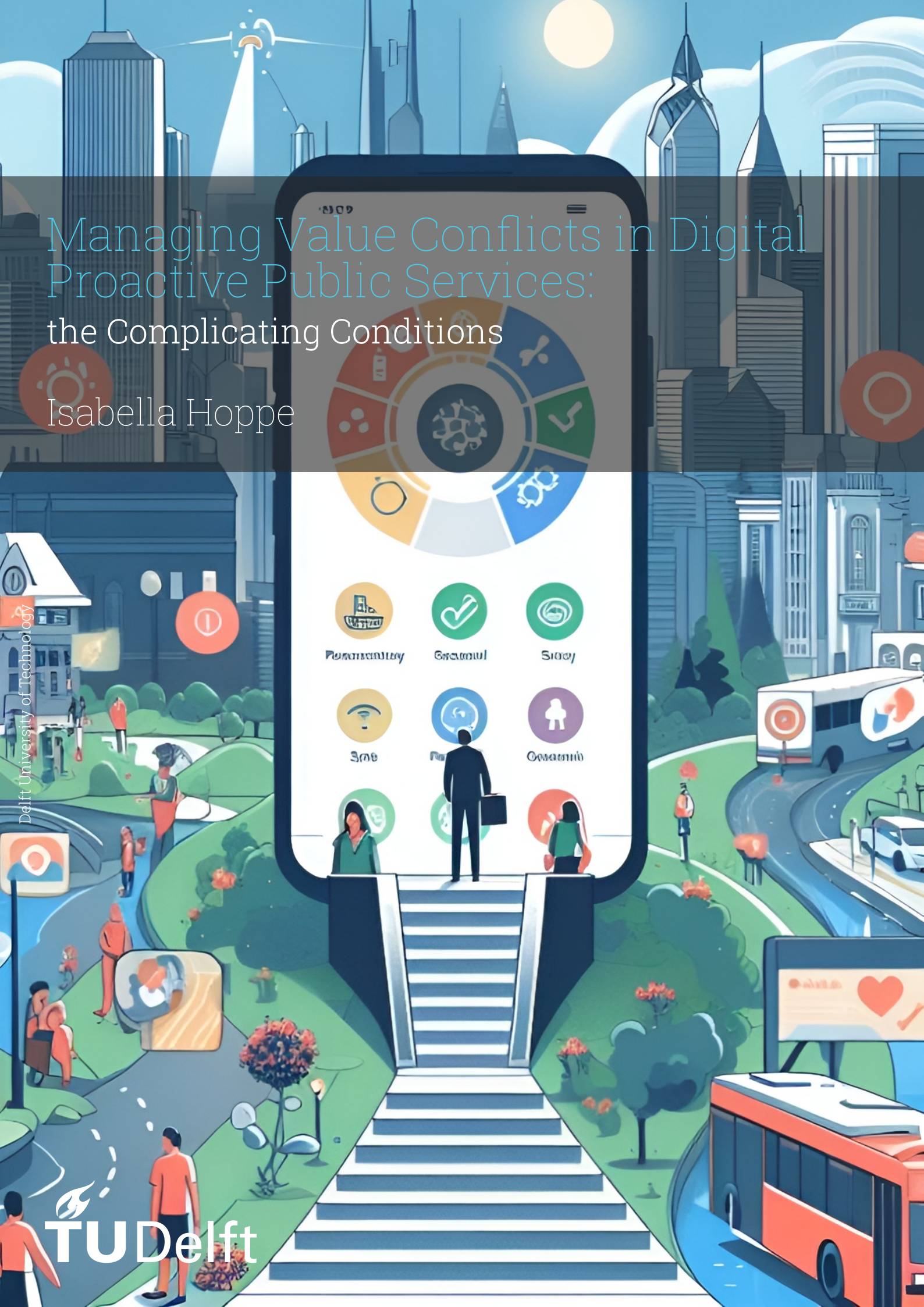

Managing Value Conflicts in Digital Proactive Public Services:

the Complicating Conditions

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TU Delft

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When starting out in MOT, I thought I had it all figured out, and expected to just do as I had always done: Keep my head down, do the work, and finish up my studies with few surprises. Little did I know that those two years, seemingly short compared to a lifetime, would end up bringing about changes in myself and my environment that I could not have predicted. In two years, I moved four times, lived in three cities (including one abroad), and not to forget, finished one degree. It only seems appropriate to thank those that got me through this surprising whirlwind of a journey.

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Isabella Hoppe
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Executive Summary

Proactivity is a trend in e-government and service design that some expect may revolutionize digital public services. Rather than citizens having to reach out to government to receive services, they are approached proactively based on data, changes in their situation or even predicted life events. This could not only provide citizens with the right assistance and improve their well-being, but also streamline and automate internal processes in public organizations. However, these outcomes are all dependent on how proactivity is incorporated, designed and implemented in existing public services. Every innovative overhaul of systems can be controversial, but since public services affect the whole population, it is advisable to consider values throughout the design and implementation of proactivity. However, values do not just exist in a vacuum: Contextual conditions surrounding politics, governance, design processes, social factors, legislation and technical possibilities influence which values are deemed important, and whether this can lead to value conflicts. As such, this thesis is centered around the question ”What are the contextual conditions that shape the management of value conflicts in digital proactive public services?”

Since context is key, this thesis approached the question through the lens of a Dutch case: the Persoonlijke Regelingen Assistent (PRA) project. This application intends to bring all Dutch regulations together in one place, while providing proactive notifications, recommendations and assistance with checking for eligibility. Given that this project is still in the design phase, it provided fascinating insights in how the context surrounding a proactive application may impact its development. The found conditions, enablers and drawbacks could partly be extrapolated to the wider context of proactive public services, as similar values and considerations were indeed identified in the literature. The existing literature formed the initial backbone for assessing which values may be crucial, and how they take shape as features in proactive applications. The next step was delving more into the concept of value conflicts themselves. The Value Sensitive Design (VSD) approach(Van de Poel, 2013) is loosely applied throughout this thesis: By first identifying the relevant values and assessing which features and functionalities result from them, value hierarchies could be constructed. This established a complex landscape of conflicting values and enabling values, where value conflicts can be determined. In the same VSD domain, a set of strategies to handle value conflicts was presented. These strategies were evaluated and extended with strategies from the domain of public policy design, to ensure coverage of numerous perspectives on value conflicts in the public domain. Throughout the analysis, it became evident that contextual conditions were highly influential on both the prevalent value conflicts and the suitable strategies.

As such, a tentative framework of conditions was established to lay out how they may influence value conflicts and strategies alike. This framework and its accompanying analyses revealed how crucial these external conditions really are: Political conditions like ideology-based values, priorities and ambitions can impact dominant values and where funding may be invested. Governance conditions play a part in practical matters like funding and the timescale for innovative proactive projects as well, and they determine who may be involved in the overall design and implementation process. That brought us to the procedural conditions in the design process, where key trade-offs and decisions are made. Legal and technical conditions are inherently relevant in the context of a public application that processes data. These conditions may also affect how severe conflicts surrounding privacy and proactivity may be, and whether technological solutions to mitigate these conflicts are available. Last but not least, social conditions are a key determinant for how an eventual application is received and perceived, and in turn how well it accomplishes the goals a public organization may have set. If aspects like expectations, stigma and readiness are not handled with sensitivity, a proactive application may even be counterproductive. Thus, given the serious investments required and hurdles to be overcome, public organizations should set their objectives surrounding proactivity honestly and realistically, consider contextual conditions carefully, and consider what the outcomes may be every step of the way.

Setting these objectives and making these decisions would be easier if a strategy for managing value conflicts was chosen from the start. The evaluated strategies all had their benefits and drawbacks, and some were deemed more practical than others. This was further complicated by the context-dependency of value conflicts, which in turn makes it difficult to determine which strategies should be applied from the start. As such, drawing a conclusion regarding the management of value conflicts

proved difficult. Instead, a learning strategy was recommended, whereby attempting multiple strategies and coordination between stakeholders could help gather more information on how to manage value conflicts in their practical setting. This process of trying out different strategies and evaluating their outcomes would add to the knowledge base and help with better management in the future. In order to formalize this process and the synthesize findings so that they may provide to more concrete advice, it was recommended to appoint an organization at the meso-level of governance. This organization could evaluate current queries from project groups based on similar past cases, or related value conflicts and their consequences. By operating between the macro-level (government and formal legislation, which is typically outdated once it becomes official law) and the micro-level (where standards may be too specific to one application setting), a body of knowledge from practice can be created that can provide guidance in a time where innovation in the public sector is necessary, but also rife with risks. Thus, this organization's focus should be on gathering knowledge on strategies, outcomes and the challenges of (proactive) digital public services, so that innovators (whether they be designers, policy-makers or scientists) can learn from each other's cases and collectively contribute to responsible progress in the public sector.

