytical framework does not include how consent is given. This is not included in the Reactivity-Proactivity Spectrum as well. Erlenheim stated a research gap exists between the 'interoperable' and the 'pushed' stages of the Reactivity-Proactivity Spectrum. It is not clear at what point a citizen is to give consent. Consenting to a service is a fairly complicated issue, which requires more attention. The problem is that if a government wants to proactively provide a service to a citizen, that citizen should already have given their consent before. Where consent should be asked or given is a question of design. (R. Erlenheim, personal communication, August 31, 2020)

An issue Erlenheim mentioned considering consent is paternalistic nature of the state. The government should be a benevolent actor, which does not go over the limit of being too pushy or controlling. This does not only depend on the government, but as well as to how far the citizen is willing to be pushed. (R. Erlenheim, personal communication, August 31, 2020)

Erlenheim presented the idea that consent could already be included as a criteria in the eligibility process of the analytical framework. But again, where or when consent should be given is a question of design. In her doctoral dissertation Erlenheim designed a solution where citizens can opt-in to *"ProactiveSpace"*, where citizens give the state the freedom or consent to provide or push services to the citizen. The citizen should allow the government to proactively process their personal information proactively beforehand by opting in to this *"ProactiveSpace"*. Ideally the citizen could always opt-out or opt back in at all stages of the service provision. (Erlenheim, 2019; R. Erlenheim, personal communication, August 31, 2020) This feedback will be addressed by incorporating the issue(s) of consent into the framework of design principles in chapter 5: Design Principles.

Erlenheim mentioned as well that it might be worthwhile to subdivide and give names to the different moderately proactive services, like was done with the "recommended services" and "click-of-a-button" services. Since the moderately proactive services will be the largest part of the framework, more nuances within this stage could be desired.

3.4. Limitations

3.4.1. Consent

As Erlenheim noted, how consent is given is not included in this framework. Giving consent for proactive services is a complicated issue. Proactive services require the exchange of information between governmental organisations and third parties, which is not always possible in compliance with legal barriers. Note that the required consent can vary for different situations. Consent can be required for the exchange of information required to trigger a public service, for the exchange of information required to deliver a public service, for approval of receiving a service. Within the framework consent could be given beforehand, or when a citizen approves a service in (D4). The problem with the last option is that before a proactive service can be offered to a citizen often consent is already required from that citizen in order to acquire the information necessary to offer that proactive service to a citizen. This creates a kind of paradoxical conflict. How this issue is to be dealt with will be covered in chapter 5, and will be represented in the design principles. The option of consenting beforehand does not have this problem, but has the issue of having a citizen either consenting for many different services or give the state full proactive freedom. The problem with this option is that it will be hard for a citizen to understand to what it is consenting to, which is undesirable.

3.4.2. Life-event-based & predictive services

From the literature several interesting concepts were identified, which are not covered in the framework, such as life-event-based services and predictive services.

Life-event-based services are not specifically included, as is the case in the Reactivity-Proactivity Spectrum of Erlenheim et al. (2020). This is done, since life event orientation is not a requirement for proactive services and will not be applicable for all public services. It must be noted however, that for some services it could be advantageous, as it could minimize the total amount of interactions required from the combined services, as well as serve as a trigger for each other or other public services. However life-event-based services can differ in levels of proactivity regarding the service delivery process as well, which can be represented clearly in the analytical framework. Bundling of services can not be represented explicitly in the framework, however either the level of proactivity of the combined, or individual services can be modeled in more detail.

The same argument can be said about predictive service delivery, which is present in the framework of Scholta et al. (2019). Predictive service delivery is an extended form of a proactive service, where a service can be delivered even before certain life events happens (Scholta et al., 2019). Again this will not be applicable to all public services. In the analytical framework predictive services are classified as fully proactive services, but no differentiation can be made regarding their predictive component. The concept of predictive service delivery is interesting however and for specific public services could prove to be an interesting outcome in the future.

3.5. Chapter conclusion

Now that we understand the concept of proactive services the first subquestion can be answered:

Subquestion 1: *"What are the different levels of proactivity for public services?"*

The level of proactivity of a public service is influenced by multiple variables which can vary independently from each other. Unfortunately therefore no exact answer can be given. Multiple moderate levels of proactivity exist in between reactive and proactive services, as is indicated

by the 'spectrum' indication the Reactivity-Proactivity Spectrum of Erlenheim et al. (2020). The amount of effort a citizen has to put in the *eligibility process* and the *delivery process* determine the level of proactivity of a public service. If a governmental organization is able to complete both processes without any input from the citizen, excluding consent, a public service can be considered a proactive service. If a citizen must determine both the eligibility and provide all required information themselves, a public service is a reactive service. Moderate levels of proactivity occur when the government provides information to citizens to help them determine their eligibility and when the government minimizes the effort required from a citizen. This can be done by acquiring information from other sources than the citizen and by minimizing the amount of interactions with the citizen. Therefore many different levels of proactivity exist. Ultimately 25 stages have been identified in the analytical framework along the aforementioned variables. More detailed names of these moderate levels of proactivity will be identified later based on findings in the case studies, which will be used to validate the analytical framework as well.

4

Exemplary cases & Case studies

Now that the applicable knowledge has been extracted from the knowledge base in chapter 2 and the analytical framework has been developed in chapter 3, it is time to determine the business needs from the environment, which is the Netherlands. Firstly, the analytical framework is applied along exemplary cases of public services in the Netherlands. These exemplary cases have been identified through a combination of desk research and interviews with practitioners and have been selected based on their differing applications of (their level of) proactivity. This is not done to get an extensive overview of the proactivity of all existing public services in the Netherlands, but to get an overview and understanding of the different currently existing levels of proactivity of public services in the Netherlands.

Furthermore, two cases will be researched more in-depth. Although the initial aim was to investigate more than two case studies and interviews were conducted to identify more relevant case studies, but only the two case studies presented below were deemed sufficiently relevant to be included, due to the inability to identify a relevant case and unwillingness for cooperation. In the two selected case studies, personal interviews were conducted with employees to get a thorough understanding of the different context, underlying reasons and motives for the development of the (moderate) proactive service. The differing perspectives of these two organisations regarding proactive services provided a deeper understanding of the different existing motives for the development of proactive services.

Overall, the business needs are determined by a combination of the methods of desk research, case studies and interviews with practitioners of governmental organisations in the Netherlands. These insights will consequently be used to answer subquestion 2: *What is the current state of development of proactive public services in governmental organizations?* The structure of this chapter is as follows: Firstly the governmental environment is investigated. Secondly, the exemplary cases are identified, discussed briefly and classified based on their level of proactivity. Thirdly, the two more in-depth case studies are discussed. Lastly, the chapter is concluded by summarizing the conclusions from the exemplary cases and case studies.

4.1. Proactivity in the Netherlands

4.1.1. Information Exchange & AVG

It is now known that proactive services require information exchange and that governmental organisations in the Netherlands are decentralized. This means it is important to investigate how information is and can be exchanged between governmental organisations and third parties.

The exchange of information has to comply with the "Algemene verordening gegevens-

bescherming" (AVG), which is the Dutch name for the "General Data Protection Regulation" (GDPR). In this thesis the abbreviation AVG will be used, as this is the most common term used in the Netherlands. This European regulation has been implemented since May, 2018 and regulates the processing of personal data of individuals in the EU by individuals, companies and organisations.[1]

The AVG poses restrictions on the processing of personal information and can only occur on a legal basis. In short, personal information can only be processed if either, consent is given, an agreement must be fulfilled, compliance with legal obligations is required, vital or public interest must be protected or if it is required for legitimate interests.[2]

In a personal interview with employees of the UWV it was emphasized that governmental organisations in the Netherlands most often have a legal basis exist for the obligations their organisation is tasked with. For example, the Tax Office can exchange information to comply with their obligation to collect taxes, as long as that information is necessary in order to comply with that obligation. In most other cases consent of the citizen is required.

In the end of 2021 a modification to the current law 'Hergebruik van overheidsinformatie' or 'reuse of governmental information', is planned to come into force. For proactive services it is important to note that this modification allows for experimenting with the BRP, which holds the personal information of all persons living in the Netherlands, so it can contain and use email addresses or other contact information as well.[3] This law could open up new possibilities for proactive services.

4.2. Exemplary cases

An overview of 25 existing exemplary public services in the Netherlands based on their level of proactivity can be seen in figure 4.1. All stages of the analytical framework are represented in the matrix, however it was found that the combinations (E3+D5) and (E4+D5) will not occur as services that are recommended or information that is provided will always require input from a citizen in a later stage. Public services that were encountered during the desk research and interviews, or other public services that showed proactivity in an interesting way are incorporated. Often assumptions had to be made by the author of this thesis, as available information was not always sufficient to exactly determine the level of proactivity. Mostly, whether a governmental organisation proactively provides information, or acquires information from another source than the citizen could not always be determined. The levels of proactivity are not validated and the list of public services is by no means exhaustive. The most proactive scenarios of public service were categorized. Furthermore, public service delivery can vary along different governmental organisations, such as municipalities. Again the most proactive scenario was classified. Due to these reasons no specific conclusions can be made from the figure, but it is useful to get a general overview of the proactivity of public services in the Netherlands, to observe interesting patterns or observe interesting (proactive) elements of the classified public services. Public services are classified in the matrix as numbers and listed below in table 4.1. The analytical framework can be viewed afterwards in figure 4.2, to allow for quick referencing of the levels of proactivity.

[1] European Commission. (n.d.) What does the General Data Protection Regulation (GDPR) govern? Retrieved from:https://ec.europa.eu/info/law/law-topic/data-protection/reform/what-does-general-data-protection-regulation-gdpr-govern_en

[2] Autoriteit Persoonsgegevens. (n.d.) Mag u persoonsgegevens verwerken? Retrieved from: https://autoriteitpersoonsgegevens.nl/nl/onderwerpen/algemene-informatie-avg/mag-u-persoonsgegevens-verwerken

[3] Digitaleoverheid. (2020). NL DIGIbeter 2020. Retrieved from: https://www.digitaleoverheid.nl/overzicht-van-alle-onderwerpen/nldigibeter/

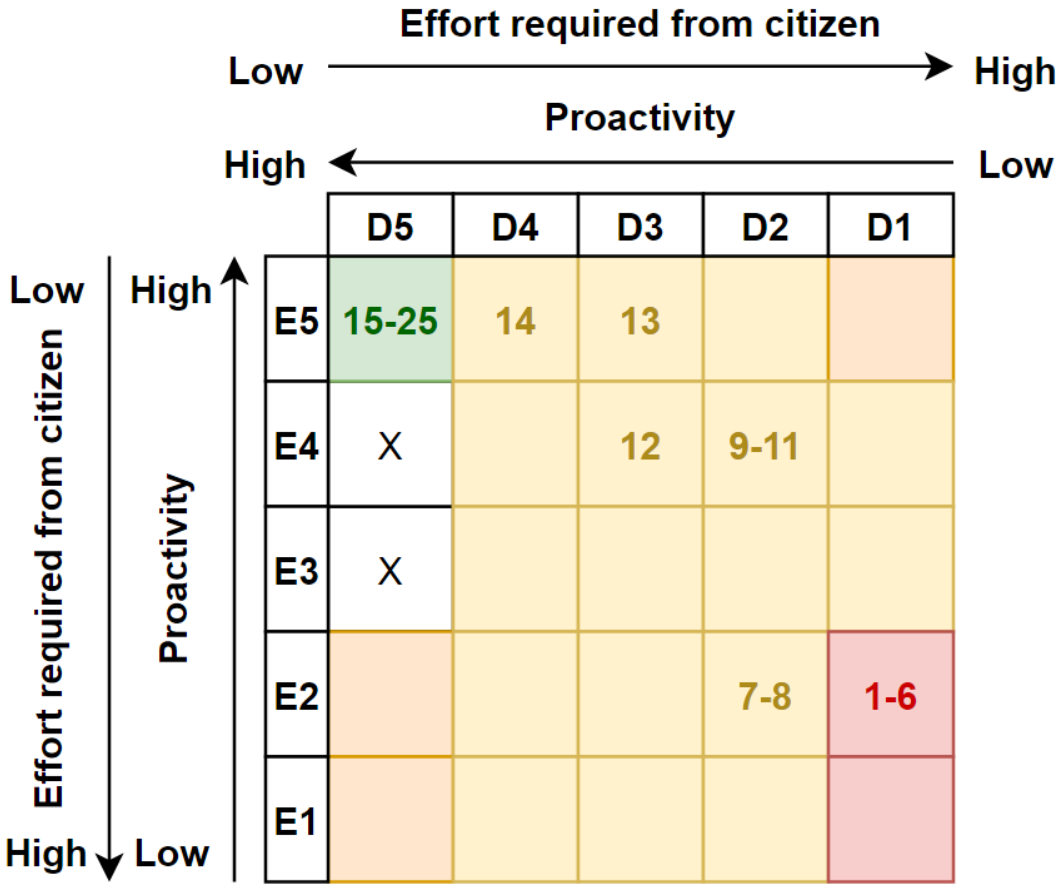

Figure 4.1: Matrix of levels of proactivity exemplary cases

#	Public service	E:	D:	Initiating actor	Service provider	R/D
1	Parking permit application	E2	D1	Citizen	Municipality	Right
2	Birth registration	E2	D1	Citizen	Municipality	Duty
3	Benefits application	E2	D1	Citizen	Tax Office (Belastingdienst)	Right
4	Unemployment benefit application	E2	D1	Citizen	Employee Insurance Agency (UWV)	Right
5	Company registration	E2	D1	Citizen	Chamber of Commerce (KVK)	Right
6	Supplementary income elderly (AIO)	E2	D1	Social Insurance Bank (SVB)	Social Insurance Bank (SVB)	Right
7	Driver's license application	E2	D2	Municipality	Vehicle Authority (RDW)	Right
8	Study loan application	E2	D2	Citizen	Education Executive Agency (DUO)	Right
9	Passport renewal	E4	D2	Municipality	Municipality	Duty
10	Child benefits application (First child)	E4	D2	Municipality	Social Insurance Bank (SVB)	Right
11	AOW pension	E4	D2	Social Insurance Bank (SVB)	Social Insurance Bank (SVB)	Right
12	Pilot income test housing corporation	E4	D3	Citizen	Tax Office (Belastingdienst)	Right
13	Pre-completed tax return	E5	D3	Tax Office (Belastingdienst)	Tax Office (Belastingdienst)	Duty
14	Statement of conduct application	E5	D4	Employer	Ministry of Justice and Security	Right
15	Child benefits application (Second child)	E5	D5	Municipality	Social Insurance Bank (SVB)	Right
16	Marriage registration	E5	D5	Civil Registration Officer	Social Insurance Bank (SVB)	Duty
17	Notification of death municipality	E5	D5	Funeral Director	Social Insurance Bank (SVB)	Duty
18	Notification of death Belastingdienst	E5	D5	Municipality	Tax Office (Belastingdienst)	Duty
19	Notification of death DUO	E5	D5	Municipality	Education Executive Agency (DUO)	Duty
20	Company registration Belastingdienst	E5	D5	Chamber of Commerce (KVK)	Tax Office (Belastingdienst)	Duty
21	License plate registration	E5	D5	Car Dealer	Vehicle Authority (RDW)	Duty
22	Private motor vehicle and motorcycle tax (BPM)	E5	D5	Vehicle Authority (RDW)	Tax Office (Belastingdienst)	Duty
23	Donor registration	E5	D5	Ministery of Health, Welfare and Sport	Ministery of Health, Welfare and Sport	Duty
24	Study loan repayment	E5	D5	Education Executive Agency (DUO)	Education Executive Agency (DUO)	Duty
25	NL Alert	E5	D5	Ministry of Justice and Security	Ministry of Justice and Security	Right

Table 4.1: Matrix of levels of proactivity of exemplary cases

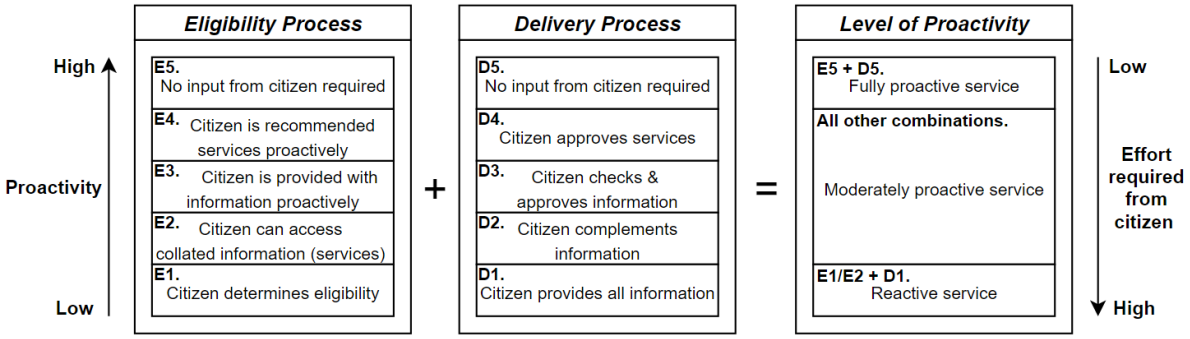

Figure 4.2: Levels of proactivity in public services - Derived from frameworks of Brüggemeier (2010), Scholta et al. (2019) and the Reactivity-Proactivity Spectrum of Erlenheim et al. (2020)

4.2.1. General observations

The first observation is that no service was classified is as E1, meaning that citizens could access collated information or access information services for all services. No public service required the citizen to individually collate information together from multiple sources in order to determine whether it could receive a service. A reason why this might be the case is that the classified public services were identified through digital desk research, which introduces a bias as public services were searched for through governmental websites. Services classified E1 do exist, however, overall it can be concluded that reactive information provision of governmental organisations is of a high level in the Netherlands.

No public service was classified as E3 either, meaning no public service provided information proactively to a targeted citizen, without recommending specific services for which the citizen is eligible like in E4. It is assumed that proactive information provision does occur, but finding proof of this through governmental websites for all services is not done easily. One example of proactive information provision was observed during a personal interview with employees of the UWV. When citizens contact and are helped by the customer service of the UWV, based on the information the citizen provided, the UWV can predict what problems the citizen could run into in the future. By linking user experience and user behavior, potential future problems can be predicted and information can be provided proactively to prevent that citizen actually running into these problems.

Proactive information provision could be useful in certain individual life events, such as turning 18 for example. When a citizen turns 18 it could be proactively notified of the information services related to that life event, which is as discussed before, available at the website Rijksoverheid.nl.[4] It is up to the citizen themselves to determine what services are applicable to them. While these information services are reactive in nature, by proactively informing citizens of their existence whenever a life event that is included would occur, the information is provided proactively.

4.2.2. Specific observations

Whether a service is a right or a duty influences the observed proactivity in the eligibility process. Public services that are duties, are obliged, and therefore it is often easier to determine that a citizen is eligible to a public service. Specifically for duties like mandatory registrations

[4]Ministerie van Algemene zaken. (n.d.) Overzicht levensgebeurtenissen. Retrieved from: https://www.rijksoverheid.nl/onderwerpen/levensgebeurtenissen/overzicht-levensgebeurtenissen

in the BRP or payment of taxes proactivity can be incorporated much easier as this always has to be done, after the occurrence of a certain life event such as the birth or passing away of a citizen.

The child benefit application is an interesting case. When a child is born a citizen must register his child with the municipality. The municipality automatically informs the Social Insurance Bank (SVB), which informs the citizen within two to four weeks about how it can apply for child benefits at the SVB. The citizen must fill out an application after which the benefits are granted. Interestingly, after a second child is born and registered at the municipality, the municipality again automatically informs the SVB, after which the SVB updates the total amount of child benefits, as this is granted for each child. While the application of the first child is not a fully proactive service (E4+D2), the applications for child benefits of any new child after that is (E5+D5).[5] (A. Wiersma, personal communication, July 8, 2020) Interestingly, when a citizen is already a customer and therefore known in the systems of the governmental organisations more proactivity can be incorporated.

This same principle is observed concerning the process of study loan application and repayment at the Education Executive Agency (DUO). For a study loan application the citizen must determine themselves whether it is eligible to receive a study loan. Naturally, the citizen must decide for themselves whether it actually wants to receive a study loan and if so needs to state the amount it wants to receive as well. However when the study loan is granted the repayment is a fully automated process that automatically starts two years after a student has graduated, of which the date is known at DUO. The amount of repayment is based on the income of that citizen of two years earlier. This information is acquired from the Tax Office. For the repayment the citizen does not have to do anything. It could be argued that repaying the study loan is part of the initial service and agreement itself, but it is still interesting to observe that the repayment and modification of the amount is a fully proactive process (E5+D5), as the amount of repayment is updated each year, based on the updated income statements known at the Tax Office.[6]

[5] Ministerie van Sociale Zaken en Werkgelegenheid. (n.d.) Hoe vraag ik kinderbijslag aan? Retrieved from: https://www.rijksoverheid.nl/onderwerpen/kinderbijslag/vraag-en-antwoord/hoe-vraag-ik-kinderbijslag-aan#: :text=Kinderbijslag

[6] Dienst Uitvoering Onderwijs. (n.d) Terugbetalingsregels. Retrieved from: https://duo.nl/particulier/studieschuld-terugbetalen/terugbetalingsregels.jsp

Practical example #3: Study loan repayment - Education Executive Agency (DUO)

Summary: Repayment of study loans is a fully automated process that automatically starts two years after a student has graduated. This date is known at DUO. The amount of repayment is based on the income of that citizen of two years earlier. This information is acquired from the Tax Office. For the repayment the citizen does not have to do anything themselves.
Level of proactivity: Fully proactive: (E5+D5).
Points of interest:
- The amount of repayment is based on known determined income of two years before.
- Every year this amount is updated automatically.
- Citizens can request a grace period or request for the amount of repayment to be determined on more recent income statements. This part of the service is reactive.

Naturally, the study loan is not mandatory for citizens. It is a right, after which repayment becomes a duty. While public services which are duties services can often fully proactively be provided to citizens, public services that are rights can only be recommended or offered to citizens, as these require a decision and therefore interaction and effort with that citizen. Proactivity therefore only is incorporated to a certain degree or citizens must be opted in by default. Regarding the proactivity of the case of a study loan, the government can proactively inform all new students about the existing service. After all, the government does know when a citizen applies to a university for example. This is not applicable to all public services, as the government can not always know when a citizen desires a public service or information. For example when a citizen wants to start a company. This is a decision of the citizen and can not be known beforehand. Only after the citizen makes use of their right and has registered their company at the Chamber of Commerce (KvK), more proactivity can be incorporated. In this case the Tax Office is informed automatically by the KvK for example. However, if certain signals can be detected that a citizen might be interested or eligible for a right, proactive information provision of proactive offering of services could possibly be initiated, but this will be heavily dependent of suitability of the public service.

From these cases it can be observed that the characteristics of a service influence its suitability for proactivity and multiple levels of proactivity can occur within the same public service. This in line with the observations in the literature of Scholta et al. (2019).

Another interesting element of the child benefits case is the role of the municipality. This is the governmental organisation with whom the citizen interacts, from which point onwards proactive services can occur. In the Netherlands, the citizen still has to register their child with the municipality, however. In certain cases this effort required from a citizen could even be eliminated as is the case in Austria, where when a child is born in a hospital, that hospital is the actor that updates the Federal Ministry of the Interior, which updates the central civil registry and informs the Federal Ministry of Finance, which informs the local tax offices (Scholta et al., 2019). In Estonia the hospital can register a child as well, after which the child is automatically given a national ID number, digital ID and is linked to the health insurance of the mother. These processes occur even before a child is given a name (R. Erlenheim, personal communication, August 31, 2020).

By using a third party as the initiating actor for a public service the initiative can be

taken away from the citizen after which proactive services can be initiated. In the Netherlands this can be the case when someone passes away. If the partner of a citizen passes away, the partner must notify the municipality. However this is often done by the funeral director. When the municipality is notified of this it updates the BRP and automatically notifies the Tax Office, health insurance, DUO and SVB, which automatically end active processes or contact the relatives of the deceased citizen, to determine the steps to take. Banks or other insurance agencies must be informed by the relatives themselves.[7]

Two other cases are interesting for different reasons. The Donor registration (Donorregistratie) and NL Alert. Proactive services will require consent from a citizen in one way or another. Different strategies can be identified for this, such as a general opt-in beforehand, like in the earlier discussed framework of Erlenheim et al. (2018), consent for each service independently, the acceptance of a service, or proactivity- by-default of which can be opted out. The Donor registration used to be optional, and citizens could opt-in by registering themselves as a donor. In July 2020 the law was changed (Donorwet) and the default preference was changed from opted out to opted in. Citizen can still register their preferences themselves at any time, however now when citizens become 18 years old, a letter is sent to them with the request to give their preference. If the citizen does nothing, the citizen remains registered as a donor.[8]
A similar pattern can be seen with NL Alert, which is a text message service through which the government can give citizens instructions about what to do when an emergency situation occurs nearby. This is a proactive service considering its goal is informational and the citizen does not have to put in any effort. It is an interesting example of how location can enable proactive service delivery. It makes use of the method 'cell broadcast' to send messages through cell phone transmission towers to local areas, depending on the severity and scale of the emergency. The service is anonymous as the government does not have to have the cell phone number of a citizen to reach that cell phone. Citizens can not opt-out from this service, but can individually block receiving these messages by adjusting the settings on their own phone.[9]

Especially the opting in and opting out of these services are interesting to keep in mind when determining when or how a citizen is to give consent to a proactive service.

As was mentioned before the service characteristics influence their suitability for the incorporation of proactivity. While this can sometimes be a disadvantage for the possibility of incorporation of proactivity, it sometimes is an advantage. Legal documents like a passport or a driver's license have a known expiration date and a public service like the AOW pension is linked to a predetermined age. Examples of proactivity are when a municipality informs a citizen that it is eligible to renew their passport. The RDW informs citizens 19 weeks before a driver's license expires.[10] The SVB informs citizens around 5 months prior to reaching the predetermined age of when and how citizens can apply for the AOW.[11] The SVB can utilize the BRP from the municipality to know when citizens reach the predetermined age to receive

[7] Ministerie van Algemene zaken. (n.d.) Overlijden: wat moet ik regelen?. Retrieved from: https://www.rijksoverheid.nl/onderwerpen/levensgebeurtenissen/vraag-en-antwoord/checklist-bij-overlijden

[8] Ministerie van Volksgezondheid, Welzijn & Sport. (n.d.) Donorregister. Retrieved from: https://www.donorregister.nl

[9] Ministerie van Justitie en Veiligheid. (n.d.) Je mobiele telefoon. Retrieved from: https://crisis.nl/nl-alert/je-mobiele-telefoon

[10] RDW. (n.d.) Herinneringsbrief rijbewijzen. Retrieved from: https://www.rdw.nl/nrd/dienstverlening-en-tarieven-van-de-rdw/herinneringsbrief-rijbewijzen#: :text=De%20RDW%20stuurt%20de%20rijbewijshouder,binnenkort%20hun%20

[11] Ministerie van Sociale Zaken en Werkgelegenheid. (n.d.) Hoe vraag ik mijn AOW-uitkering aan? Retrieved from: https://www.rijksoverheid.nl/onderwerpen/algemene-ouderdomswet-aow/vraag-en-antwoord/hoe-vraag-ik-mijn-aow-uitkering-aan

an AOW pension. However, the AOW pension currently can not become a fully proactive service. No income statements are required, but the SVB must know whether a citizen has a partner and has been insured in the Netherlands the prior 50 years. The SVB is legally not allowed to acquire this information from other governmental organisations and therefore must ask it directly to the citizen. Interestingly, the SVB is allowed to check the information with other governmental organisations after it has received it from the citizen. Moreover, the citizen must apply for the AOW pension themselves after it has been proactively informed. (A. Wiersma, personal communication, July 8, 2020)
From these examples it is determined that the characteristics can be advantageous for the incorporation of proactivity as well. Moreover it is observed that the AVG forms a barrier for the incorporation of more proactivity.