Contents

List of Figures

1 Introduction

In an increasingly digital world, harnessing the power of information and communication technology (ICT) in service delivery has become an important goal of public organizations. As a result, an increasing number of public services are mostly digital, often with the intent to provide a more efficient and personalized experience. Many e-government scholars view proactive digital public services as the next step for modern public service delivery. Still, proactive public services are a relatively novel and understudied topic. On top of that, the conceptualization of proactive public services is still being contested (Pawlowski & Scholta, 2023). As a result, finding practical examples and application cases, specifically on the demand side (so from the client's perspective), is a challenge (Khasmammadli & Erlenheim, 2022). Still, the potential of the approach is underscored across the literature, given its potential to transform government and make it more citizen-centered.

The aim of proactivity is to transition from traditional e-government, where clients have to ”pull” to receive a service, towards a ”push” model, where tailored services are provided and presented to clients based on the available data. Although proactivity is often conceptualized as being IT-enabled, non-digital channels can also be considered proactive, and examples exist in practice where proactivity is achieved by a combination of digital and non-digital instruments. In Taiwan, for instance, civil servants with tablets travel around rural regions to provide assistance and services (Linders et al., 2018). Potentially, the inclusion of non-digital approaches make public services more personable and suited to the less digitally savvy or those with limited access to digital platforms. Even those with sufficient digital skills may be encumbered by the sheer number of different government portals, websites and forms that may be required. Cases from the Netherlands have also demonstrated how many citizens do not receive benefits or services that they are entitled to (from supplementary pensions to study financing), showing the potential for proactivity to improve government's service delivery and in turn, the lives of its citizens. In turn, governments may benefit if proactivity can contribute to efficiency and lower administrative costs. Overall, if well implemented, proactive digital public services could provide better access to services with less administrative burden for clients, while also contributing to process efficiency for the public organization itself (Scholta & Lindgren, 2023).

Despite these potential benefits for citizens (and governments alike), there are several aspects to think about before considering whether and how these services should be developed, adopted and implemented in the Netherlands. Data availability and the EU General Data Protection Regulations(GDPR) are to be considered, and trust is a crucial factor in general, given the recent Dutch scandal surrounding child welfare payments (Bharosa et al., 2021). This highlights the importance of considering what level and form of proactivity is suitable for a public service given its purpose and recipients' preferences. Bharosa et al. (2021), for instance, provide an example where a service was deliberately kept less proactive, in order to have citizens maintain more control. This demonstrates how more proactivity may not always be appropriate or desirable, and it should be viewed as a means to provide more inclusive, efficient and personalized public services, not an end in itself.

Therefore, designing for digital proactive public services involves finding the appropriate and desired level for that service, which in turn relies on sensitivity to values and subsequent trade-offs. The highest level of proactivity, for instance, relies on predictive services, which may contribute to accessibility and efficiency, but can give rise to concerns regarding privacy and autonomy. Further complications arise from the context-dependence of the appropriate level of proactivity and the associated value conflicts: Some citizens may feel ashamed if they are actively approached to receive benefits, or they may not want proactive assistance in some parts of their life at all (Scholta et al., 2019). This makes it difficult to provide a direct translation of these user wants and values into design requirements (Van de Poel, 2013). Formulating and validating these values is therefore crucial to actually designing and implementing proactivity in digital public services. Beyond the design and development stage, adoption and usage of these services will also be influenced by the extent to which the level of proactivity aligns with the client's values, needs and desires (Khasmammadli & Erlenheim, 2022). Thus, the first objective should be assessing which values and service needs arise and how these may conflict with one another, as

well as mapping how practitioners currently intend to address these conflicts in order to overcome them. However, it should also be considered whether proactivity is the right answer or solution. When a concept gains traction, it may be perceived as a catch-all solution, when it could exacerbate existing challenges in interactions between government and citizens. Overall, it is evident that the *context and conditions* in which a proactive public service application is developed may have significant impact on its reception, as well as the conflicts that may arise even with the best intentions. Potential conflicts can already be derived from the scenarios sketched out above: Proactivity and efficiency vs control and autonomy, (internal)efficiency vs (digital) inclusion, and generally what level of proactivity may be appropriate. In turn, these conflicts may stem from the different perspectives of different stakeholder groups: Efficiency for government may not imply the same for citizens, and dilemmas between these perspectives may also take shape in value conflicts.. In essence, implementing proactivity is a design challenge: Before implementation is possible, the values and perspectives (of multiple stakeholder groups) that will shape eventual principles and requirements must be mapped. Thus, this research project's objective is to assess which value conflicts may arise, which conditions influence that, and which strategies may be used in practice during the design and before the implementation of digital proactive public services. This may serve practitioners in the development of public services that are inclusive, efficient and ethical, while also considering the trade-offs that realistically have to be made.

1.1. Problem Statement

Although the ambition to implement proactivity is present in Dutch public service organizations, value conflicts complicate the process of successful and responsible implementation. Thus, this project's objective lies in exploring the origins of these value conflicts and in which conditions value conflicts arise and are managed in the context of proactive public services.

1.2. Research Questions

The order of the research questions builds one one another, and loosely follows a designing for values approach, where the relevant values must be identified first, followed by translating them into requirements, which is where value conflicts may arise. The main question and sub-questions are as follows:

- What are the contextual conditions that shape the management of value conflicts in digital proactive public services?
  - What are the key values surrounding digital proactive public services?
  - What are examples of how key values get translated into features and functionalities?
  - Which value conflicts could arise in digital proactive public services?
  - How could value conflicts be addressed in practice?

Once these questions have been answered, they can form the basis for further design and implementation of proactive public services.

1.3. Research Design and Scope

Since proactive services can take many different shapes and the implications differ per context, a case study will be conducted to help contextualize the research questions. The Personal Regulations Assistant (PRA) project is a Dutch initiative to create an app that helps citizens navigate the maze of regulations, benefits and government portals. Since it is still in the design phase, it makes for an excellent example, as functionalities are still being determined. The Dutch context is also interesting given the aforementioned controversy surrounding entitlement to benefits and fraud accusations, which had far reaching consequences for affected citizens. This highlights some of the political sensitivities of the topic. Although this research project does not have a political science focus, these conditions will certainly affect the relevant values and resulting conflicts. As such, relevant comments on that matter from the conducted interviews will be included to acknowledge the relevance of the political context. The same approach will be applied for governance-related factors: Aspects like available time and resources, who provides these resources and who has the final decision over a project will influence the process of addressing value conflicts, and are thus considered conditions. Figure 1.1 illustrates the scope of the research.

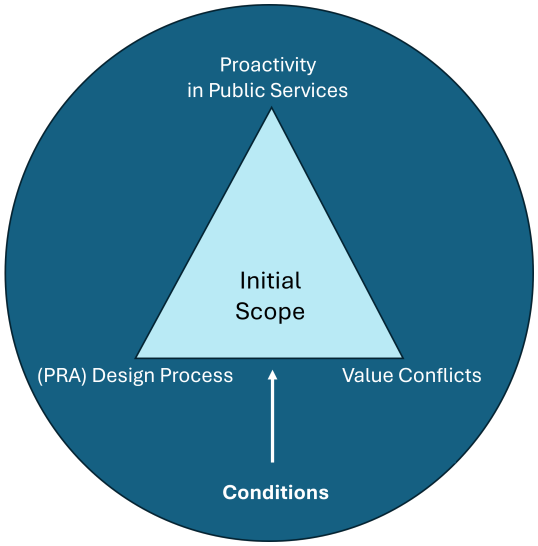

Figure 1.1: Research Scope

As indicated, the initial scope was centered on a three-pronged approach that covered proactivity in general, managing the value conflicts that take place in this domain and the PRA design process as an example case. This is represented in the triangle, with each corner standing for one aspect of the research. However, the surrounding conditions proved to be crucial context, and as such, the scope was expanded to focus on the *impact* of these conditions on the three prongs instead. Thus, the scope does not cover conditions exhaustively, but focuses on those examples of conditions that affect proactivity, the value conflicts surrounding proactivity in public services and the PRA design process.