As described before, the Dutch government aims to give more control on their data to citizens, which is definitely relevant in the case of proactive services. An interesting case in this regard is a pilot between the housing cooperatives, the Tax Office and MijnOverheid, which is a website where citizens can receive and view messages form the government as well as check their personal information.[12]

When applying for social housing at a housing cooperative, citizens are obliged to provide an income statement, which must be acquired from the Tax Office, to the housing cooperative. This is necessary for the housing cooperative to determine whether and to what housing a citizen is eligible. Citizens currently have to request this information from the Tax Office and consequently send this to the housing cooperative themselves. In the pilot citizens can digitally share their income, which has been validated by the Tax Office, with a housing cooperative.[13] During a personal interview with an employee of the Belastingdienst two options were discussed that could ultimately be selected, either all information can be shared with the housing cooperative, or the housing cooperative can test whether the income fulfills a certain criteria, without getting to know the actual income of the citizen. Several advantages come from the solution of the pilot. The supplied data is extracted from the source, and therefore validated, which reduces possibilities for fraud. The citizen no longer has to go through a frustrating process in which it has to interact with both the Tax Office and the housing cooperative. The citizen is in control and knows what is happening with their personal data. It must be mentioned that increasing the proactivity of the service was not a goal of the pilot. The goal of the Dutch government is to enable citizens to view and share their personal data digitally with third parties. The pilot was meant to find out how this could be done, what rules should be applied to the process and find out what would need to be done for implementation.[14]

However, when looking at the proactivity, it could be argued that the proactivity has increased. Instead of having to interact with two governmental organisations and having to provide all the information (D1), the citizen now only has to has to check and approve their information and share it with a simple click of the button (D3). The service could theoretically have a higher proactivity if the housing cooperative would be allowed to do the income test themselves and no effort from the citizen would be required anymore (D5). In this pilot however, it was purposefully designed to have the citizen perform the action of sharing their personal data themselves to keep the citizen in control. This illustrates that fully proactive

[12] Mijnoverheid. (n.d.) Wat is MijnOverheid - ik ben nieuw. Retrieved from: https://mijn.overheid.nl/wat-is-mijnoverheid

[13] van Wezel, M. (2020). De digitale inkomenstoets. Retrieved from: https://www.aedes.nl/artikelen/bedrijfsvoering/digitalisering-en-informatievoorziening/digitale-inkomenstoets.html

[14] Digitaleoverheid. (2020). NL DIGIbeter 2020. Retrieved from: https://www.digitaleoverheid.nl/overzicht-van-alle-onderwerpen/nldigibeter/

services do not simply align with the e-government strategy of the Netherlands. Having citizens in control of their data and requiring them to be the actor that is sharing personal data somewhat conflicts with the purpose of fully proactive services in which the initiative is taken away from citizens and no input of citizens is required.

While at first hand this seems like a problem, it does not necessarily have to be. Fully proactive services could be useful in certain scenarios or public services. Having the citizen in control of their personal data is a desired outcome of the Dutch government, but if a citizen has to perform effort every time it shares data, the citizen can become fed up with the effort quickly. Therefore fully proactive services can probably be an outcome for certain public services. Moreover, if fully proactive services prove to not comply with citizens being in control and having grip on their data proactivity can still be incorporated to a certain level.

Again when looking at the example of the housing cooperative, a citizen has control over their data and can decide to share their personal information with a third party themselves, however the minimization of the effort that is required from the citizen is still desirable, just as having the service recommended to the citizen is desired. Moreover, it must be noted that the housing cooperative is a third party for which the government wants the citizen to be in control. This does not necessarily have to be the same for information exchange between governmental organisations.

The goal of the pilot was not to develop a fully proactive service, it was meant to allow the citizen to share their data and be in control at the same time. However how such data sharing systems will be designed and facilitated in the future will influence to what extend proactivity can be incorporated. Many different possible designs of data sharing systems exist. No one-size-fits-all solutions exists as each different systems requires customization to their specific context. These design choices regarding sharing of information will be influenced by several interconnected components, such as technology, governance and context, which can not be viewed separately as changes within these components influence each other. (van Dokkum et al., 2020)

To summarize the above, if it turns out fully proactive services are undesirable for certain public services as more control for the citizen is desired, this does not mean proactivity is undesired. This would mean a lower level of proactivity is desired. Therefore, understanding proactivity in public services and understanding the different moderate levels of proactivity, for which the analytical framework has been developed in the previous chapter is essential for future public service design.

4.2.3. Conclusions from the exemplary cases

Investigating the proactivity of these cases and placing them within the matrix yielded interesting insights and observations, however it must be kept in mind that many assumptions have been made and exact levels of proactivity have not been validated.

Confirmation of insights from the literature

- Proactivity can differ within public services at certain stages or situations. *Cases: Study loan & study loan repayment, DUO & Tax Office. Child benefits applications, Municipality & SVB. (Scholta et al., 2019),*

- Certain service characteristics, like age-related services or renewal of mandatory legal documents allow for an easy incorporation of proactivity. *Cases: Passport renewal, Municipality, AOW pension, SVB. (Scholta et al., 2019)*
- Third-party actors can take the initiative away from the citizen and trigger proactive

services for the citizen. *Cases the Netherlands: Passing of a relative, Funeral director & Municipality. Marriage registration, Civil Registration Officer & Municipality Cases abroad: birth of a child Austria (Scholta et al., 2019), birth of a child Estonia (Erlenheim interview, 2020).*

- Certain proactive services are very suitable to be structured around a life event. *Cases: Municipal registrations, Municipality, SVB, Tax Office, DUO.*
- Whether a service is a right or a duty matters for the incorporation of proactivity. Some duties are mandatory, because of which the eligibility of a citizen can easily be determined. Some rights require interaction and effort with citizens. *Cases: Taxes, Tax Office. Study loan application, DUO.*
- The aim of the Dutch government to allowing citizens to be in control over their personal data could conflict with the concept of fully proactive services. *Case: Housing cooperation pilot, Tax Office & Housing cooperative.*
- Overall it is found that reactive information provision regarding public services is generally good in the Netherlands. *Cases: All.*

4.3. Case studies

While the exemplary cases provided a more general overview of different public services with different levels of proactivity in the Netherlands, more thorough case studies were done as well. Qualitative case studies are a suitable approach for exploring a phenomenon within its context through a variety of perspectives in order to understand it (Baker & Jack, 2008). The business needs existing in the environment, which is the Netherlands must be identified to ensure relevance of the framework of design principles. Qualitative case studies are a suitable method for studying public service delivery in the Netherlands, as the high level of decentralization results in a complex governmental environment, which can be understood better by investigated proactivity through the perspectives of different governmental organisations. This was done by using a combination of desk research and interviews.

4.3.1. Selection of cases

Selection criteria

Cases were selected based on several criteria, which aligned with the scope of the thesis. The to be studied public service must be delivered digitally by a governmental organisation to a citizen and require personal information or input from that citizen. Ideally, the service would show potential for its proactivity to be raised to a higher level. Moreover, and most importantly, the governmental organisation had to be willing to cooperate and agree for information to be publicized. Public services that could be investigated further were determined together with the employees of the governmental organisation, depending on what public service incorporated or showed potential for the incorporation of proactivity. Interviews were held with employees of three different governmental organisations, UWV, Belastingdienst and SVB.

4.3.2. Pre-completed tax return (VIA) - Tax Office (Belastingdienst)

Introduction

In most of the conducted interviews one example of proactivity in public service delivery in the Netherlands was discussed very frequently: the pre-completed tax return (VIA) of the Dutch Tax Office (Belastingdienst), which has been in use since 2008.[15] Moreover, it is a well known public service as most citizens in the Netherlands have had to use the service.

Within the Netherlands, the Belastingdienst exchanges information with many other governmental organisations, such as the UWV, municipalities and third parties, such as banks and insurance agencies. The Belastingdienst pre-fills the acquired information in the tax return for taxpayers. The Belastingdienst is able to request information from other organisations based on a legal basis. It is required to collect taxes by law, and must be able to acquire the information necessary to do so. Therefore the Tax Office can acquire personal information from most organisations in compliance with the AGV. It is however not always able to do so, for example with particular foreign banks or as for some taxes the citizen must notify the Tax Office themselves. The citizen must always check and, if necessary, modify or complement the pre-filled information. The citizen is fully responsible for the correctness and completeness of the information. The context from which the Tax Office acquires their information is not always in line with the goal for which the Tax Office uses that information. Due to this reason a check is always necessary by the citizen. (F. Hietbrink, personal communication, August 5, 2020)

Level of proactivity: moderately proactive service (E5+D3)

Interestingly, the system was not developed with ease of use for the citizen as the main priority. It was developed in order to create more supervision by acquiring information from as close to the source as possible. By extracting data from the source the quality of the data is increased and the possibilities for fraud are reduced. This is a common strategy of the Belastingdienst. Moreover the information delivery was standardized (F. Hietbrink, personal communication, August 5, 2020). Because of these reasons, it is concluded that the increased ease of use was more of a positive externality, than a main objective for citizens.

Every citizen who lives in the Netherlands or has an income is subjected to income tax. This is based on your income, financial interests in a company, savings and investments.[16] The Tax Office is able to determine a citizen's eligibility and consequently informs a citizen it is obligated to file the yearly tax return. Within the *eligibility process* the highest level of proactivity (E5) is achieved. This is the case due to clear eligibility criteria, which is easy to determine since paying taxes is required by law and a tax return is to be filed yearly. Within the *delivery process* a moderate level of proactivity is achieved (D3). In many cases the citizen only has to check and approve the information, however in some cases the citizen must complement information as some information regarding certain taxes can not be acquired. The citizen remains responsible for the correctness of the information. Consequently the tax return is processed and a citizen either has to pay taxes that are still due, or receives a return if to much tax has been paid already.

Overall the service has a moderate level of proactivity. In the eligibility process the highest level of proactivity is reached (E5) as no effort from the citizen is required. In the best scenario, in the delivery process the citizen only has to check & approve the information (D3), but in certain situations the citizen is required to complement information themselves (D2). In a personal interview with an employee of the Belastingdienst it was mentioned,

[15] Nationale Ombudsman. (2019) Zo vult de Belastingdienst uw aangifte al (bijna) helemaal in. Retrieved from: https://www.nationaleombudsman.nl/zo-vult-de-belastingdienst-uw-aangifte-al-bijna-helemaal-in

[16] Government of the Netherlands. (n.d.) Income Tax. Retrieved from: https://www.government.nl/topics/income-tax#: :text=If%20you%20live%20in%20the,Customs%20Administration%20collects%20

proactivity is possible when the source of the information can be determined. This is not possible for certain taxes, like the gift tax, where a citizen must provide the information themselves. Furthermore must citizens must always apply for benefits themselves. Within public services often certain scenarios or exceptions have a lower proactivity and require more effort from a citizen. Throughout this thesis the highest level of proactivity is always classified, so the total level of proactivity of the process is moderate (E5+D3).

Another example discussed in the interviews with the Belastingdienst was the event of a citizen buying a new car. When a citizen buys a car it must register the car's license plate at the Vehicle Authority (RDW) and pay Private motor vehicle and motorcycle tax (BPM). When a citizen buys a new car at a car dealer, the car dealer initiates both of these processes. The car dealer registers the car's license plate at the RDW and pays the BPM to the Tax Office. The RDW informs the Tax Office of the registration to notify the Tax Office that BPM needs to be collected. In this process the citizen does not have to do anything at all and the process of registration and collection of taxes is a fully proactive service initiated by a third party, being the car dealer. When a citizen buys a second-hand car or imports a car it must do this themselves. Although the citizen indirectly pays for these services that the car dealer provides, it is another illustration how the initiative is taken away from the citizen by a third party.[17]

Conclusions from the case study

Interestingly, it was mentioned in a personal interview with an employee of the Belastingdienst that the pre-completed tax return was not initially developed to introduce more proactivity and ease of use for the citizen, although this was a beneficial result. More proactivity could theoretically be introduced by removing the check of the citizen and making it a fully proactive service. This is not realistic nor desired due to the consequences incorrect information or errors could have. The proactivity could be increased by pre-filling more different types of information and taxes, such as the inheritance and gift tax, which are currently being automated for example. Another observation is that the Tax Office is able to request information from many different governmental organisations and third parties. This is compliant with the AGV as this information is necessary to fulfill their legal duty, which is the collection of taxes. Moreover as paying taxes is a duty, mandatory for all citizens, eligibility can be determined easily. Due to these two reasons proactivity can be achieved for taxes very easily. However, as observed the level of proactivity not only differs for different taxes, but as well for certain situations within the same tax.

4.3.3. Supplementary Income Elderly (AIO) - Social Insurance Bank (SVB)

Introduction

Another interesting case is that of the Supplementary Income Elderly (AIO) from the Social Insurance Bank (SVB). Citizens in the Netherlands that do not receive a (full) AOW-pension, might not be under the subsistence minimum, which is the minimum amount of money a person needs monthly. Citizen are entitled to a complementary benefit to reach the determined subsistence minimum, which is called the AIO.[18] Currently it is estimated that one half of all citizens who are eligible to receive the AIO do not receive it. The application is currently not digital and therefore does not fall within the scope of the case studies. However, a digital application is in development. Moreover, the SVB has expressed to be a proactive service

[17] Belastingdienst. (n.d.) Ik koop een auto of motor. Retrieved from: https://www.belastingdienst.nl/wps/wcm/connect/bldcontentnl/belastingdienst/prive/auto_en_vervoer/ik_koop_een_au

[18] SVB. (n.d.) Wat is de AIO-aanvulling. Retrieved from: www.svb.nl/nl/aio/wat-is-de-aio-aanvulling

provider. These two reasons actually make it an interesting case and therefore it has been investigated further.

Level of proactivity: reactive service: (E2+D1)
A citizen can access information and an information service consisting of several question to help the citizen determine whether it might be eligible on the website of the SVB (E2).[19] The current application is a very extensive non-digital form in which request a large amount of information from the citizen (D1). Therefore, the AIO currently is a reactive service (E2+D1).

Developments
As the SVB want to be a proactive service provider and is developing a digital application form, they want proactivity incorporated in the service. The SVB views proactivity as a way to reduce the amount of citizens that are eligible, but do not receive the AIO. Moreover does removing initiative away from the citizen result in an application that is easier for the citizen and can be processed faster by the SVB. The concept of proactivity is understood as, not waiting for the citizen to come to the SVB, but initiate contact with the citizen, when these might be eligible. Furthermore does it mean that the application is made easy for the citizen.

The SVB has analyzed the old application process of the AIO. It was observed that the time needed for an application for the AIO to be fully processed was very high. This was caused especially by incomplete applications. Most incomplete applications were caused by missing banking information. The innovation lab of SVB, NOVUM, is investigating whether under the new Payment Service Directive 2 (PSD2), citizens could enable the SVB to acquire their required banking information.[20] Moreover, it was found citizens were afraid to make mistakes during the applications. The SVB found as well that certain information could already be acquired from other governmental organisations. However, the SVB is not allowed to exchange the required information with the UWV and Belastingdienst, due to the AVG. Currently no legal basis exist for the exchange of information with the purpose of preventing people living under the subsistence minimum. The AVG currently is the main reason why proactivity can not be incorporated more. (A. Wiersma, personal communication, July 8, 2020)

Conclusions from the case study
From the case study it is observed that there is a willingness to exchange more information and raise the proactivity of the AIO. However a legal basis is required to exchange this information, for which regulatory modifications are required, specifically for the purpose of that public service. Each different proactive service or implementation of proactivity for which information must be exchanged is subjected to the AVG. This means for every individual specific proactive service a legal basis must be identified, created or explicit consent of a person is required to enable the information exchange which lies at the foundation of proactivity. The AIO currently does not possess a legal basis to exchange information. Compliance with the AIO is the largest barrier for the introduction of a higher level of proactivity.

[19]SVB. (n.d.) Kijk of u AIO kunt aanvragen. Retrieved from: https://www.svb.nl/nl/aio/doe-de-aio-check
[20]NOVUM. (2019) Digitale bankafschriften via PSD2. Retrieved from: https://novum.nu/project/digitale-bankafschriften-via-psd2

4.4. Chapter conclusion

Many lessons were learned from the cases and case studies. Interesting lessons were learned regarding which public services (characteristics) are more suitable for a higher level of proactivity and which are not. Several important challenges for (fully) proactive services were identified. As proactive services are very dependent on the exchange of information and this is subjected to the AVG, compliance with the AVG is a major challenge. Acquiring a legal basis or consent for proactive services requires specific solutions to specific situations and sometimes is not possible at all. Another issue that needs to be solved is how citizens can enjoy the benefits of proactive services, but stay in control over their personal data as well. As it is the goal of the Dutch government to have their citizens in control over their own data, this will mean fully proactive services will not always be desired. This does not mean proactivity is not desired. It means that a lower level of proactivity is desired. Therefore, understanding proactivity in public services and understanding the different moderate levels of proactivity, for which the analytical framework has been developed in the previous chapter is essential for future public service design. Moreover understanding how the characteristics influence the suitability is essential as well. It has become clear that no solution will be the optimal solution, as every public service or even within the same public service different solutions are desired.

Regarding the current state of development in the Netherlands interesting insights were gained. Fully proactive services are scarce, but proactivity is incorporated in many different ways for different purposes. For example, the Tax Office acts proactively by acquiring information from other sources than the citizen, but this is mainly done to ensure a higher quality of information and standardize processes (Case study VIA). The SVB views proactivity as a way to increase efficiency and make their services more inclusive (Case AIO). During the interview with the UWV another interesting application of proactivity was identified, where personalized proactive customer support based on previous user experience relieves customer support. All interviewees were aware of proactivity, but interpretations differed slightly. This is not surprising, due to the different ways proactivity can be incorporated in public service delivery and the different nature and tasks of the organisations. Although this is not easy to change, the introduction of the definition of 'fully proactive service', where a service is triggered and delivered without any effort required from a citizen could help reach a more common understanding.

These are one of many examples of these governmental service providers act proactively. It was already identified before that proactivity can be used in many different ways for different reasons and the insights from the case studies confirm this.

It is now possible to answer *subquestion 2:* What is the current state of development of proactive public services in governmental organizations? The answer is that there is attention for proactivity and proactivity is applied in many different ways, however fully proactive services are scarce. The main barrier for the development of more proactive services is the AVG, as this restricts the possibility for the exchange of more information without involvement of the citizen, which is necessary for (fully) proactive services. Enabling more information to be exchanged while still being in compliance with the AVG is a challenge which can be solved in different ways, which will be investigated in chapter 6: Realization Strategies.

5

Design Principles

In this chapter the draft of design principles is developed. Firstly, the reason for the selection of a framework of principles is discussed, followed by an explanation of the used method for principle extraction. Secondly, existing design principles for public and proactive services are analyzed. This is consequently used to develop the draft of design principles, which is assessed and refined through evaluating interviews to ultimately reach the final framework of design principles.

5.1. Substantiation of Principle-Based-Design: focus on goal attainment

5.1.1. Principles: useful in multi-actor environments

The decision to develop a framework of principles has been made due to several reasons. As described in chapter 1: Introduction, governmental organizations in the Netherlands are operating in a multi-actor environment in which different organizations have different (individual) goals. Principles are useful in such environments since they focus on goal attainment, instead of providing specific solutions, which can limit the ability of information architects to develop creative solutions for their specific situation. Bharosa & Janssen (2015) define principles as "normative, reusable and directive statements that guide architects in designing the capabilities needed to achieve overarching goals" (p. 469). Principles are more abstract than requirements and constraints, which increases the possibility for actors to agree upon them, as it leaves more room for the information architects to adapt their systems to the specific business environment and needs of their respective organizations. These principles guide information architects when having to make decisions regarding the design of their information system. (Bharosa & Janssen, 2015)

5.1.2. Principle-Based Design: Empirical problem analysis & capitalization of experiences of architects

The Principle-Based Design method of Bharosa & Janssen (2015) states both empirical problem analysis as well as the capitalization of experiences of architects are important steps required for principle extraction, thereby utilizing two complementary data collection instruments. An understanding of the relevant dimensions of proactive services has been developed in chapter 2: Literature Review & chapter 3: Analytical Framework. Empirical problem analysis has already been achieved in chapter 4: Exemplary cases & Case studies. During the first interviews of the case studies important insights were gained. However, to really tap into the experiences of

information architects it is useful to have an already developed set of design principles. This will enable a more structured and specific evaluation. Therefore a first draft of the design principle was developed based on the case studies, literature review, as well as by investigating relevant existing design principles, due to their wide applicability and reusable nature, which was consequently evaluated to reach the final framework of design principles.

5.1.3. Principle structure: TOGAF template

The principles will be structured along the template of architecture principles of The Open Group (TOGAF), which is an organisation developing and maintaining IT standards. This means each principle will contain a name, statement, rationale and implications. The same elements are used in the government-wide NORA principles.

Here, the name should represent the essence of the rule, be easy to remember and do not contain ambiguous or unnecessary words, the statement should briefly and unambiguously communicate the fundamental rule, the rationale should describe the benefits of following the principle and describe relations with other principles and how these should be combined, the implications should explain the (potential) impacts to both the business and IT regarding adopting a principle in terms of resources, costs or activities. (TOGAF, 2018) Besides these four elements, the sources from which elements have been reused in the principle are included as well.

5.2. Existing (proactive) public service design principles

5.2.1. Ten-step list of design principles for proactive service provision (Erlenheim et al., 2020)

Erlenheim et al. (2020) propose a set of ten design principles for the development of proactive public services, which already have been implemented in the public sector by the Ministry of Economic Affairs and Communications in Estonia. The principles are still to be assessed by practitioners in order to investigate limitations and possibilities in service ecosystems. The already short principles are summarized in a single sentence below, after which these are discussed and analyzed.

Summarized overview of ten-step list of design principles for proactive service provision (Erlenheim et al., 2020)

- Principle 1 - Wholesomeness: the access to a service is invisible and triggered by a life or business event, is delivered automatically or in a single interaction.
- Principle 2 - Proactivity and once-only principle: the government takes the initiative to provide services, with the presumed will of citizen and makes use of available governmental information, instead of requesting this from a citizen.
- Principle 3 - Accessibility through digital channels: service delivery is digital-by-default, but available through other channels as well if a citizen request this.
- Principle 4 - Possibility to opt-out: citizens can opt-out and opt back in.
- Principle 5 - Personalized and role- and situation-centered. Service delivery takes the preferences and personal situation of a citizen into account.
- Principle 6 - Intuitivity and simplicity: design, style and use of language are intuitive and simple.
- Principle 7 - Transparency: citizens understand how services are delivered, by whom and what the obligations of all stakeholders are.

- Principle 8 - Recent and timely information: the latest information is available and is accompanied by an update time-stamp and storage information.
- Principle 9 - Reliability and security: mutual trust should exist between citizen and government.
- Principle 10 - Multilingual access: services are available in most used languages.

Analysis
The use of the perspective of the citizen is useful for reasoning over traditional borders of governmental organisations and the development of proactive services, which is in line with the ambitions of the Dutch government. However, as the scope of this thesis is on how governmental organisations can achieve this, it will be useful to go a step further and address the implications for the governmental organisations as well. Furthermore, the most important observations that will be taken into account when developing the draft of design principles will be discussed below.

Main observations & takeaways
- The used perspective of the citizen is useful, addressing the implications for the governmental organisations will be insightful and can provide more guidance.
- Ease of use is created for the citizen, by reducing the effort that is required from a citizen by delivering personalized services automatically or in a single interaction on the initiative of the government and by re-using available governmental information.
- User acceptance is achieved through always allowing citizens to opt-out and back in, keeping their preferences and presumed will in mind, developing mutual trust and transparency.
- Principle 1 states that services should be triggered by life or business events. Although it is recognized this is a useful method, it is not a necessity as proactive services can be triggered by other means as well, such as the introduction of new laws or policies, changes in circumstances or preferences of a citizen, location, related services or third parties.
- Principle 1 states services should be delivered automatically or in a single interaction. It must be noted that the interactions can be reduced even more by bundling or combining services.
- Principle 2 states services should consider the presumed will of citizens, but no guidance is given on when or how this should occur or be indicated by the citizen.
- Principle 4 states that citizens should always be able to opt-out and opt back in. This is a smart way to ensure a citizen does not feel forced to use the proactive service delivery and will less likely reject it.

5.2.2. Dutch Governmental Reference Architecture (NORA) principles
The Dutch Governmental Reference Architecture (NORA) contains government-wide agreements which aim to enable and improve digital public service delivery. It provides guidance to policymakers and information architects and ensures interoperability and the re-use of existing solutions. It consists of 10 Main Principles (MP) and 38 Derived Principles (DP). The main principles are high-level and describe the most important desired characteristics of public service delivery. These only describe what characteristics should be achieved, not how this should be done. The derived principles provide guidance on a more operational level of how these characteristics can be achieved and implemented.[1,2] Ultimately it is up to the involved policymakers, managers and information architects to tailor these to the different circumstances

[1]NORA. (2018) Afgeleide principes. Retrieved from: https://www.noraonline.nl/wiki/Afgeleide_principes
[2]NORA. (2019) Basisprincipes. Retrieved from: https://www.noraonline.nl/wiki/Basisprincipes

of their organisation, such as different involved stakeholders, organisational culture or legacy systems.[3]

Every principle contains a set of certain properties, such as a statement, description and rationale, implications, examples, scope and substantiation. Furthermore, its sources and its relationships with other principles is shown. Analyzing these principles will be useful for two reasons. It gives more insight in how proactivity is currently addressed in the Netherlands, as well as identify principles that can be re-used. As these principles are developed for general digital public service delivery, overlap with elements of proactive services is expected.

It is important to note, that these principles are originally stated in Dutch and have been translated by the author of this thesis. Although this is done with great care, meaning can be lost during this process, which can especially be applicable in the short names of the principles.

NORA Main Principles

The 10 main principles are: *Proactive, Findable, Accessible, Standard, Bundled, Transparent, Essential, Confidential, Reliable and Receptive.*

Although all principles are important and applicable for public service delivery in the Netherlands only those principles that specifically address the important elements of proactive services are discussed below. Besides the obvious main principle *Proactive*, the main principles *Bundled* and *Essential* are relevant as these achieve minimization of interaction and information required from the citizen. The most important observations and takeaways will be discussed below. The full analysis of the main principles and their derived principles can be read in appendix A: Dutch Governmental Reference Architecture (NORA) principles. An overview of the three main principles and their derived principles can be seen in figure 5.1 below.

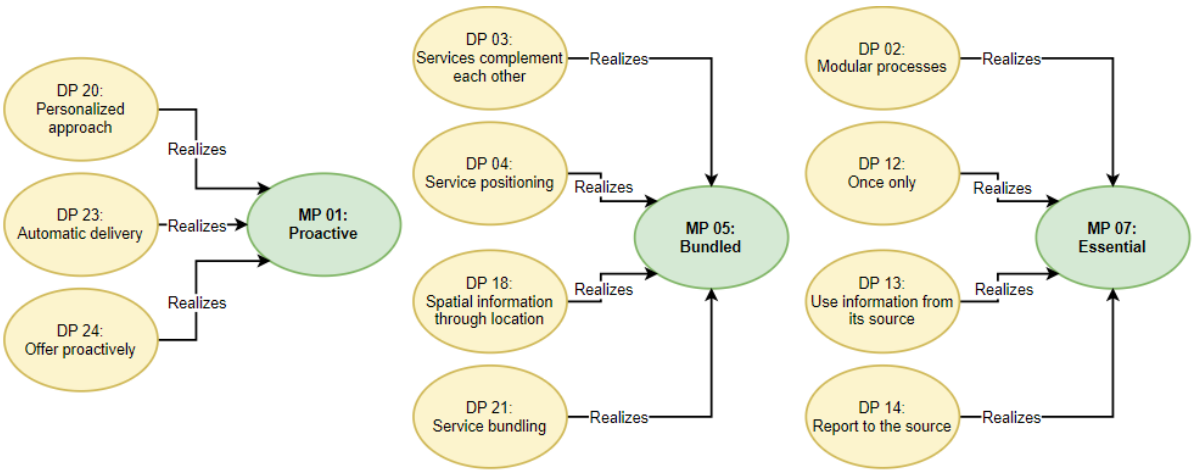

Figure 5.1: NORA Main Principles addressing proactive services - Proactive, Bundled, Essential & related Derived Principles

The Main Principle 01 - Proactive

The main principle *Proactive* states that service providers should take the initiative to inform or provide services when it can be determined that this is of importance to the recipient. If possible the service is provided automatically, but the recipient should always remain in control. This can be realized by using a personalized approach, automatic delivery and proactive

[3]NORA. (2019) Principes. Retrieved from: https://www.noraonline.nl/wiki/principes?pk_campaign=digovnora

offering of (complementary) services. Overall, a thorough understanding must be developed of the (needs and preferences of) recipients and of what information is necessary and available at both internal as well as at external organisations. For each service it must be determined, when automatic delivery is desired for what target group, what this automatic delivery entails and what signals can trigger it. Moreover, the individual preferences of a citizen must be taken into account. It becomes clear individual solutions are desired.[4]

The Main Principle 05 - Bundled
This main principle states that services that are connected from the perspective of the citizen, should be offered bundled together to the recipient so it perceives these as a single service. This requires thinking from the perspective of the recipient and cooperation between service providers and can be centred around life events, themes or target groups. This can be realized by having services complement each other, clear service positioning, making spatial information available and service bundling itself. By offering (parts of) services together (complementary) services can be offered proactively to citizens, who otherwise would have to request each service individually, thereby minimizing the total amount of interaction that is required from a citizen.[5]

The Main Principle 07 - Essential
Service providers make information available to be used by themselves and other service providers, so recipients do not have to be asked unnecessary questions. Furthermore should procedures and regulations be simple, so recipients have to provide as little information as possible. Practical example #4 Tuition Fee Refund COVID-19 - DUO is a good example of this. This requires cooperation and agreements between service providers. Since proactive services require information exchange and aim for the minimization of both information and interaction requested from a citizen, it is useful to discuss this main principle as well. This can be achieved through modular processes, use of the once-only principle, use of information from its source and ensuring a high quality of information by reporting back to that source.[6]

Practical example #4: Tuition Fee Refund COVID-19 - DUO

Summary: The Dutch government partly compensates the tuition fees of students that are delayed due to COVID-19. This is done fully proactive. Students who were enrolled in a study programme in 2019-2020 & 2020-2021 who, just like the author of this thesis, achieve their degree between the 1th of September 2020 and the 31th of January 2021 receive a compensation of 3 months of tuition fees by DUO.[a]
Level of proactivity: Fully proactive (E5+D5).
Points of interest:
- Simple and clear eligibility criteria enable a fully proactive service. It is assumed this was purposely chosen to keep the service simple and enable quick development.
- Proactive service developed to execute new regulations.