1.4. Brief Overview

The structure of this project is as follows: First, Chapter 2 covers the methodology, where the approach for answering each question will be laid out. Each research activity feeds into the next and understanding the logic behind this order will help understanding next chapters. Next, Chapter 3 contains a systematic literature review that will discuss the state of the art of proactive public services, which will further motivate the research objectives behind this project and provide preliminary answers to the initial question on key values. Chapter 4 builds towards a theoretical framework covering the main unit of analysis, value conflicts and the strategies that could be applied to manage them. This will set the stage for analyzing strategies from the theory in the interviews. Next, the PRA case is introduced in Chapter 5, where contextual information will be provided and the objectives and values behind the project will be discussed. Having presented the context through a concrete example, the general interview results will be discussed and analyzed in Chapter 6. Finally, Chapter 7 will answer the overall research question, discussing the different conditions and how they affect value conflicts and strategies for addressing them. These findings are synthesized in a Conditions Framework that may serve practitioners and researchers alike in further planning, design and implementation of proactive public services. The chapter will also contain a critical discussion of the limitations and opportunities for future research. Finally, a comprehensive overview of main findings, reflections and conclusions can be found in the concluding Chapter 8.

2 Methodology

This chapter describes the approach for answering each of the research questions. A more detailed description and justification of the methodology in general is provided as well. An overview of the research approach can be found in the Research Flow Diagram 2.1. Furthermore, the qualitative nature and coding approach for the interviews will be described as well.

2.1. Research Approach

The following section will describe the approach for answering each of the subquestions, which will in turn answer the overall research question concerning the conditions that influence the management of value conflicts in proactive public services . Note that each subquestion follows logically from the previous one(s), meaning that the answer of the questions that come before is required context feeding into the next question.

2.1.1. Subquestion 1

”What are the key values surrounding digital proactive public services?”

Values are a broad concept, and can be defined in numerous ways. In the design of digital proactive public services, the user is not just a user, but a citizen. This implies a set of rights that make some values very relevant, and others less so. Thus, an exploration of values and the ideals behind proactivity (which imply a set of goals and underlying values as well) is relevant.This subquestion will be answered through a systematic literature review covering existing literature on values. Afterwards, the found value dimensions will be verified and extended with information gathered from semi-structured interviews with experts and case practitioners. The result of this question will be a table of relevant value dimensions and justifications as to how they are relevant in the sphere of proactive public services.

2.1.2. Subquestion 2

”What are examples of how relevant values get translated into features and functionalities?”

This is also a crucial piece of the puzzle, since the translation of values into eventual design options sets the stage for potential value conflicts(see Chapter 4). Typically, the specification of the value determines whether a conflict arises in the first place(van de Poel, 2015). This translation step thus plays a critical role in the eventual implementation of proactivity in public services, since the result represents the priorities for design and where they might conflict. Since in practice, the specifications are not always described explicitly, the choice was made to derive them from features and functionalities of proactive services. Again, this question will be answered partly by desk research on the PRA. The research area of proactive public services is rather novel, and ongoing implementations are rare (if not non-existent in the Dutch context), thus we rely on validating and extending the set of examples through the interviews with both experts and practitioners. The resulting features and functionalities can be connected to one or more values, so translations are discussed by grouped values. Some salient examples will also be used to construct value hierarchies that illustrate the specifications of key values.

2.1.3. Subquestion 3

”Which value conflicts could arise in digital proactive public services?”

Having established a set of relevant values and accompanying features and functionalities, potential value conflicts can be assessed. By mapping which values could conflict and under which conditions, the context can be established. The results from the previous questions will yield the values, and by examining the resulting features, potential value conflicts can be found. They may also be found in documentation on the PRA case. The results will be validated and extended through the semi-structured expert- and case interviews. A value conflict diagram will summarize and illustrate the main foreseen value conflicts in digital proactive public services.

2.1.4. Subquestion 4

"How could value conflicts be addressed in practice?"

Finally, we will look at how the identified value conflicts could be managed. Although this is not a simple feat (and there are likely no simple answers), numerous approaches have been identified that could be used. These include calculative approaches, innovation, respecification, satisficing, and various alternatives that fall largely under these categories (van de Poel, 2015).The first part of answering this question will involve laying out the various existing strategies for addressing value conflicts, which will be covered in Chapter4. Then, the focus will be on mapping the reported approaches of the interviewees to these strategies through the aforementioned interviews. The interview results will reveal which strategies are deemed useful to address value conflicts in this setting, with benefits, drawbacks and insights on when these strategies could be applicable. The results are combined into an overall analysis per strategy.

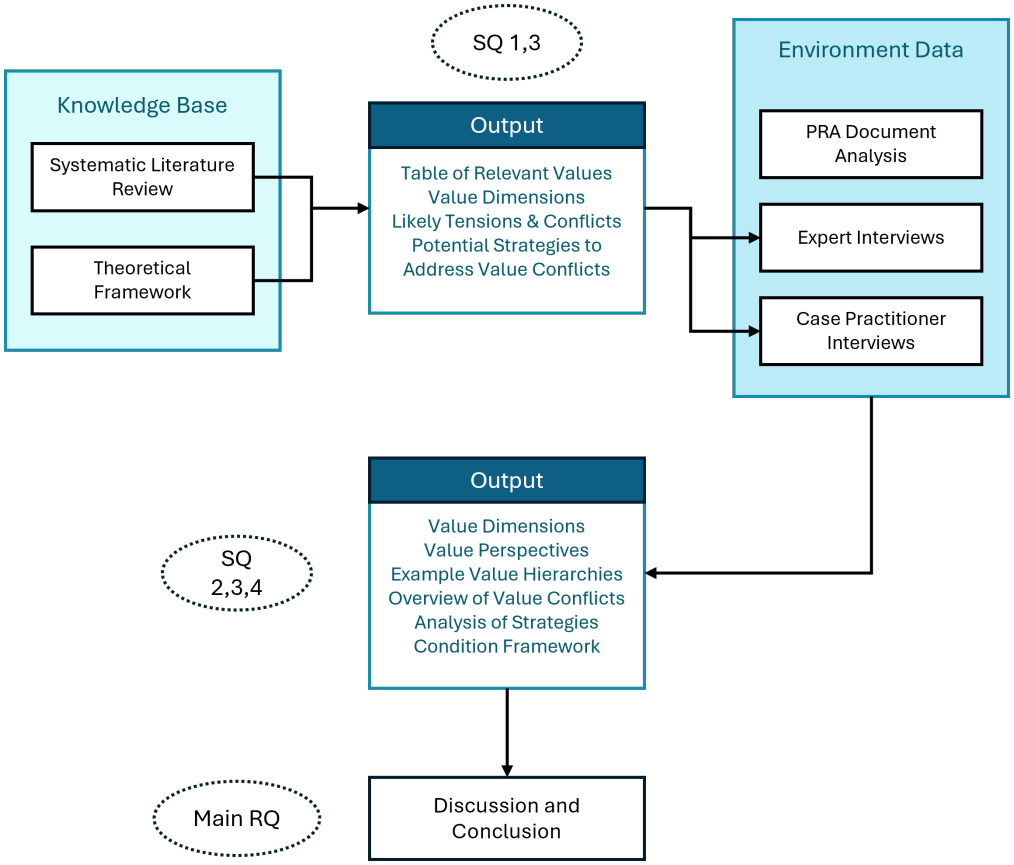

Figure 2.1: Research Approach Flow Diagram

As discussed, all these outputs combined will reveal more about the context and conditions under which certain results hold. Some value conflicts may only occur in specific conditions, or may be strengthened by them. Strategies may also be more or less suitable depending on certain conditions. These insights from each subquestion will serve to answer the main question. A Condition Framework will be developed to support the answer to the main research question and provide guidance for further planning and design.

2.2. Qualitative Research Methodology

Since the topic proactive public services (let alone addressing conditions and value conflicts in this domain) is relatively understudied, a qualitative approach is most appropriate. Indeed, much of the state-of-the-art research is based on qualitative case studies to generate new theories, since the existing research cannot fully apply to each scenario and context (Khasmammadli & Erlenheim, 2022).

Case studies are also most suitable for studying complex social phenomena (Sekaran & Bougie, 2016), and contextual conditions and value conflicts arguably fall under that umbrella. Furthermore, case studies allow for combining numerous data collection methods depending on the research goals. Since the objective is to form a comprehensive insight into the conditions influencing the management of value conflicts in proactive public services, using various sources of data could help generate more insights. As such, desk research will be employed to assess the current progress on the case and identifying relevant values, features, functionalities and potential value conflicts. In addition, document analysis and interview data will be used to expand on this case-specific data with practitioners, as well as placing the case in the wider context of proactive public services through expert interviewees.

2.2.1. PRA Case Study and Document Analysis

In order to dive deeper into a specific proactive public service, a single case study will be performed to assess the value conflicts that occur within that setting and context. The Personal Allowance Assistent (Persoonlijke Regelingen Assistent or PRA) was selected. This project is currently being developed by ICTU, an organization whose mission is to contribute to better e-government. The ministry of Binnenlandse Zaken and Koninkrijkrelaties (BZK) is the client for the project. The goal of the initiative is to help citizens navigate the various government organizations and their interdependencies, so that they are more aware of the services they are entitled to and how they can apply for them. Ideally, the PRA can use data to automatically provide suggestions, information and pre-filled application forms to guide citizens. Since this case is a great example of the Dutch government's ambition to integrate their services and become more proactive, it was selected as the core case for this thesis. More context on the PRA case can be found in Chapter 5.

First, background research will be done on the objectives of the PRA. These objectives, alongside specific features and functionalities, can be used to derive values and map where value tensions and conflicts might arise. Furthermore, in meetings and interviews with people involved in the project, links to documentation, policy documents and frameworks were provided, which could be studied further to also extract information. These also provided initial insights into which contextual conditions matter in the design of such an application, and how these may affect value conflicts and applicable strategies.

2.2.2. Interviews

Interviews will be the main source of data for this thesis project. They will be semi-structured, as new insights are welcomed given the novelty of the research area. The questions will involve finding out what values the participants consider in the context of digital proactive public services, and particularly the PRA for the interviews with practitioners.The interview questions and themes were validated by an expert beforehand to ensure they align with the objective to extract values, value conflicts and approaches to handling them. During the interview, probing was also used to see how participants respond to suggestions of other potentially relevant values and value conflicts. Based on the Theoretical Framework (4), an information sheet was developed to guide interviewees in discussing strategies to address value conflicts. This sheet (see Appendix C) was sent beforehand, so they could familiarize themselves with the theory and consider whether it applies to their experiences.

Participants

The interviews were conducted with researchers and practitioners in the field of proactive public service design. The experts were selected based on judgment sampling, i.e. their expertise and experience in researching and/or designing proactive public services (Sekaran & Bougie, 2016). Their insights were useful for validating and extending the identified values, their specifications and requirements, and the arising conflicts. The interviewed experts did not just originate from the scientific community, but also from policy departments within the Dutch Ministry of the Interior and Kingdom Relations and coordinating organization Digicampus. The practitioner interviews were conducted with people from the team working on the PRA, the case study that will be discussed in more detail in Chapter 5. The line of questioning for practitioners was also more tailored to the specific case application, where the values, related conflicts and strategies were directly related to the design of the artefact and the results from user studies.
The line of questioning had the following approach: First, the interviewees were asked about the values and motivations regarding implementing proactivity in public services. In the practitioner case, this

Interviewee	Role
1	Researcher Information Systems
2	UX Designer Application Case
3	Researcher Information Systems
4	Innovation Manager Proactive Services
5	Program Manager Application Case
6	Researcher Information Systems
7	Technology Advisor
8	UX Designer Application Case
9	BZK Policy Advisor Proactive Services

Figure 2.2: Interviewees

question was geared toward the PRA specifically, whereas experts could come up with an example of a service themselves or elect to answer the question more generally. The mentioned values were then elaborated on through asking how they took shape in either the design of the PRA, or more generally in the expert case, in a proactive public service. Both were then asked to come up with evaluation criteria to assess the incorporation of values, to extract more specifications and requirements tied to the relevant values. Having established the key values, participants were asked about which value conflicts (may) arise. Finally, they were presented with the information sheet and asked about the strategies to address these value conflicts. They were also invited to suggest other approaches, combine the given strategies, or comment generally on their applicability. Generally, a more loose approach was taken to asking these questions. In case a participant struggled to provide examples, they were prompted with examples given in earlier interviews. Typically, this would result in at least comments on said example (which could also reveal stances towards values, value conflicts and strategies) and in some cases the clarification would result in new examples being mentioned. In case a topic came up that did not fall within the specified questions, but appeared interesting and relevant, follow-up questions to extract the related conditions, value (conflicts) and strategies were asked. The specific interview protocol can be found in Appendix A.

2.3. Coding Procedure

After the interviews were transcribed, they were coded for values, features and functionalities based on these values, value conflicts and strategies to overcome said conflicts. The aim was to extract commonalities, conflicts between values, and the various advantages and disadvantages of the strategies and approaches to value conflicts. Any mentioned values, both implicit and explicit, were marked. Implicit value conflicts were extracted through assessing co-occurring codes by hand (since co-occurrences are sometimes just a sign of codes having overlap in meaning).
Generally, a middle-ground, bottom-up approach was deemed most appropriate, given the novelty of the research topic, approach and combination of themes. First, the literature review in Chapter 3 helped inform the initial code list. These values were not just mentioned explicitly, but also derived implicitly. While coding the interviews, additional values were found and merged with others due to overlap in meaning. Naturally, the code list evolved during analysis. The second order codes (i.e. what resulted in the value dimensions) were developed based on the value dimensions identified in the literature review. After all the interviews had been completed and coded for the first time, they were coded again to ensure consistency and account for some of the changes that were made along the way.

2.3.1. Coding for Values

Some of the codes that arose for this first set were difficult to categorize under one Dimension: Proactivity, Effectiveness, Efficiency and Data Availability did not fit neatly in one category, and whether they could be considered values is another question altogether. They were thus kept as separate codes, which will be explained in Chapter 6.

Given the ambiguity of values, overlaps in meaning and more, it was difficult to apply a structured

coding procedure. In Appendix B, Figure B.1 shows the first network attempt after 4 interviews. Aside from the expected value conflicts, another interesting development arose from the interview data: The fact that some values were enabled by others. This finding came up throughout the interviews without prompting. Thus, although they are not explicitly part of the research, relations between codes that were enabling each other were also marked and can be found as green lines between values in the code network in Figure B.1. Note that all the steps taken after this initial network were to reduce complexity, resulting in the final set of values and value dimensions that ended up in the codebook.

Merged Codes

The merging process was meant to reduce the number of codes with significant overlap. The procedure to do this was as follows: In case a code was not very prevalent, it was assessed whether any co-occurring codes covered the meaning of the quotation sufficiently. In addition, even if different names were used, if the meaning or implication of the value was the same, the code could be the same as well. There is also a rather general code, User Centricity, that functions as a container instrumental value that covers any intent to cater to users that could not directly fall under any of the other codes in the Service Quality Dimension.

Split Codes

Given the governance and process factors that initially fell outside of the scope of the research, they were initially coded under the umbrella label ”Governance and Process factor”. In order to further specify which values and aspects *within* the scope would be affected, new codes were developed by sequentially going through each data point that was coded with the umbrella label Quotes derived from this label formed the first input for the condition categories that are part of the framework for answering the main research question, and six condition/category codes were derived in the end, being Political Conditions, Governance Conditions, Process and Design Conditions, Social Conditions, Legal Conditions and Technical Conditions.