[a]DUO. (n.d.) Maatregelen corona. Retrieved from: https://duo.nl/particulier/corona/tegemoetkoming-voor-studenten-vanwege-corona.jsp

[4]NORA. (2019) Proactief. Retrieved from: https://www.noraonline.nl/wiki/Proactief
[5]NORA. (2019) Gebundeld. Retrieved from: https://www.noraonline.nl/wiki/Gebundeld
[6]NORA. (2020) Noodzakelijk. Retrieved from: https://www.noraonline.nl/wiki/Noodzakelijk

Main observations & takeaways

- Although personalization of services is not directly required for the provision of fully proactive services, having different desired levels of proactivity in different situations and recipients will mean personalized services will be useful. Especially as personalized services allow for more bundling of services, which will minimize interaction. Realizing interoperable systems or modular services or processes will enable this.
- An overview of triggers, required information for both internal and external use at other governmental organisations.
- By (personalized) bundling or combining of (parts of) services the total interaction required from a citizen can be minimized.
- Personalization of services and service delivery enables more proactive opportunities. However it is not necessarily a requirement for a proactive service.
- Spatial information (location) can trigger proactive services.
- A good understanding and overview of related and complementary public services of (other) governmental organisations is required.
- Minimization of information requested from a citizen can be realized through simplification of rules and procedures and by exchanging information with other organisations. An understanding of what information is available for what purposes must be available for the organisation itself as well as for other governmental organisations.

5.3. Draft of design principles: Structure & development

Finally the draft of design principles can be developed. In order to get to this point the perspectives of the different actors have been analyzed in chapter 1: Introduction, the dimensions of proactive services have been determined in chapter 2: Literature Review and developed further conceptually in chapter 3: Analytical Framework. How proactivity and proactive services is currently applied in the Netherlands has been investigated in chapter 4: Exemplary cases & Case studies and furthermore, different existing (proactive) design principles were investigated in this chapter.

To summarize the most important points, proactive services minimize the overall effort required from a citizen and an essential part of this is that proactive services are provided on the initiative of governmental organisations or third parties. The main benefits are more ease of use for the citizen and increased efficiency for governmental organisations. However, not all public services can become fully proactive due to their nature or user acceptance. It is therefore useful to understand when what level of proactivity is required. This will be investigated in chapter 6: Realization Strategies.

The design principles should be developed from the perspective of the user, as this is the best way to align different actors and raise the quality of services as experienced by the citizen. This is applicable for all public services and especially proactive services. Besides using the citizen's perspectives first, the consequent implications for the governmental organisations should be made clear as well.

It is important to realize proactive services can be applied for many different public services in many different ways. Things like life event orientation, personalization, bundling and combining services, predictive services are very interesting, useful and promising, but this is not necessarily required. The main essence of a fully proactive service is that it is provided without any effort required from a citizen.

However, it was identified many different moderate levels of proactivity exist and understanding these is important as different public services have different desired levels of proactivity. While the design principles should strive for fully proactive services, guidance should be given to achieve the highest level of proactivity possible otherwise, as fully proactive services

are not always achievable or desired.

The design principles should achieve more than just the proactive service characteristics. Since proactive services are dependent on the exchange of personal information of a citizen and the Dutch government want citizens to be in control of their personal information, efforts should be made to ensure these services are desirable for and accepted by citizens. Therefore, the design principles are developed to both achieve the different characteristics of proactive services, but at the same time ensure user acceptance to be in line with expectations of citizens and policymakers.

An overview of how the design principles contribute to the development of proactive services can be seen in figure 5.3 below. Proactive services can be achieved through achieving both the proactive service characteristics as well as user acceptance. This is achieved through governmental initiative, minimization of interaction and minimization of requested information for the proactive characteristics and having citizens in control and ensuring understandability. Personalized services and delivery contributes to both.

The full developed draft of design principles, which contains no feedback or improvements from the evaluation sessions, can be found in appendix B: Draft of Design Principles. Note that figure 5.3 presented below is applicable to both the draft of design principles as well as the final framework, as no modifications were made to its structure after its evaluation. Before the final framework of design principles is presented the structure and findings of the evaluation sessions will be explained below.

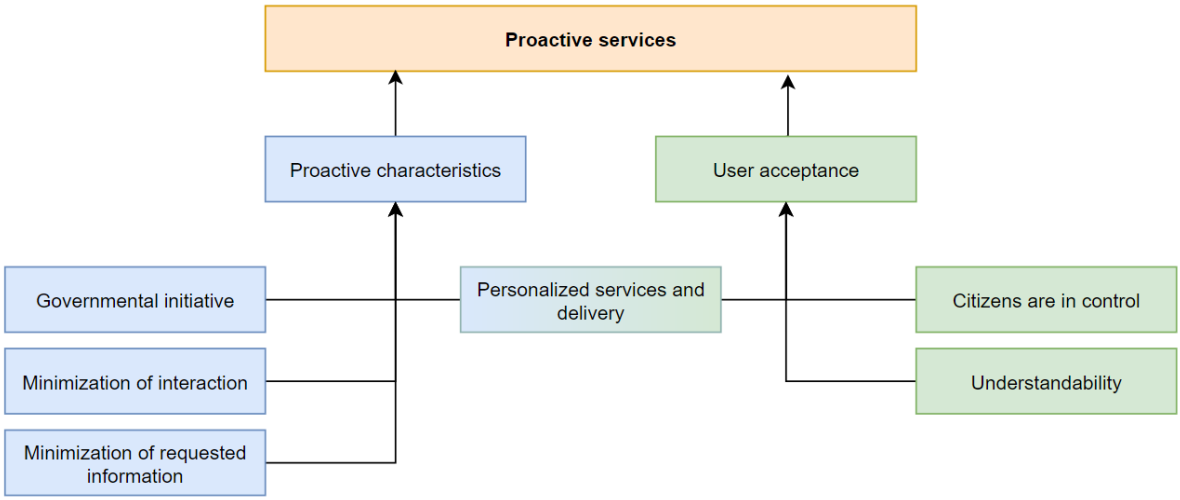

Figure 5.3: Overview and motivation of contributions of design principles.

5.4. Evaluation

The draft of design principles has been evaluated by several participants having a wide range of perspectives and expertises. The draft of design principles was continuously improved during this process based on the received feedback. Firstly, two personal interviews with practitioners were conducted to be able to tap into their design experiences. The two practitioners were selected based on the criteria of being information architects employed by a governmental service provider and having experience with both proactivity and design principles. Secondly, a personal interview with Regina Erlenheim was conducted to evaluate the design principles from an academic perspective. Thirdly, an evaluation session was conducted with four innovation designers and managers from the Digicampus, possessing expertise along a variety of topics

regarding e-governance and public service design in the Netherlands.

The order in which these interviews have been conducted was not purposely selected, but was based on the availability of the interviewees.

5.4.1. Evaluation structure & criteria

The evaluation sessions were set up to evaluate both the individual principles as well as the overall set of design principles based on four criteria: *clarity*, *consistency*, *completeness* and *usability*.

- *Clarity*, meaning the extent to which the principles are clear and understandable.
- *Consistency*, meaning the extent to which the principles are consistent and coherent both for the different elements in their structure as well as for the overall set of design principles.
- *Completeness*, meaning the extent to which the principles are complete, that is, without important elements missing.
- *Usability*, meaning the extent to which the use of the principles would achieve their desired specified goal of achieving proactive services.

The criteria were developed by the author of this thesis, as no applicable set of evaluation criteria for design principles was identified.

Two different evaluation sessions have been conducted. The interviews with the practitioners and Regina Erlenheim were personal interviews. Through the means of a video conference software and a presentation, a short introduction to the subject and substantiation of the development of the design principles was given. Afterwards the evaluation criteria were presented, after which each principle was presented and evaluated individually, after which the feedback was given.

The evaluation session with innovation designers and managers was slightly different from the previous sessions, because of the use of a case to be able to better project the design principles to a real-life example, which was the Supplementary Income Elderly (AIO), which has been discussed in chapter 4: Exemplary cases & Case studies. By presenting a reactive 'before' case, as well as several 'after' cases, having different raised levels of proactivity, participants were able to get a better feeling and overview of the requirements and challenges that come along with proactive service design. The principles were presented through an interactive presentation in which each participant had to rate both each individual and the complete set of design principles on a 5-point Likert scale, as well as being able to give written feedback. This method was chosen as this would be more suitable for the group size of the participants.

5.4.2. Main points of feedback

- In general, many small improvements have been made by removing unclear elements such as double negatives and ambiguous words and by improving the structure, meaning and clarity of elements. A. Post (personal communication, December, 11, 2020) addressed that design principles are more inspiring and inviting with the use of an active and positive formulation. Moreover, it was mentioned that the clarity of a principle can be improved by making sure no changes of perspectives occur throughout it. Improvements were made, except for principle 1: Governmental initiative, as the changing perspective and its implications is an essential part of the principle and proactive services.

- A. Post (personal communication, December, 11, 2020) addressed that a service should not only be understandable at the moment of service delivery, but should be accessible and

understandable at a later moment in time as well. Public service delivery could be delivered during life events, which can be emotional for a citizen, such as the passing away of a relative or getting fired from a job. At such times proactive service delivery can be useful and desired, but it can be the case that the citizen will want to know what service delivery processes have happened at a later moment in time, when the citizen is no longer in an emotional state. This is included in principle 6: Understandability.

- H. Weerdesteijn (personal communication, December, 11, 2020) addressed that by applying the design principles on real-life cases of governmental organisations the argumentation and substantiation of the design principles could be improved. Later in the group evaluation session a real-life case was used to better illustrate the potential and challenges of proactive services. However, using the design principles on more cases of governmental service providers could lead to a further improved framework of design principles. This could not be included anymore considering the time frame of this thesis project.

- As the principles were presented one-by-one during the evaluation sessions concerns were raised, which in fact were to be addressed later within design principles that were to be presented. Therefore, it was decided to make 'Citizens are in control' the second principle, instead of the sixth, to make sure concerns that could arise while reading through the principles would be addressed in sooner.

- Existing tensions between different principles were addressed. For example, in the principle: minimization of requested information, it is proposed that governmental organisations only use, exchange and re-use information known at other governmental organisations. This could be conflicting with the citizen being in control, if this would be done behind the back of the citizen. The same could be applicable to gathering customer information for the personalization of services. Although it might seem a conflict could arise, these processes could just as well occur under the control of the citizen. Therefore, although all principles are important, having the citizen in control is more important than the previously mentioned conflicting principles. If the two most important and essential principles would have to be selected, these would be the first two principles in the framework, meaning that while the government takes the initiative, the citizen is always in control. More conflicts could and will most probably arise during the actual use of the framework of design principles. However, it is ultimately always up to the information architects and innovation designers to apply the principles to the requirements and situation of their respective organisations.

- (Ir)Reversibility was addressed. When services are delivered fully proactively and after the citizen is notified, it could be the case that the citizen or service provider realizes a mistake occurred. Therefore it is wise to analyze the reversibility of fully proactive services beforehand. It could for example be wise to state that irreversible decisions or services can only occur after interacting with the citizen, meaning only a lower maximum level of proactivity is achievable. This will however all depend on the possible consequences of a service for the citizen.

5.4.3. Ratings

Table 5.1 below presents the given ratings during the evaluation session with the innovation designers and managers. The criteria were rated on a five-point Likert scale (1-5) both individually as well as for the whole set of design principles. Again, the total number of participants was four, which is a very low number to be able to draw consistent conclusions from the ratings. Nevertheless, the overall average given rating was high (4.5). Of the four criteria, clarity was rated highest. The completeness of the individual principles was rated slightly lower than the other criteria, although the completeness of the overall set of design principles was rated higher. This indicates that while the overall set of design principles is not missing any elements the individual principles could become more complete. This is understandable however, due to the overlapping challenges of proactive services, such as information exchange and consent, which were discussed by the participants. Furthermore, interestingly enough, while the individual principles were rated as very consistent (4.6), the consistency of the overall set of design principles was rated significantly lower (3.4). When looking at the principles minimization of interaction was rated highest (4.8), while minimization of requested information was rated the lowest (4.0).

Overall the usefulness of the individual ratings is meant to be indicative, rather than to be able to draw conclusions from it, due to the low number of participants. The only conclusion that is drawn from the ratings is that the mean of all given ratings based on the four presented criteria was high, which means the feedback was generally positive.

	Clarity	Consistency	Completeness	Usability	Principle mean
1. Governmental initiative	4.8	4.5	4.5	4.8	**4.7**
2. Citizens are in control	4.5	4	3.3	4.8	**4.2**
3. Minimization of interaction	5	4.5	4.8	4.8	**4.8**
4. Minimization of requested information	4.3	4.8	3.5	3.3	**4**
5. Personalized services and delivery	4.3	4.8	4.5	3.5	**4.3**
6. Understandability	5	5	4.3	4.3	**4.7**
Criteria mean	**4.7**	**4.6**	**4.2**	**4.3**	4.5
Total framework of design principles	4.6	3.4	4.5	4.2	4.2

Table 5.1: Overview of ratings of design principles of evaluation session with innovation designers and managers.

5.5. Framework of Design Principles for Proactive Services in the Netherlands

After having evaluated and improved the draft of design principles, the final framework of design principles is presented below. The structure of how the individual principles contribute to proactive services has remained similar to the structure of the earlier presented draft of design principles and can be viewed again in figure 5.4 below.

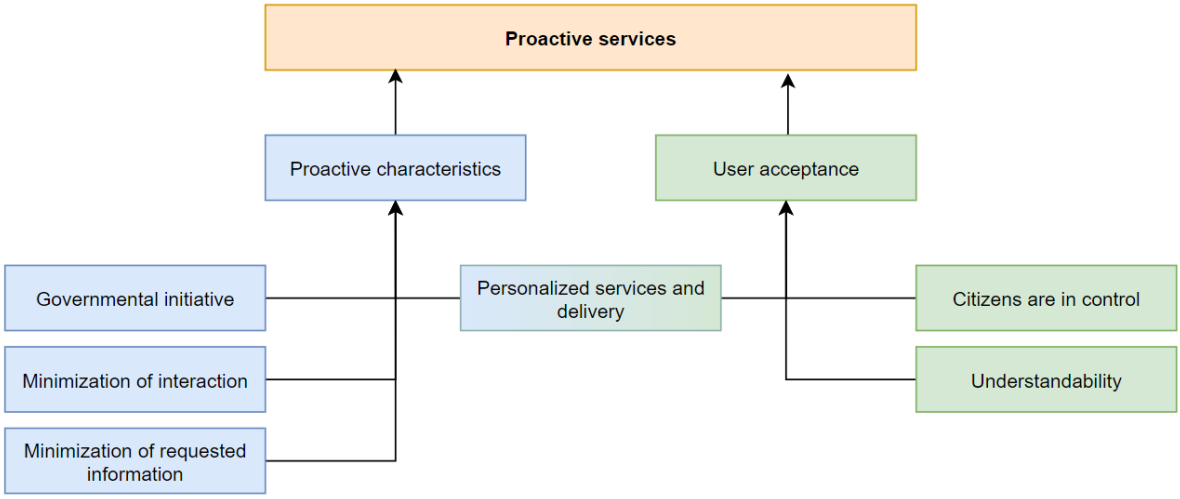

Figure 5.4: Overview and motivation of contributions of design principles.

Name:	Principle 1: Governmental initiative.
Statement:	Governmental organisations take the initiative to provide services to citizens.
Rationale:	More ease of use is experienced as citizens do not have to determine when and how to initiate services themselves, while services can be provided more efficiently by governmental organisations.
Implications:	Governmental organisations actively identify what services are needed when by what target groups or individual citizens and consequently initiate service delivery, recommend services, or provide relevant information to the citizen when eligibility can not be determined completely. This can be achieved both through civil servants or information systems and is applicable to services of other governmental organisations as well.
Incorporates elements derived from:	Case study: AIO - SVB. NORA: MP01: Proactive, DP23: Automatic Delivery, DP24: Offer Proactively. Erlenheim et al. (2020): Principle 2: Proactivity and Once-only principle.

Name:	Principle 2: Citizens are in control.
Statement:	Citizens are in control of the use and exchange of their personal information and can specify their desired level of proactivity.
Rationale:	Forced fully proactive service delivery or exchange of information, without the citizen being in control, can result in privacy issues and service rejection. By enabling citizens to decide the amount of initiative they want to keep themselves or want to give away, citizens are in control, but can enjoy the benefits of (fully) proactive service delivery as well.
Implications:	Every service (situation) has a substantiation of when and why consent is required or not for both the exchange of information as well as the actual (level of proactivity of the) service delivery. Citizens are always able to opt-out and opt back in (fully) proactive services delivery. Fully proactive services are always accompanied with the possibility to opt-out. This means services should be able to be provided along different (lower) levels of proactivity.
Incorporates elements derived from:	NORA: MP01: Proactive. Erlenheim et al. (2020) Principle 4: Possibility to Opt-out.

Name:	Principle 3: Minimization of interaction.
Statement:	The citizens' total number and effort required during interactions with governmental organisations is minimized.
Rationale:	Governmental organisations provide services automatically, without interacting with the citizen, or if this can not be achieved, in a single interaction in which the effort required from a citizen is minimized as well, if possible to a single click of a button. This will increase the ease of use for the citizen.
Implications:	Proactive services require a substantiation of the minimal required amount of interaction. This requires an assessment of all possible consequences for the recipient, (ir)reversibility, stakeholder responsibilities, information quality, individual preferences and desirability. Furthermore, for every service, related and complementary services should be known and (processes of) services should be able to be combined or bundled as this can decrease the total amount of interactions with the citizen.
Incorporates elements derived from:	NORA: DP04: Service Positioning, DP23: Automatic Delivery. Erlenheim et al. (2020) Principle 1: Wholesomeness.

Name:	Principle 4: Minimization of requested information.
Statement:	Citizens are not bothered with unnecessary questions or information requests of information known at other organisations.
Rationale:	Retrieving information from another source than the citizen can possibly result in higher quality information, which can be acquired faster, thereby increasing overall service efficiency. Moreover, will citizens experience more ease of use.
Implications:	Governmental organisations only use, exchange and re-use information known at other governmental organisations and, if applicable for public service delivery, third parties (once only-principle). If necessary, the citizen can be asked to verify the correctness of the information. Eligibility criteria should be simple and based on readily available information. An overview of all information available at other organisations and its sources should be known and continuously updated by all involved organisations.
Incorporates elements derived from:	Case study: VIA - Belastingdienst. NORA: MP07: Essential, DP12: Once only. Erlenheim et al. (2020) Principle 2: Proactivity and Once-only principle.

Name:	Principle 5: Personalized services and delivery.
Statement:	Citizens are provided services tailored to their individual situation, needs and preferences.
Rationale:	Personalized services and personalized delivery increases ease of use and minimizes interaction for citizens.
Implications:	Personalized services can be achieved through bundling and combining of services. This requires interoperability or modular design of (processes of) services. Personalized service delivery is achieved through gathering and sharing customer information by governmental organisations to identify the individual needs and preferences of citizens for which legal and practical implications have been investigated. Note that personalized services are not a requirement for the delivery of (fully) proactive services, but more proactivity can be achieved through it.
Incorporates elements derived from:	NORA: DP20: Personalized Approach. Erlenheim et al. (2020) Principle 5: Personalized and role and situation-centered.

Name:	Principle 6: Understandability.
Statement:	Citizens are able to understand when, how and why services are provided.
Rationale:	Informing and ensuring citizens understand when, how and why services are offered is essential for the acceptance of proactivity as well as a requirement for giving consent and being in control.
Implications:	Transparency of how the proactive offering came to be is required. Citizens should always be informed of triggered services, decisions made and the underlying used and exchanged information. This should be accompanied by an overview of all involved stakeholders, along with their obligations and responsibilities. This should be done in a simple and user-friendly manner and should be able to be accessed and (re)viewed at later moments in time.
Incorporates elements derived from:	NORA: MP06: Transparent, Erlenheim et al. (2020) Principle 7: Transparency.

6

Realization Strategies

Although the framework of design principles has been completed to guide governmental service providers and policymakers how to develop proactive services, different development strategies can be identified for different actors, due to the multidimensional nature of proactive public services and overlapping and interrelated challenges of e-governance. The reliance of proactive services on the exchange of information means its barriers and enablers, such as the AVG and consent of citizens need to be discussed, which is done in this chapter. Moreover, recommendations for further research be given.

6.1. Strategies: Enable more information exchange or reduce required amount of information exchange

Before these different strategies are explained it is important to realize that for proactive services everything (figuratively and literally) starts with the exchange of information, which is restricted by the AVG to ensure the privacy of the citizen. In order to stimulate more proactive service development this means two main strategies can be used:

(1) Enabling more information to be exchanged.

(2) Reducing the amount of information that needs to be exchanged.

(1) Enabling more information to be exchanged

- Modification of existing laws and regulations. (Policymakers)

To create a legal obligation for service providers for individual services (to be provided proactively), governmental organisations are allowed to exchange information in compliance with the AVG if this is necessary to comply with the legal obligations of their respective organisation, such as collection of taxes by the Tax Office. An example is the modified law of municipal debt counseling, which will come into force January 1st, 2021. Information exchange between third party organisations such as housing corporations or energy suppliers and municipalities concerning payment arrears is legally enabled and furthermore, municipalities are now obligated to contact residents proactively in person about their debts at an early stage.[1]

- Incorporate more (optional) personal information in base registers and allow this data to be

[1] NOS. (2020) Gemeenten gaan zelf schulden opsporen om huisuitzettingen te voorkomen. Retrieved from: https://nos.nl/artikel/2362390-gemeenten-gaan-zelf-schulden-opsporen-om-huisuitzettingen-te-voorkomen.html

used both reactively as well as proactively. (Policymakers)

For example, for the provision of the National Old Age Pension (AOW) by the SVB, only a small amount of information is required and eligibility can be determined easily due to the age-dependency of the service. Currently, the SVB is only allowed to check the correctness of information after this has been submitted by citizens, instead of gathering this themselves beforehand.

• Enable the citizen to consent and opt-in. (Policymakers, service providers, citizens) Compliance with the AVG can be achieved by giving citizen the possibility to give their consent, or 'opt-in' to proactive service delivery, just like the example of *"ProactiveSpace"* that is proposed by Erlenheim (2019) and has been discussed in chapter 3: Analytical Framework. This could be done government-wide, in an environment such as mijnoverheid.nl, sector or service-specific data exchange (eco)systems, or through systems of individual governmental organisations. Not only the environment has to be determined, but as well to for what consent is given. Citizens could consent to specific individual types of information to be exchanged, consent to all information required for specific services, governmental organisations, or specified life events. Enabling citizens to understand to what they are consenting is required here. An 'I agree to all' button, such as known in private organisations, is therefore not an option. Moreover, it would be wise to enable citizens to choose their desired level of proactivity.

Citizens could not only be enabled to consent to information exchange, but could as well specify their preferences or (future) needs for example. By doing so, the problem of the ever-present trade-off between ease of use and privacy, which is applicable to both proactive services as well as in many other cases in today's society, would be solved by enabling citizens to make that trade-off for themselves, instead of it being done for them. Identifying how this could be done best will overlap with developments towards data exchange (eco)systems and or a self sovereign identity, but it would be interesting for further research to investigate how proactivity could be enabled in such environments or identify what environment would be most suitable.

• Enable third parties to exchange information and initiate service delivery or allow citizens to enable these third parties. (Policymakers, service providers, citizens)

For example, in the AIO case the innovation lab of SVB, NOVUM, is investigating whether under the new Payment Service Directive 2 (PSD2), citizens could enable the SVB to acquire their required banking information for them. Other examples are authorizing and allowing hospitals to register born children, as is currently done in Austria and Estonia. An example of this that is currently applied in the Netherlands is that (often) funeral directors inform the municipality of the passing away of a citizen.

(2) Reduce the amount of information that needs to be exchanged

• Modifications of existing laws and regulations.

Simplification of eligibility criteria and required information of services. This would make proactive service offering easier.

Services and policies could be designed bottom-up using an informational perspective. By exclusively basing service and policy design on information that is readily available and exchangeable within governmental organisations proactive service delivery could be enabled. Such *bottom-up informational proactive policy design* could be used to align the interests of policymakers and service providers by providing high-quality services, which are easily executable and feasible as well.

An example of this is practical example #4, Tuition Fee Refund COVID-19 by DUO, which aims to compensate students that experienced study delay because of COVID. Instead of identifying for each individual student whether study delay was experienced, it was chosen to compensate all students that obtained their degree within a specific time frame, as this information would always be known at DUO and a fully proactive service could be developed quickly. However, this means even students who did not experience study delay will receive the compensation. It can be observed a trade-off exists here between fairness and executability. Moreover, as always with public services, economic factors of the different options will play a role here.

Another example is practical example #3, Study loan repayment by DUO, where the amount of repayment is determined and adjusted automatically based on the income data of a citizen two years before. This enables full proactivity, but ideally this would be based on the actual income of a citizen. As income of citizens is expected to increase this is beneficial for the citizen. In case of a lowering of income, the citizen can indicate an adjustment is needed themselves.

- Use of privacy-enhancing technologies.

Privacy-enhancing technologies could help identify citizen eligibility or identify signals to initiate service delivery, without having to exchange the actual personal information of a citizen. An example is the income test of the housing cooperative pilot discussed in chapter 4: Exemplary cases & Case studies. Furthermore, such solutions could help in proactively identifying citizen eligibility without having to exchange the actual personal information of a citizen. As this exchange of information can not always occur as it is bound by purpose limitation as discussed in appendix A: Dutch Governmental Reference Architecture (NORA) principles, such solutions could help to identify citizen eligibility for a specific service, after which information can be exchanged for that specific service, or the citizen can be asked for consent if required. It is however questionable whether such solutions can really be beneficial or are merely workarounds of existing regulations that will inevitably have to be addressed in order to enable more proactive service development.

6.2. Recommendations

Overall, if the most effective strategies would have to be selected for the development of more proactive services this would have to be to enable the citizen to give their consent for the exchange of (more) information and bottom-up proactive policy design.

Ideally, the citizen is in control over his personal information and about what can be done with that information. Therefore a citizen should be able to choose their desired level of proactivity and the amount of initiative it wants to keep and give away. For example, citizens could be presented the option of deciding between being provided fully proactive services (E5+D5), click-of-a-button services (E5+D4), where citizens still can accept or deny offered services, only being recommended services (E4+D1), or keep all initiative to themselves with reactive services (E2+D1).

It is however clear that developments towards data exchange (eco)systems or a self-sovereign identity will affect or enable possibilities for proactive services. In the context of proactive services it is important that in these systems citizens do not only enable citizens to share their information only once, but enable citizens to consent to future use of their information by governmental organisations for proactive purposes. Ideally, the citizen could specify their desired levels of proactivity of what could be done with that information. A centralized place where citizens could exchange their personal data to multiple governmental organisations would be most sensible from the perspective of proactive services as these should

already be developed from the perspective of citizens.

Furthermore, developments regarding how public services themselves are structured and designed will affect possibilities for proactive service design. For example, the Dutch cabinet has stated its successor, which still is to be elected, should fundamentally reform the benefits system, which currently is too complex.[2] It would be interesting to investigate if and how proactivity could best be incorporated.

By developing services from a proactive informational perspective, recent conflicts between policymakers and service providers as discussed in chapter 1: Introduction could be solved, as citizens are offered the high-quality services as promised to them, but at the same time are feasible and executable for service providers. Of course, this process will be made easier by enabling more information to be exchanged by modifying laws and policies or enabling the citizen to consent to more exchange of information. By developing services in such ways the question arises whether it is actually desirable to let policies be designed based on available information, instead of what would be most fair or desirable for citizens. These moral and ethical values will have to be balanced with the economic benefits of this method. Whether this is an actual outcome will be different for different services and making such decisions in which these different values should be balanced is ultimately up to the policymakers.

6.3. Chapter conclusion

Proactive services can be realized by applying the design principles developed in chapter 5: Design Principles. However, other strategies could stimulate the development of more proactive services as well. For example by enabling the citizen to consent to the exchange of their personal information for proactive purposes or by designing public policies and services bottom-up to be solely based on readily available and exchangeable information. The development of more proactive services will be influenced by current developments that enable citizens to exchange their personal information. From the perspective of proactive services it is important that in these developments citizens are not only enabled to share or use their information only once, but can consent to future exchange of their information for proactive purposes, or 'opt-in' to proactive service delivery. Ideally, the citizen could not only consent or not, but could select their preferred level of proactivity as well. For example, a citizen could choose for fully proactive service delivery (E5+D5), always be able to accept or deny services (E5+D4), only being recommended services (E4+D1), or keep all initiative to themselves with reactive service delivery (E2+D1). By doing so, the problem of the ever-present trade-off between ease of use and privacy, which is applicable to both proactive services as well as in many other cases in today's society, would be solved by enabling citizens to make that trade-off for themselves, instead of it being done for them. However, in general, the more initiative a citizen wants to keep themselves, the lower the maximum level of proactivity possible.