2.3.2. Coding for Features and Functionalities

Having established the codes for values, the transcripts were coded again for concrete mentions of features and functionalities that were tied to a (set of) value(s). This led to a container code, ”features and functionalities”, where co-occurrences between values and matching features/functionalities could be explored. After extracting all occurrences of mentioned features and functionalities, they could be grouped by which value(s) they were intended to support. This allowed for discussing the results per set of related values in Chapter 6.

2.3.3. Coding for Conflicts

Some value conflicts were explicitly mentioned by interviewees. Other times, conflicts were extracted manually: when two codes were co-occurring but contrasted one another, this represented a potential conflict. Value conflicts were also coded through their own separate code label, which later allowed for extracting value conflicts and grouping them by which value(s) they involved.

2.3.4. Coding for Strategies

Finally, aside from coding for values, views on the strategies had to be extracted. This resulted in a separate code group, containing each of the selected strategies from Chapter 4. When strategies were recommended to be combined, code labels for each of the mentioned strategies were applied.

2.3.5. Code book

Given the evolving nature and the approach to value definitions and specifications (being no strict definition, but rather how interviewees describe them), no strict code book or tree could be developed. Instead, they were grouped under the value dimensions as found in Chapter 3. An overview of all codes and categories, including frequencies and quotes to illustrate less obvious examples of the code (rather than explicit mentions of a value) can be found in B.

2.4. Validity and Generalizability

Every methodology has its limitations, and ensuring validity in a novel, qualitative setting can be a challenge. First of all, there was time for only a limited number of interviewees, making it difficult to ensure that the results generalize to proactive public services in general. However, given the context-dependence of which values are relevant, this limited generalizability aligns with the nature of this study. After about 6 interviews, most of the insights started converging, and arguably saturation was reached after the nine interviews, so the chosen context was explored sufficiently. Additionally, representativeness may not be a priority since the aim of this study was to gather information relevant for a specific use context (Sekaran & Bougie, 2016). Finally, we must recognize that the evaluated case was based on public services in the Netherlands, so results may not generalize to other countries either. Still, the interviewed experts were from various European countries, so their insights were based on diverse examples which may aid in making the results cover more ground. Generally, interviewing and integrating both experts and practitioners ought to help with validity and generalizability, since the former has a more general, scientific perspective, while the latter has practical insights from a specific case. Still, external validity for the specific use case is the priority, rather than generalizability to public services as a whole. The question of the representativeness of the selected case(s) and interviewees remains. However, since the research area is new and the objective is to map the conditions surrounding value conflicts in practice, the findings can still provide interesting insights to compare other cases against. Also, one could argue that the resulting conditions framework is somewhat generalizable, because it prescribes the factors that should be analyzed per context. Thus, despite some of the interview results being context-specific, we found that the derived contextual conditions are relevant in most settings.

Furthermore, several efforts were made to maintain rigor and aim for validity. First, multiple sources of data were used, and findings from documentation were verified and clarified during interviews with involved practitioners. This verification was also extended to the interviewer's interpretations: During the interview, clarifying questions were asked to ensure derived values and value conflicts indeed aligned with the interviewee's perspective. This reflexivity on biases, assumptions and interpretations was also pursued during the coding procedure: Coding is an iterative procedure by nature, but extra attention was paid to compare new data to existing data for refining codes and categories (the eventual value dimensions). As evident from Chapter 6, there were several adjustments made after the original code/value dimensions had been established based on the Literature Review in Chapter 3. Given the novelty of the research area, combination of themes and approach of this thesis, it was crucial to adapt the categorizations while new insights emerged during analysis. This helped ensure categorizations were not just arbitrary, but helped map the conditions in which value conflicts arise and are managed. Finally, where possible, findings were validated through looking back at the theory uncovered in the Literature Review and Theoretical Framework. Existing values, specifications, applications of strategies and contextual clues were all compared against those found in this thesis to place it in the larger context and ensure it fit logically in current research (while still extending it with new insights, of course). Though there were quite a few methodological challenges, this step by step approach was tailored to combining the different research themes effectively and optimize the applicability of results.

3 Systematic Literature Review

The following chapter will cover the existing literature on applications, design principles and frameworks for proactive public services. Although this chapter is not exhaustive, it will cover the fundamentals of the research area and illustrate the research gap that this thesis intends to fill. Furthermore, it will provide the initial answer to the first research question regarding key values (which will be validated and extended by the interviews in later research stages). Similarly, this chapter will set the stage for potential value conflicts that hold for proactive public services across the literature.

3.1. Method and Scope

Before exploring the various intricacies of digital proactive public services, we must define what it is. This entails discussing the current research focus, the various existing conceptualizations, what this may imply for design and how focusing on value conflicts will contribute to the existing body of literature.

For selecting the literature to be included, the PRISMA method was applied. To ensure proactivity was a key component of the included papers, Scopus was queried on key words only (previous querying of the title and the abstract yielded too many irrelevant articles). After the initial query, the results were limited to the subject areas of Computer Science, Engineering, Social Sciences, Business Management and Accounting, Psychology and Decision Sciences. This yielded 58 papers for screening. These papers where then assessed by their title and abstracts to ensure they actually focused on the design, development and conceptualization of proactive public services, which led to 39 papers being excluded (including one duplicate paper that was published under two different titles). Finally, the remaining 19 papers where read. Three more papers were excluded, where one was not an article or chapter, but documentation of workshop proceedings. The other two papers were excluded because despite their English titles and abstracts, no translations of the full texts (which were in Russian and Spanish) were provided. This final step resulted in the remaining 16 articles that were included for this systematic review. An overview of the process can be found in Figure 3.1.

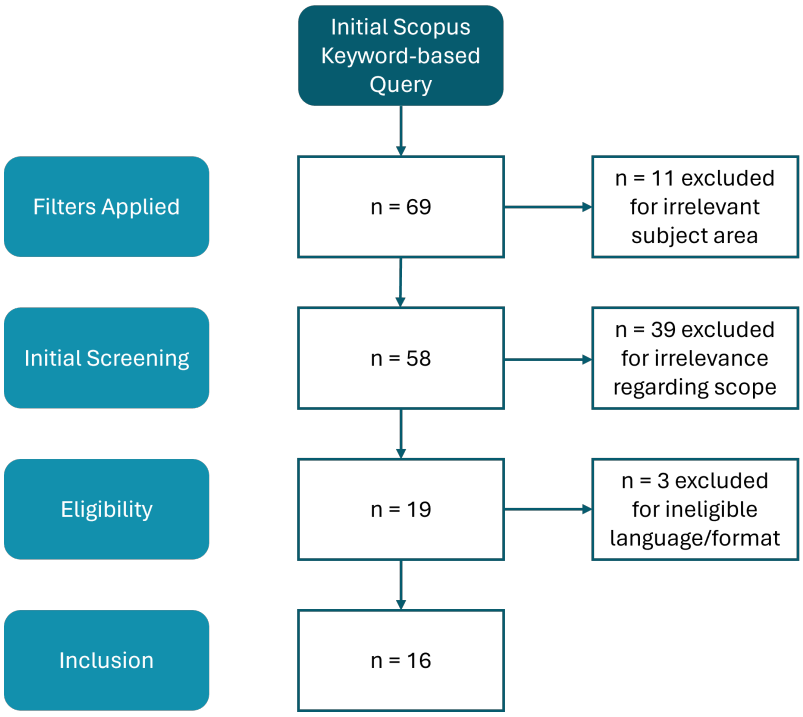

Figure 3.1: Prisma diagram of included papers

The main goal was to assess the research gap in the field of proactive public services, as well as to find out which conceptualizations exist and to what extent values are considered in the literature. As such, table 3.5, which includes all papers, has columns for the definition used, relevant related terms and concepts, the framework that was used or deliverable the paper presented, whether a specific application setting was analysed and which values and value-related concepts were included. The values column was filled in not only through specific mention of said values, but also by deriving some of them implicitly: ”Depending on the resources available to a public organization, it can provide a proactive service simultaneously in two variants—one that uses electronic communication and one that uses non-electronic communication (Medium for Proactive Communication)— so not only IT-affine clients would benefit from proactive public services” (Pawlowski & Scholta, 2023, p.13). This example led to deriving the accessibility and inclusion values to the list of values associated with this paper.