To summarize and answer subquestion 3: *What strategies can be used to stimulate proactive service development?* If service providers want to raise the level of proactivity of one of their services the design principles developed in chapter 5: Design Principles could be used. However, to stimulate the development of proactive services government-wide more, the different strategies mentioned in this chapter could be investigated and used by policymakers and service providers. Addressing governmental information exchange and enabling the citizen to

[2] Rijksoverheid. (2020) Kabinet presenteert voorstellen voor hervormingen toeslagen. Retrieved from: https://www.rijksoverheid.nl/actueel/nieuws/2020/12/14/kabinet-presenteert-voorstellen-voor-hervormingen-toeslagen

consent are perquisites for developing proactive services on a government-wide scale. At this moment in time proactive services can already be developed by service providers individually or through cooperation with (several) other service providers. However, to really stimulate the development of more proactive services a more centralized approach and cooperation between policymakers and service providers is required.

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7

Conclusion

In this chapter the conclusion will be presented. Furthermore, the limitations, recommendations and research opportunities of this thesis will be presented.

7.1. Conclusions

Proactive public services have the potential to raise the quality of digital public service delivery. Citizens can experience more ease of use and governmental service providers can deliver their service more efficiently and inclusive. Proactivity is about moving the initiative from the citizen to the government and can be incorporated in many different ways in public services. Fully proactive public services have proactivity incorporated in them to a degree where, without the request, but with the consent of a citizen, these are delivered automatically to a citizen.

Fully proactive services are not always possible or desired. Some public services are more suitable for the incorporation of proactivity than others, due to their characteristics or user acceptance. Different public services will have different desired levels of proactivity in different situations or for different citizens. No one-size-fits-all solution will be applicable. However, most public services can benefit from the incorporation of proactivity and moderate levels of proactivity can be achieved through the minimization of effort that is required from citizens during the entire service delivery process. Whenever governmental organisations can not fully determine a citizen's eligibility, or deliver a service themselves, citizens can be assisted in these processes through proactive information provision and minimization of the amount of information and interaction that is requested from a citizen. Ultimately the amount of effort that is requested from a citizen during these two processes, the *eligibility process* and the *delivery process*, will determine the level of proactivity of a public service.

Although not all services can become fully proactive services, several indications can be given for their suitability of proactivity based on certain service characteristics. First of all, whether a service has the ability to become a (fully) proactive service will depend on whether a service can be triggered and delivered without (or with minimal) involvement of the citizen. This will often decrease as service complexity increases. Furthermore, suitability of proactivity does not only depend on achievability, but on desirability as well. The maximum achievable level of proactivity will be dependent on the level of initiative a citizen will want to keep or give away to the government regarding their personal information and service delivery. Moreover, will this depend on certain service characteristics.

Fully proactive services (E5+D5) can be suitable for services which are compulsory, have clear eligibility criteria, and have no negative consequences for citizens (Scholta & Lindgren,

2019). Fully proactive services can however be rejected by citizens for services which use sensitive personal information. Services that are rights and require the expression of will of a citizen therefore require interaction. This means their maximum level of proactivity will be (E5+D4), which are click-of-a-button services. For services that could have negative consequences for the citizen this interaction could present the ability for citizens to take responsibility for the correctness of the used information and to accept the possibility for these negative consequences to occur. For example, in the case study of the pre-completed tax return (VIA) (E5+D3) of the Tax Office (Belastingdienst) in chapter 4: Exemplary cases & Case studies, citizens check and if necessary complement the pre-filled information of their tax return and take the responsibility for its correctness.

Besides the aforementioned core elements of proactive services, several interesting additional elements can be incorporated to enable or stimulate more proactivity, such as life event orientation, predictivity, personalization or bundling and combining of services, but it must be noted that these are not essential for achieving (fully) proactive services.

Currently in the Netherlands only few fully proactive services exist, however proactivity is incorporated in different ways for different reasons. The case studies have shown that acting proactively can ensure in a higher quality of information by acquiring information directly from a source instead of asking a citizen, but could increase efficiency and inclusivity of services as well, by reducing or even removing application times and proactively reaching out and delivering services to all citizens who are eligible to receive a service.

Proactive service development is a multidimensional challenge. Governmental service providers and policymakers can develop proactive services by applying the design principles developed in chapter 5: Design Principles, which state that proactive services can be achieved through governmental initiative and the minimization of interaction and information requested from the citizen. Moreover, for proactive services to be desired and accepted by citizens, it must be ensured that citizens are able to understand and be in control of these services and their personal information, which is an aspiration of the Dutch government as well. Personalization of services and service delivery can help in both of these instances.

However, other different strategies can be identified for stimulating the development of more proactive services. Since proactive services are heavily dependent of information exchange, enabling more information exchange, or reducing the information that needs to be exchanged for public service delivery will stimulate proactive service development. This can for example be done by modifying existing laws and regulations to enable information exchange for proactive purposes, enabling the citizen to consent to the required information exchange or by designing policies and services and their eligibility criteria to be solely based on the readily available and exchangeable information. Such bottom-up informational proactive policy design could contribute to a solution for existing tensions between policymakers and service providers, where promises made by policymakers can be delivered in an efficient, but even more important, executable and feasible way. This will require making political and ethical decisions and trade-offs, which are not investigated in-depth in this thesis.

Moreover, the dependency of information exchange means that proactive service development is subjected to developments and decisions made regarding to how information exchange is or will be enabled in the Netherlands in the future. In the context of (fully) proactive services, enabling the citizen to share their personal information themselves manually only once is insufficient, as the citizen should be enabled to consent or 'opt-in' to (future) information exchange for proactive purposes as well.

Ultimately, (fully) proactive services are promising and could contribute to a solution for existing tensions between policymakers and service providers in the Netherlands by achieving services which are desired by citizens, but are efficient and executable for governmental service providers at the same time. This will only be applicable for certain services in certain scenarios. Proactive public services can be achieved through the use of the framework of design principles developed in chapter 5: Design Principles and strategies proposed in chapter 6: Realization Strategies. Again, it must be remembered that different public services, situations and citizens will desire different levels of proactivity. Therefore experimentation and continuous sharing of knowledge and lessons learnt will be important, which could take place or be enabled by the Digicampus.

7.2. Contributions

This thesis has developed an analytical framework to be able to classify and understand the different levels of proactivity of public services in the Netherlands. Furthermore, as the main contribution of this thesis a framework of design principles for the development of proactive services in the Netherlands has been developed. Moreover, different realization strategies and recommendations for further research have been given.

7.3. Limitations

Originally, it was planned to develop a mock-up of a specific case to be able to visualize what proactive services would like from the perspective of the citizen. This was not done due to lack of a specific case and lack of necessity. As a fully proactive service would require no interaction with the citizen, a visualization from the perspective of the citizen would be limited to the complementary provision of information of that service to the citizen or the visualization of how citizens could consent to or 'opt-in' proactive service delivery. The latter would be interesting to visualize, especially government-wide. What such environment would look like to enable proactive services will be dependent on other factors and design choices regarding data exchange (eco)systems, which are not investigated in this thesis.

Furthermore, it was initially planned to investigate more than two case studies. More case studies of services of governmental service providers would give a broader understanding of the different and overlapping goals and values of the different actors in the Netherlands.

(Policy) Realization strategies were proposed. These should be seen as exemplary to describe an interesting (proactive) perspective. No validation with practitioners has taken place for these recommendations, nor does the author of this thesis possess the expertise regarding policy development to be fully aware of all (legal) requirements.

Furthermore, the scope of this thesis was limited to services provided at citizens, without specifically investigating services provided to businesses, which could have differences, as less personal information has to be exchanged. For example, investigating cases such as grants or permits in the context of proactivity could be interesting.

The application of the framework of design principles in practise during the actual development of a proactive public service would contribute to further improvements as well as could help to further identify and specify what types of services, situations or target groups are most suitable for proactive service provision. Furthermore, due to the wide nature of public service delivery, improvements could be made by evaluating the framework with more participants from a wider range of governmental organisations.

User acceptance of proactive services was not investigated empirically, which is considered to be a research opportunity and will require making ethical trade-offs which is discussed in the next section.

7.4. Ethical issues

The importance of user acceptance of proactive services was addressed by always having citizens in control and ensuring understandability. By having citizens in control of their information exchange and specifying their desired level of proactivity themselves, a citizen can determine the amount of initiative it wants to keep or give away to the government. Thereby, the citizen is in fact enabled to make the existing society-wide trade-off between ease of use and privacy themselves. However, how this could be enabled best, or whether this would actually achieve user acceptance was not investigated empirically in this thesis. Further research could investigate this. Through the involvement of citizens, other stakeholders and their values on a real-life case, these ethical issues and challenges, along with the trade-offs addressed in chapter 1: Introduction can be investigated more in-depth.

Several questions could be investigated. When do citizens enjoy ease of use, or find proactivity intrusive? When do citizens accept information exchange for proactive purposes or when do citizens demand more privacy? When do citizens want or need to be self-reliant or when is governmental assistance desired? Furthermore, as proactive service will not be suitable for all public services, how will this affect the uniformity of government-wide service provision and expectations of citizens? These are several ethical issues and challenges that will give more understanding of how to develop and design proactive services. However, again, no one-size-fits-all solution will be applicable and therefore experimentation and continuous sharing of knowledge and lessons learnt will be important, which could take place or be enabled by the Digicampus.

7.5. Recommendations & research opportunities

Proactive service can be made very complex. Life event orientation, predictivity, personalization or bundling and combining of services can all be incorporated in proactive services, although this is not necessarily required for the development of a proactive service. Of these, life event orientation of public services is seen to be most useful to enable more proactive services and developments in the Netherlands should continue and take the different levels of proactivity into account at the same time. Due to the multi-dimensional nature of proactive services more experimentation with specific real-life cases and applications will be interesting.

Fully proactive services can currently be developed individually by (collaboration of) governmental organisations in certain specific cases and scenarios. For example, this is most applicable and suitable for simple public services, which only require readily available information to be exchanged, through which eligibility can be determined with certainty and having no negative consequences for the recipient. Practical example #4: Tuition Fee Refund COVID-19 - DUO, is a perfect example of this. However, to really enable proactive service development government-wide, several overlapping issues regarding e-governance must be addressed first. The reliance of proactive services on the exchange of information means (intra-)governmental information exchange, and because of this consent and interoperability, will most often be prerequisites for government-wide proactive service development. To really stimulate proactive service development, modifications of existing laws and regulations are required or citizens must be enabled to give their consent through environments such as data exchange (eco)systems or a self sovereign identity. While in this thesis it is proposed to enable citizens to be in control and determine the amount of initiative they want to keep themselves, or give away to its government, it is not investigated in-depth how or where this should optimally take place. How proactive services can be enabled in such environments or vice versa could be investigated in further research.

Furthermore, the different proposed (policy) strategies could serve as a basis for further

research as well. For example, it would be interesting to determine the desirability, ethical and political consequences of *bottom-up informational proactive policy design* by developing or modifying policy to be solely based on readily available information.

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A

Dutch Governmental Reference Architecture (NORA) principles

The 10 main principles are: *Proactive, Findable, Accessible, Standard, Bundled, Transparent, Essential, Confidential, Reliable and Receptive.*

Three of these principles specifically address important elements of proactivity and are therefore discussed below. *Bundled* and *Essential* both achieve minimization of interaction with the citizen and therefore a reduction in required effort. *Proactive* itself is obviously analyzed as well. Other main principles are applicable as well. *Transparent*, *Confidential*, and *Reliable* achieve more user acceptance for example (add sources). However this chapter focuses on the principles that address the variables that determine the level of proactivity of a service, like in the analytical framework. Firstly the main principle is discussed, followed by its related derived principles.

Main Principle 01 - Proactive
Interestingly, the very first of the main principles is called proactive and is achieved by three derived principles as can be seen in figure **??**. Its meaning is that service providers should take the initiative to inform recipients if it can be determine from available information that this is of importance for that recipient. If possible the service is provided automatically. This is done to enhance the ease of use for the recipient as it does not have to check when it has to act themselves. Moreover it is mentioned if no input of the recipient is required the process can be completed unilaterally. Lastly, it states that the recipient always remains in control, but no further guidance or explanation is given of what control entails or how it should be achieved.

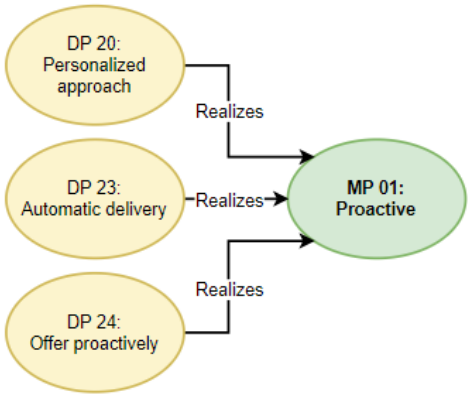

Figure A.1: NORA Main Principle 01 - Proactive & related Derived Principles

Overall, a thorough understanding of the recipients, necessary information and the available at other organisations is required.[1]

Derived principles of Main Principle 01 - Proactive: Personalized approach, Automatic delivery, & Offer proactively

The main principle *Proactive* is realized by using a personalized approach, automatic delivery and proactive offering of (complementary) services.

A personalized approach can be enabled by developing a single customer view in which (previous) customer information is stored to determine the specific needs and preferences of that customer. This can consequently be utilized to deliver services along these needs and preferences and can be shared with and updated by other service providers.[2] Automatic delivery, without the request of a recipient, can occur after signals have presented itself that a specific recipient needs a service. These signals do not have to originate from within the organisation, but can originate from other organisations as well. Therefore, for each service it must be determined how and when automatic delivery is desired and what signals can trigger the automatic service delivery.[3] Lastly, a service should support proactivity of both the owner of the service as well as other service providers. Service providers should creatively identify needs of recipients to be able to offer other other services of both themselves as well as from other service providers. Proactive service delivery should balance between fulfilling the needs of recipients and both self-reliance and patronization. It must be determined for which target groups in what situations proactive services are desired, what signals will trigger the delivery, which related services are offered. Moreover, should service providers assess with which other service providers recipients are dealing with and whether information can be provided to them, which can be used as a trigger.[4]

Analysis

The derived principles address the main characteristics of proactive service delivery and achieve ease of use for the citizen. However, it must be stated that the personalized approach is not necessarily required for the implementation of a fully proactive service (voorbeeld?). The personalized approach however helps identify which citizen desires which level of proactivity. However the focus of the derived principles is on achieving the main characteristics of proactive

[1]NORA. (2019) Proactief. Retrieved from: https://www.noraonline.nl/wiki/Proactief
[2]NORA. (2019) Persoonlijke benadering. Retrieved from: https://www.noraonline.nl/wiki/Persoonlijke_benadering
[3]NORA. (2019) Automatische dienstverlening. Retrieved from: https://www.noraonline.nl/wiki/Automatische_dienstverlening
[4]NORA. (2019) Proactief aanbieden. Retrieved from: https://www.noraonline.nl/wiki/Proactief_aanbieden

services that aim for the minimization of effort of a citizen.
For each service it must be determined, when automatic delivery is desired, what this automatic delivery entails and what signals can trigger it. This does not only have to be determined for each service, but as well for each target group and different situation of that service. Moreover, for each individual citizen preferences must be taken into account and a single customer view must be developed. It can be observed identifying when proactivity is desired requires analyzing and knowing both the service as well as the citizen on different levels. Moreover, for every service it must be determined which related or complementary services can be offered or redirected to by civil servants. It is mentioned a trade-off exists here where a balance must found between fulfilling needs of recipients and both self-reliance and patronization.[5,6] Moreover, in the main principle it is mentioned that although the service should be provided automatically if possible, the recipient must always remain in control. However, what this control entails, or how it should be achieved is not described. More guidance is desired here. Furthermore it becomes clear that individual solutions are desired. And although personalization is not necessarily required for providing fully public services, since the service must be provided in different ways for different citizens, this automatically means personalisation is should be achieved. Therefore, it can be said that although personalization is not always a strict requirement, it is necessary for the implementation of proactivity.