3.2. Conceptualizations of (Digital) Proactive Public Services

Conceptual clarity and the characteristics of a proactive public service are areas in which the perspectives within the research field diverge (Pawlowski & Scholta, 2023). However, a clearly defined concept is crucial if a government wants to include more proactivity in its goal setting. In an effort to clarify the concept, Scholta and Lindgren (2023) offer the following definition: ”In the case of a public service, proactivity refers to providing the service or a part of the service without the client’s having to request it”. Though the details of the definitions differ somewhat across the literature, this covers the essence of proactivity in public services: The initiative lies with the public service provider. A more crucial point of contention is what characteristics make a public service more proactive, and what intermediary steps take a service from reactive to proactive.

3.2.1. Levels of Proactivity

Several authors turn to the Brüggemeier model and its three types of government, each being increasingly proactive, as a means of classification (Scholta & Lindgren, 2023)(Scholta & Lindgren, 2019). As the interaction effort for the citizen decreases, the level of proactivity increases. Outreaching government involves moving closer to the service recipient, for instance through providing services digitally or ensuring citizens can access and contact government from anywhere. An attentive government incorporates some level of proactivity through pre-filled forms, suggesting recommended services, and reminding citizens of duties. No-stop government takes this a step further, where recipients do not need to provide anything other than their consent to receive a service. This model does not consider a ”one-stop government” or one-stop shop to be proactive, since it merely *integrates* services and data to some extent (Scholta & Lindgren, 2023).

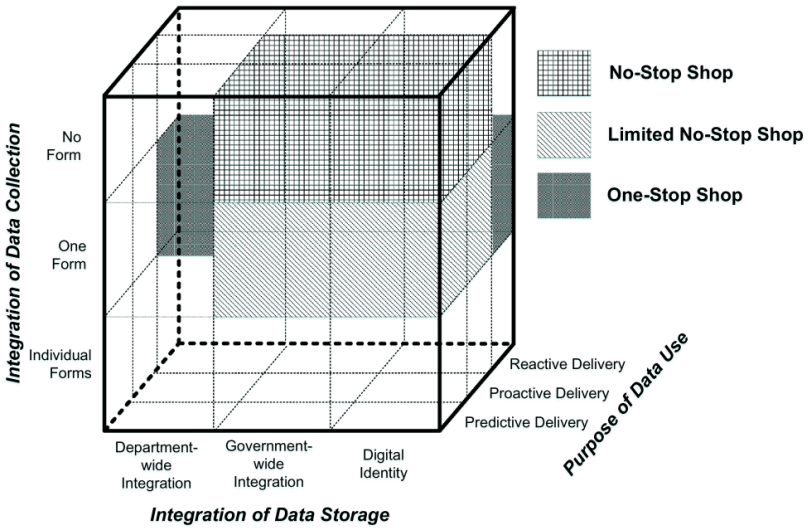

Figure 3.2: Scholta et al. (2019) Stage model

The degree of data integration proved to be an important enabler for proactivity. Scholta et al. (2019) use it as one of the dimensions to determine where a government falls in their classification of one-stop shop, limited no-stop shop and no-stop shop (as seen in figure 3.2). Again, the no-stop shop is seen as the most proactive form of e-government, where no form needs to be filled in, data storage is integrated government-wide (and a digital identity for the citizen may be present) and said data is used for the purpose of proactive or even predictive delivery. Kuhn et al. (2021) also use different dimensions of a service to conceptualize proactivity and how services can be redesigned to become proactive. Again, the question of data collection (in this case whether it is concentrated or distributed) is a key factor, alongside what triggers the service and who controls the process of the service across the involved entities. This variable of control determines in which way the citizen interacts with the service, and thus the degree of effort required.

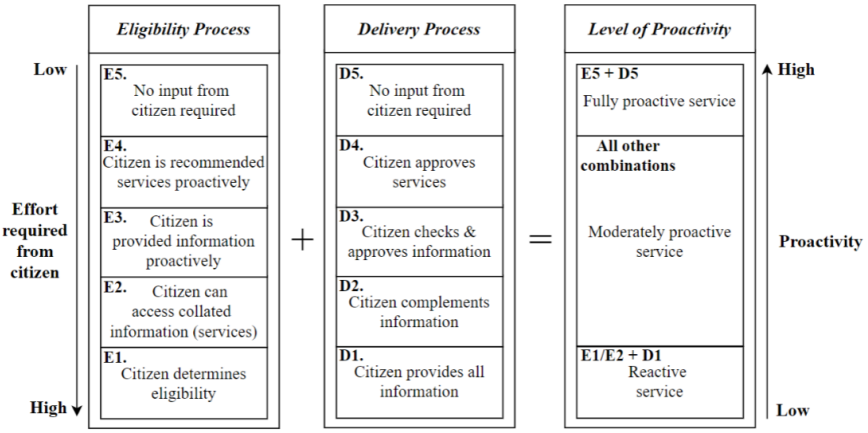

Figure 3.3: Classification framework by Bharosa et al. (2021)

While Bharosa et al. (2021) also take the degree of effort required from the citizen into account, they approach classification of services in a somewhat different way: They separate the service into the eligibility and delivery process. If, for instance, the process of determining whether a citizen is entitled to a service occurs automatically, the eligibility process is fully proactive. Even if the delivery process requires input from the potential recipient (and thus is not fully proactive), there is a degree of proactivity involved. This framework acknowledges how proactivity can take place at multiple stages of the service, and that combinations of each level of proactivity may be suitable in different scenarios.
Erlenheim et al. (2020) also suggest a spectrum with different levels of proactivity, where a fully reactive service requires people to look for information from different sources and a fully proactive service is based on life events (e.g. marriage, birth of a child, starting a business), functioning fully in the background without any input or expression of will from the user. This spectrum acknowledges that only the first four stages (from pulled to pushed, where government provides services on its own initiative) have been observed empirically. The later stages that cover life-event based services are more aspirational, where a government suggests and provides services based on its knowledge of a citizen's life events.

Dimension	**Characteristics**				
Purpose of Proactivity	Information	Offer	Delivery	Education	Evaluation
Timing of Proactivity	Before Core Event		After Core Event		
Need for Additional Data	Additional Data Needed		No Additional Data Needed		
Change of Proposed Data or Delivery Options	Change Possible		No Change Possible		No Proposal
Choice of Service Receipt	Opt-In		Opt-Out		No Choice
Medium for Proactive Communication	Electronic		Non-Electronic		
Timing of Communication in Proactive Delivery	No Proactive Delivery		Before Proactive Delivery		Simultaneous to Proactive Delivery
Type of Core Service	Informational		Communicational		Transactional

Figure 3.4: Pawlowski et al.(2023) Taxonomy

Potentially the most all-encompassing conceptualization comes from the recent paper by Pawlowski and Scholta (2023), containing a taxonomy that was produced for the very purpose of creating academic common ground on what proactivity can entail. Crucially, it was constructed from the client's perspective, so some dimensions that appeared in other frameworks (like the level of data integration) are not present. Instead, the dimensions include whether the client is required to provide additional data, whether a proposed service delivery or gathered data can be changed and what the timing of the proactivity and surrounding communication is. Again, this timing factor is a crucial aspect of proactivity: Peak proactivity would be delivering or suggesting a service *before* a Core Event takes place, for example by suggesting the renewal of a document before it expires. Many authors see this form of proactivity, i.e. proactivity based on life and business events in a predictive manner, as the ultimate form of proactive service delivery.

3.2.2. The Peak of Proactivity: Predictive Delivery and Event- based services

Event-based services are based on the idea that when a key life or business event occurs, this typically requires interaction with multiple government agencies in order to make use of separately developed services (Kõrge et al., 2019). Proactive services, in contrast, would group services related to the same life event together so that they appear as a single service, a "one-stop shop". However, as mentioned, a fully proactive service would not just be integrated on the front end: In the background, data about the citizen can be used to ensure they do not have to provide the same information multiple times. Indeed, the ideal is that citizens do not have to perform any action to receive a service at all (Scholta et al., 2019). In order to achieve this, knowledge about their needs, circumstances and life events can be used to anticipate which services may apply. In Tibilova et al. (2020) speak of the ambition to provide a "Super service", a combination of public services that a citizen is supposed to receive when a life situation happens (birth of a child, moving to another region, etc.). In (Erlenheim et al., 2020), predictive life event-based services are deemed the final stage of proactivity, where citizens do not even have to express the will to be offered a service. In order to identify these clients, database integration and large-scale data analysis may be required (Linders et al., 2018). To what extent this implies certain technological necessities will be discussed in the next section.

3.3. Digitization and Technology: Enablers or Requirements?

Many view proactivity as mediated or even fully enabled by IT. Indeed, the number of opportunities for public organizations to implement proactivity have increased through technological developments (Scholta & Lindgren, 2023). Accessibility through digital channels is concluded to be a crucial design principle(Erlenheim et al., 2020), and the digital nature of the service is implied without further deliberation in many of the cases. However, the taxonomy in Pawlowski and Scholta (2023) shows that proactive communication can also be performed through non-electronic media like mail. Indeed, although proactive governments may have to rely on internet-based technology internally, they can inform clients about their eligibility for certain services through offline channels as well (Scholta & Lindgren, 2023). Thus, the need for digital mediation may be reduced at higher levels of proactivity. While an attentive government relies on digital interactions to communicate recommendations and request additional data (Scholta et al., 2019), a fully proactive government would only need to transmit its decision to the citizen, which, as mentioned, is possible through non-digital means. Lindgren and Scholta (2023) summarize the consensus nicely by explaining that no-stop government (i.e. a fully proactive government) can be realized by analogue and manual work, by the use of digital technologies, or a mix of both. An emphasis is also placed on the fact that data sharing systems will influence to what extent proactivity can be incorporated (Bharosa et al., 2021). Indeed, a high level of data sharing and big data analysis can reduce the number of necessary interactions with the citizen, thus increasing the level of proactivity. Note that this does not necessarily imply data centralization, since innovative technologies like blockchain could provide a solution to enable data processing locally (Scholta et al., 2019).

Overall, the use of digital technologies and an existing data infrastructure can be serious enablers, and several of the discussed frameworks include data integration as an important factor in making services more proactive. However, digital technologies are not necessary or even required as a communication channel: reaching non-users of technology is crucial for upholding proactivity. In Khasmammadli and Erlenheim (2022), citizens that did not use web portals or did not receive a notification opted to contact

the authority themselves, eliminating proactivity altogether. Being able to reach and include the less digitally capable citizens is therefore crucial. In one of the Taiwanese cases in Linders et al. (2018), non-digital supplementary services in the form of travelling civil servants with tablets were used to achieve the aim of proactivity while upholding citizen-centricity. Regardless of which conceptualization or framework of proactivity is used, we can conclude that it is not a binary concept. Acknowledging the different levels and factors helps explore what level of proactivity may be desired in which scenario, and how proactive public services can be shaped around individual circumstances and needs. In order to achieve this user-centricity, though, service design methodologies are helpful and arguably even necessary for implementation at each service delivery stage (Erlenheim et al., 2020). Since citizen-centricity is a core goal for achieving proactivity in the first place, its implications for design and implementation are explored in the next section.

3.4. User Centricity and Designing for Values

Minimizing user effort and maximizing user friendliness are some of the core goals mentioned around proactivity (Kuhn & Balta, 2020). Furthermore, the very goal of public organizations should be to serve citizens. User-centricity, and in the specific case of proactive *public* services, citizen-centricity, is therefore a key driver of the ambitions of both researchers and practitioners aiming for more proactivity.

3.4.1. Reducing Effort and Interactions

A core component of said citizen-centricity is reducing the effort required to receive a service. Several authors put this into practice by trying to reduce the number of interactions between the service provider and the citizen: Bharosa et al. (2021) have minimal interactions as one of the resulting design principles, Kuhn et al. (2021) 's strategies aim at reducing the number of required interactions, while Kuhn and Balta (2020) even speak of non-interaction. A related concept is the once-only principle, which can be seen as a design principle in itself, and is present across the proactive public service literature as well. Here, the key is that information provided by the citizen should only have to be filled in once, and through data sharing across agencies, the process can be more streamlined, efficient and less burdensome for citizens as well as public servants.

Still, it should be noted that having fewer interactions does not necessarily lead to better service quality: Though signing a student up for student loans as soon as they are enrolled in university is highly proactive, automatic debt is likely undesirable. Service quality *can* be defined as the gap between user expectation and perceived performance (Kuhn & Balta, 2020). Trust plays a key role here: the government having more access to a citizen's data requires that the service is trustworthy and reliable, otherwise service quality will likely suffer. In turn, reduced interactions with civil servants may be cost-efficient for government, but if proactivity and automation lead to more citizen concerns, questions and mistakes, this may be counterproductive. Indeed, the efficiency of non-interaction and reduced interaction effort is an easily imaginable benefit, but this proves to be more complicated in practice: A non-interactive eligibility check for a service may require more time for the government agency to gather all the data, affecting reliability and reducing the immediacy of the service. This may make users perceive service quality in a more negative light, despite reduced interaction effort. This scenario goes to show that reduced interactions and a high level of proactivity does not necessarily contribute to better service quality, and may lead to more concerns from the very group that should be served: the citizens. Allowing citizens control over their own data and opting in to what data may be shared is a frequently mentioned solution to some of the privacy concerns. It may also help build trust through transparency on exactly what is being done with said data. However, this again requires more interactions, as the citizen must now provide input at multiple steps to consent to data exchange, conflicting with the principles behind proactivity. It may appear that this is defeating the purpose of proactivity, but Bharosa et al. (2021) emphasize how this is where the various levels of proactivity can be used as a varying factor: a more moderate form of proactivity may be more appropriate in settings concerning sensitive personal data.

3.4.2. Barriers to Use and Adoption

As mentioned, access to data is a crucial enabler for proactive services, but this matter is also what causes the most controversy. Those who can benefit most from public services, i.e. the disadvantaged

sector (the customer segment of people with disabilities or difficult socioeconomic circumstances), is over-represented in the group that is currently not benefiting from all the services they are entitled to. While proactivity may help them navigate the various steps required to receive certain services, it may also heighten existing barriers to use. In order to achieve user acceptance, having a sense of control over their data is required, and fostering trust in government agencies can be aided by having the option to opt-out of sharing sensitive information (Sirendi et al., 2018). Although it is easy to get caught up in the benefits that proactivity can provide, *especially* in the disadvantaged sector, the user barriers must be considered, as they can form a serious barrier to actual adoption (Murataj & Schulte, 2022). Other barriers could arise as a result of proactivity often taking place in the digital realm. Although it can reduce a citizen's administrative burden, it can also create new digital divides (Scholta & Lindgren, 2023), which can only be partly overcome by using non-digital communication channels. Khasmammadli and Erlenheim (2022) indeed emphasize how both a citizen's social and technical conditions may influence their readiness for proactive public services. In proactive government, the learning costs, compliance costs and psychological costs for the user may be reduced, but the stigma that may exist around receiving a service may still be present (Scholta & Lindgren, 2023). It is not difficult to imagine that automatic eligibility and delivery of a stigmatized service may thus lead to less favorable responses from some citizens.

Beyond challenges on the user side, there may also be practical issues standing in the way of citizen-centricity and user friendliness. Proactive government services typically require a degree of standardization, and clients whose situations diverge may not be covered. Scholta and Lindgren (2023) refer to a Norwegian case where those most in need of family allowance are over-represented in the group that is not covered, as they form an outlier that the system could not account for. A potential solution to this standardization issue could be complex life events: A set of additional rules, regulations and services to apply to more complex circumstances would be used to trigger additional conditions to consider for proactive service provision (Erlenheim et al., 2020). For example, when the birth of a child is registered, there should be an option to account for any disability, illness or other special circumstances, which would then enable supplementary personalized services. Evidently, knowledge of the intended user group and their needs and values is a crucial factor for designing proactive public services that are actually citizen-centric and likely to be adopted.