Main Principle 05 - Bundled
This main principle states that services that are connected from the perspective of the citizen, should be offered bundled together to the recipient so it perceives these as a single service. This requires thinking from the perspective of the recipient and cooperation between service providers and can be centred around life events, themes or target groups.[7] By offering services together (complementary) services can be offered proactively to citizens, who otherwise would have to request each service individually.

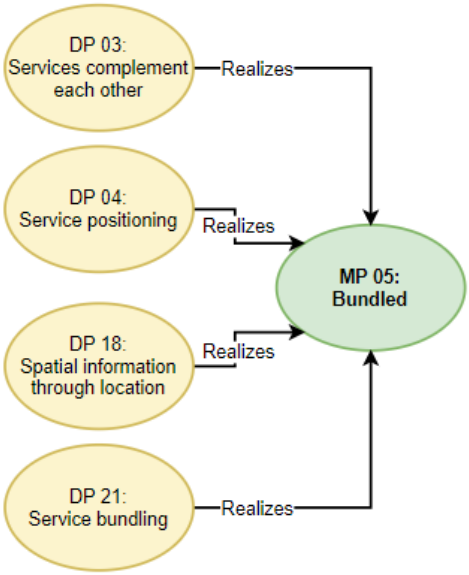

Figure A.2: NORA Main Principle 05 - Bundled & related Derived Principles

Derived Principles of Main Principle 05 - Bundled: Services complement each

[5]NORA. (2019) Proactief aanbieden. Retrieved from: https://www.noraonline.nl/wiki/Proactief_aanbieden
[6]NORA. (2019) Automatische dienstverlening. Retrieved from: https://www.noraonline.nl/wiki/Automatische_dienstverlening
[7]NORA. (2019) Gebundeld. Retrieved from: https://www.noraonline.nl/wiki/Gebundeld

other, service positioning, spatial information through location and service bundling
The main principle *Bundled* can be achieved by having services complement each other, clear service positioning, making spatial information available and service bundling itself. Services should complement each other and do not overlap. Overlapping services can create confusion for citizens and decrease governmental efficiency. Cooperation between governmental organisations is required to align services to avoid governmental organisations committing resources for the same cause and enables them to focus on their own unique services.[8] Furthermore should services be positioned clearly in the entire governmental service offering, by describing, communicating and making the service accessible within the context of the entire governmental service offering. This means relevant groups of services are identified, for example based on the type of service, life events, target groups or location. Moreover, should its channels be clear and its relations with other services be described.[9] At the service registry Digikoppeling an overview can be found of all services which governmental organisations can utilize through Digikoppeling, which is a set of standards and agreements that enables data exchange between (governmental) organisations.[10,11] Services should make spatial information available as well. This enables the re-use of services and can be used as a basis for proactive services.[12] Lastly, services should be bundled with related services so these can be offered in a single interaction. A service should be able to be combined in different ways, situations, and in different combinations of services in order to increase ease of use and decrease costs. This can be done easily by combining information.[13]

Analysis
Although this is not mentioned specifically, by bundling services together proactivity can be achieved as the citizen is assisted by the offering or combination of related services. Moreover, it becomes clear as well that (processes of) services should be able to be combined and complement each other. Developing (processes of) services in a modular way can enable more personalized services that can minimize the effort that is required from a citizen.

Main Principle 07 - Essential
Service providers make information available to be used by themselves and other service providers, so no unnecessary questions are asked to recipients. Furthermore should procedures and regulations be simplified, so recipients have to provide as little information as possible. Practical example #4 Tuition Fee Refund COVID-19 - DUO is a good example of this.

[8]NORA. (2019) Diensten vullen elkaar aan. Retrieved from: https://www.noraonline.nl/wiki/Diensten_vullen_elkaar_aan
[9]NORA. (2019) Positioneer de dienst. Retrieved from: https://www.noraonline.nl/wiki/Positioneer_de_dienst
[10]Logius. (n.d.) Standaarden. Retrieved from: https://logius.nl/diensten-van-logius/standaarden
[11]NORA. (2016) Serviceregister Digikoppeling. Retrieved from: https://www.noraonline.nl/wiki/Serviceregister_Digikoppeling
[12]NORA. (2019) Ruimtelijke informatie via locatie. Retrieved from: https://www.noraonline.nl/wiki/Ruimtelijke_informatie_via_locatie
[13]NORA. (2019) Bundeling van diensten. Retrieved from: https://www.noraonline.nl/wiki/Bundeling_van_diensten

Practical example #4: Tuition Fee Refund COVID-19 - DUO

Summary: The Dutch government partly compensates the tuition fees of students that are delayed due to COVID-19. This is done fully proactive. Students who were enrolled in a study programme in 2019-2020 & 2020-2021 who, just like the author of this thesis, achieve their degree between the 1th of September 2020 and the 31th of January 2021 receive a compensation of 3 months of tuition fees by DUO.[a]
Level of proactivity: Fully proactive (E5D5).
Points of interest:
- Simple and clear eligibility criteria enable a fully proactive service. It is assumed this was purposely chosen to keep the service simple and enable quick development.
- Proactive service developed to execute new regulations.

[a]DUO. (n.d.) Maatregelen corona. Retrieved from: https://duo.nl/particulier/corona/tegemoetkoming-voor-studenten-vanwege-corona.jsp

This requires cooperation and agreements between service providers. Pre-filling forms is with already available information is an example of how this can be achieved.[14] Since proactive services require information exchange and aim for the minimization of both information and interaction requested from a citizen, it is useful to discuss this main principle as well.

[14]NORA. (2020) Noodzakelijk. Retrieved from: https://www.noraonline.nl/wiki/Noodzakelijk

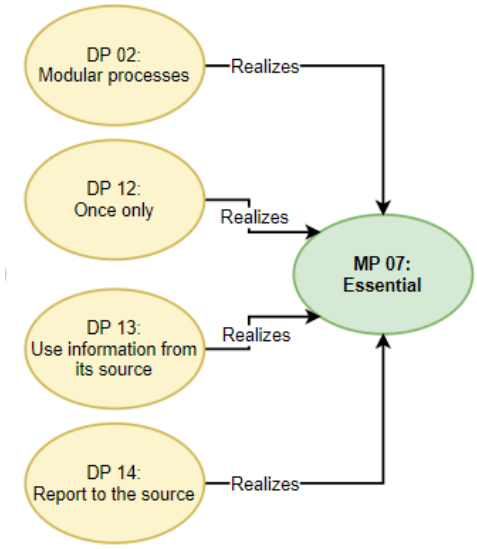

Figure A.3: NORA Main Principle 07 - Essential & related Derived Principles

Derived Principles of Main Principle 07 - Essential: Modular processes, Once only, Use information from its source, Report to the source

The main principle *Essential* is achieved through modular processes, use of the once only principle, use of information from its source and ensuring a high quality of information by reporting back to that source.

Internal processes of service should be able to be made available for other organisations to be re-used.[15] Citizens should only have to submit information once, after which it is re-used. This means that for each service an overview should exist of all required information, whether that information is already known at the government and what its source is.[16] All used information should originate from the source where it is captured for the first time to ensure information correctness. Therefore, for all information objects a unique defined source and owner must be determined.[17] Possible incorrect information should be reported to the source to ensure a high quality of information. The owner of the source should consequently verify the correctness of the information.

Analysis

The essential principle is applicable to the underlying information required for a service. Not only should information be re-used but for all services an overview should exists of what information is both available as well as required within a governmental organisation. This is essential for proactive services as well. Furthermore aims the principle at raising the quality of the information, which is also essential for the provision of proactive services, as incorrect information could have bigger consequences and undesired outcomes if services are provided based on that incorrect information.

Other important derived principles Although only the derived principles contributing to the three most important main principles for proactive services have been discussed, more derived principles are relevant within the context of proactive services. These are discussed below.

[15]NORA. (2020) Ontkoppelen met diensten. Retrieved from: https://www.noraonline.nl/wiki/Ontkoppelen_met_diensten
[16]NORA. (2019) Eenmalige uitvraag. Retrieved from: https://www.noraonline.nl/wiki/Eenmalige_uitvraag
[17]NORA. (2019) Bronregistraties zijn leidend. Retrieved from: https://www.noraonline.nl/wiki/Bronregistraties_zijn_leidend

Derived Principle 15 - Purpose Limitation
Purpose limitation means that information can only be used for the initial goal for which it has been initially acquired. When information is re-used it must be checked whether the goal of its re-use is in line with its initial goal. This is required for compliance with the AVG.[18] This means not all information can be shared by governmental organisations without the involvement of the citizen as its permission is required somehow if compliance with the AVG can not be achieved in another way.

Derived Principle 27 - A responsible organisation
Ultimately only one organisation should be responsible for a service, so it is clear for citizens, businesses and governmental parties who can be approached regarding the service. In the case of bundled services in which services are offered together it should be clear which party is responsible for which of the bundled services.[19] The same is required regarded to proactive services. As proactive services get more interconnected and dependant of multiple governmental organisations, responsibility should always lie with one organisation, so citizens know what organisation can be approached if desired.

[18]NORA. (2019) Doelbinding (AP). Retrieved from: https://www.noraonline.nl/wiki/Doelbinding_(AP)
[19]NORA. (2019) Een verantwoordelijke organisatie. Retrieved from: https://www.noraonline.nl/wiki/Een_verantwoordelijke_organisatie

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B

Draft of Design Principles

This appendix contains the draft of design principles, which was used as a starting point for the evaluations. The draft below contains no feedback or improvements. How the draft of design principles came to be can be read in chapter 5.

Name:	Principle 1: Governmental initiative.
Statement:	No initiative is required from citizens to consume services.
Rationale:	More ease of use is experienced as citizens do not have to determine when and how to initiate services themselves. Governmental organisations deliver services to eligible citizens to fulfill their needs and decrease application times.
Implications:	Governmental organisations should actively identify when what services are desired by what target groups or individual citizens. Either specific services are delivered, recommended, or relevant information is provided proactively when eligibility can not be determined completely. This can be achieved both through civil servants or information systems and is applicable for public services of other (governmental) organisations as well.
Incorporates elements derived from:	Case study: AIO - SVB. NORA: MP01: Proactive, DP23: Automatic Delivery, DP24: Offer Proactively. Erlenheim et al. (2020): Principle 2: Proactivity and Once-only principle.

Name:	Principle 2: Minimization of interaction.
Statement:	The total amount of interaction is minimized from the point of view of the citizen.
Rationale:	Governmental organisations provide services automatically, without interacting with the citizen or if this can not be achieved in a single interaction in which the effort required from a citizen is minimized as well, possible to a single click of a button. The total amount of interaction can be minimized by combining or bundling services from other governmental organisations together.
Implications:	For every service, related and complementary services should be known and (processes of) services should be able to be combined or bundled.
Incorporates elements derived from:	NORA: DP04: Service Positioning, DP23: Automatic Delivery.

Name:	Principle 3: Minimization of requested information.
Statement:	Governmental organisations only use, exchange and re-use information known at other governmental organisations and third parties if applicable (once only-principle).
Rationale:	Citizens are not bothered with unnecessary questions or information requests of information known at other organisations. Higher quality information can be acquired faster, thereby increasing overall service efficiency.
Implications:	Eligibility criteria should be simplified and based on available information. An overview of all information available at other organisations and its sources should be known and continuously updated by all involved organisations.
Incorporates elements derived from:	Case study: VIA - Belastingdienst. NORA: MP07: Essential, DP12: Once only. Erlenheim et al. (2020) Principle 2: Proactivity and Once-only principle.

Name:	Principle 4: Personalized services and delivery.
Statement:	Governmental organisations provide services based on the individual situations and preferences of a citizen.
Rationale:	Personalized services increase ease of use and minimize interaction for citizens and will be experienced less intrusive.
Implications:	Personalization of services is achieved through bundling and combining services. This requires interoperable and modular design of service processes. Personalization of service delivery is achieved through gathering and sharing customer information to identify the individual needs and preferences of citizens. Note that personalization is not a requirement for the delivery of fully proactive services, but more proactivity can be achieved through it.
Incorporates elements derived from:	NORA: DP20: Personalized Approach. Erlenheim et al. (2020) Principle 5: Personalized and role and situation-centered.

Name:	Principle 5: Citizens remain in control.
Statement:	Citizens should be able to remain in control of (the exchange of) their personal information as well as decide their desired level of proactivity.
Rationale:	Forced fully proactive service delivery or exchange of information without the citizen being in control can result in service rejection.
Implications:	For every service (situation) a substantiation is required of why and when consent is required or not required for both the information exchange as well as the actual (level of proactivity of the) service delivery. Citizens can always opt-out and opt back in (fully) proactive delivery. This will ensure citizens remain in control, but can enjoy the benefits of fully proactive service delivery as well. Fully proactive services are always accompanied with the possibility to opt-out. This means services should always be able to be provided with lower levels of proactivity.
Incorporates elements derived from:	NORA: MP01: Proactive. Erlenheim et al. (2020) Principle 4: Possibility to Opt-out.

Name:	Principle 6: Understandability.
Statement:	Citizens should be able to understand how and why services are provided in a simple manner.
Rationale:	Informing and ensuring citizens understand when, how and why services are offered is essential for the acceptance of proactivity as well as a requirement for giving consent.
Implications:	Transparency of how the proactive offering came to be is required. Citizens should always be informed of triggered services, decisions made, the underlying (exchanged) information that resulted in the decisions made, accompanied with all involved stakeholders, along with their obligations and responsibilities. This should be done as simply as possible.
Incorporates elements derived from:	NORA: MP06: Transparent, Erlenheim et al. (2020) Principle 7: Transparency.