3.4.3. Value-Sensitivity and Conflicts

Since proactivity can occur at multiple stages of a public service (Bharosa et al., 2021), it is not surprising that several authors use the formulation of design principles as a step towards integrating proactivity. Service design is by nature user-centric, as it aims for thorough understanding of customer needs and integrating relevant stakeholders in the process (Erlenheim et al., 2020). As discussed, proactivity should also imply user centricity, since building proactive public services around life events and data-driven personalization is one of the goals behind proactive public service delivery, and the aim is to have the service delivered with the least amount of effort for the user required as possible. However, as emphasized in an Estonian case study, the user of these services is not just a customer, but a citizen (Kõrge et al., 2019). This implies a set of rights and unique design challenges that require knowledge of citizen values, and how these may align or conflict with different notions of proactivity and the values and goals of the public organization. Furthermore, a service can only be considered successful if prospective users adopt it, and as highlighted in the previous section, there are several crucial challenges in this area. Therefore, citizen readiness and its contributing factors are important to explore (Khasmammadli & Erlenheim, 2022). Generally, citizen-centricity requires understanding the needs and values of citizens, so they can be incorporated in the design process.

In order to achieve this understanding, Sirendi and Taveter (2016) suggest an agent-oriented approach in designing proactive services, where the service recipient is central to the process. Based on collected data on a citizen's circumstances, recommender systems can suggest suitable services. Across the literature, the described public services rely on data collection and data sharing across institutions, especially in the fully proactive examples where no citizen input is required at all. Since this includes sensitive data, trust and sensitivity to the desired and appropriate level of proactivity is required. This is even more crucial when considering the disadvantaged sector. These groups and their needs are often not clearly defined or understood (Erlenheim et al., 2020), while they are the most sensitive and

could benefit greatly from the benefits that proactive services could provide (Sirendi & Taveter, 2016). However, in some cases, proactive public services actually increased the administrative burden and effort for already marginalized users. Thus, this is another area in which further research should be conducted to better map the service needs of an under-served segment.

The need for stakeholder involvement and consideration of their values and needs is evident. Although some design principles have already been formulated, translating values into requirements (which are more concrete and prescriptive) is a serious challenge (Van de Poel, 2013). Even when this has been performed successfully, this may reveal conflicting values and priorities. An example that came up before revolves around efficiency, reliability and control: reducing the interactions and effort required by the citizen may make the service proactive, efficient and convenient. However, in the back-end, having no user input may make the eligibility process longer, and citizens may not appreciate the lack of control over their data. Evidently, even the most well-defined principles will not adequately address the defined barriers and challenges if contradictions and conflicts are not adequately addressed. Overall, we found that integrating (value-centered) service design with the different frameworks, conceptualizations and principles of proactive public services leaves a research gap surrounding value conflicts and the conditions in which these take place, and investigating them is a crucial step towards responsible design and implementation.

3.5. Valiant Ideals vs. Crucial Conflicts: The Research Gap

Various conceptualizations and levels of proactivity exist across different application settings. They each come with their own set of challenges and barriers, and most acknowledge that the highest level of proactivity is both difficult to attain and not desirable in every context. Across the literature, the values behind proactivity as well as the deduced needs and values from interviewed (potential) users are acknowledged, and the usual suspects of efficiency, privacy, control, transparency, trust, inclusion were mentioned frequently (for a full overview, see 3.5). Though some recommendations are provided on how to incorporate certain values (specifically mitigating privacy concerns) in the design of a proactive service, none of the reviewed papers acknowledged how they would address contradictory and conflicting values. This is concerning, given that such value conflicts will likely arise in any attempt to implement proactivity. Investigating how they could be managed in practice, and which conditions influence value conflicts and suitable strategies alike, is a vital next step towards responsible design, development and implementation of proactivity in public services. Furthermore, although the literature on addressing value conflicts is vast (see the next Chapter 4), the applicability of the specific methods used in this thesis have not been evaluated empirically for the design of an artefact. Thus, this thesis can also provide the first insights into the practical implications of these theoretical strategies, contributing to the domain of Value Sensitive Design.

Authors	Definition/Concept of Proactivity in Public Services	Relevant Terms and Concepts	Used Framework/Deliverable	Specific Application	Values and Value-Related Concepts
Bharosa et al. (2021)	Highlights lack of understanding of what proactivity means Brüggemeier framework: inverse relationship between proactivity and level of required effort	Rights vs. Duties	Classification Framework - Eligibility Process + Delivery Process - Output: Level of Proactivity Design Principles - Government in the lead - Citizen in Control - Minimal Interactions - Data Minimisation - Personalized Service and Delivery	Set of Dutch public services classified based on level of proactivity and effort required for both the Eligibility and Delivery Process	Inclusivity Fairness Justice Control Transparency Responsibility Efficiency Understandability
Erlenheim, Draheim & Taveter (2020)	"The notion of proactivity in the public sector involves providing services to the public on behalf of the government's own initiative, based on the assumption that citizens support this and based on the data available in the government databases. Proactive services are provided automatically or with the consent of a person. "	Life events Business events Complex life events Citizen-centricity Once-only Principle Service Design	Design Principles - Wholesomeness - Proactivity & Once-Only principle - Accessibility through Digital Channels - Possibility to Opt-out - Personalized and role and situation-centered - Intuitivity and Simplicity - Transparency - Recent and Timely Information - Reliability and Security - Multilingual Access Reactivity-Proactivity Spectrum From pulled to fully proactive life-event-based services	Four case studies : Birth and Family Services in Estonia, providing proactive public services to parents of disabled children, from Estonia, providing home-lessness services in Australia through "Ask Izzy", and a case on providing life- and business event services in D5 countries (Estonia, United Kingdom, South Korea, Israel and New Zealand)	Effort Accessibility Inclusion Understandability Transparency Reliability Security
Khasmammadhli & Erlenheim (2022)	Provides no explicit definiton, but highlights that proactive services are an increasing trend among governments "Proactive services are citizen-centric by default"	Major factor categories determining person's readiness for a technology: - Social Conditions - Technical Conditions - Service Quality	Initial, exploratory model of what influences citizens' readiness for proactive public services Social Conditions + Service Quality influence Intention to Accept Citizen's Technical Conditions + Intention to Accept = Citizen's Readiness	Child allowance services in Azerbaijan	Trust Transparency Privacy Consent Convenience (Data) Security Usefulness Usability Control
Körge, Erlenheim & Draheim (2019)	"A proactive service groups together several services related to the same life event or business event, so that, for the service user, they appear as a single service that ideally functions automatically or with a minimum of interaction." "Orientation towards life/business events is an essential ingredient of proactive service design". "Paradigm shift from pull to push", but from citizen perspective "pull to pushed" Thus also highlights importance of user needs and citizen-centricity	Proactive services Event services Life events Business Events One-stop Shop Once-only Principle Opt-in and Opt-out	Table with benefits of implementing proactive business event services As-is and To-be model for starting a company in the Estonian company registration portal	Estonian Company Registration Portal (ERP)	Usability (Data) Security Efficiency Effort (Data) Quality
Kuhn & Balta (2020)	"Proactive services are initiated and delivered by governments proactively i.e. without help of its users [4] and are realized by a fundamental shift in how government works: instead of pulling applications and information from the user, proactive governments push, i.e. automatically and autonomously deliver services to the user. "	User-Centricity Non-Interaction Service Quality	List of seven user-government interaction purposes: Data provisions: Specification, eligibility, identification Support functions: trigger, authentication, payment, logistics Framework of forms of interaction laid out against the Service Quality dimensions: Trust, Efficency, Reliability and User Support	Initial services studied were dog license fee, registration card and free school transport in Munich. The framework was applied to the free school transport service	(Service) Quality Efficiency Trust Reliability Responsiveness Control Privacy (Interaction) Effort Accuracy Security
Kuhn, Buchinger & Balta (2021)	"One approach to user-friendliness is proactive government. The approach aims at eliminating any effort for the user whatsoever, resulting in a "no-stop-shop" [3, 4]. In particular, a service from such a government is provided proactively to the user [5] and without any application or user-government interaction [6]. "	User-Centricity Two-way vs. One-way interactions Business Process Change Business Process Redesign	Synthesize three dimensions of reoccurring challenges in the redesign of government processes: Service trigger, data collection, and process control. Three strategies were developed to overcome these challenges: Internalize user activities, leverage other parties, and enable user to outsource.	Business Processes from 9 public services The resulting strategies are applied to the example for obtaining a federal grant for university.	Control Privacy Trust
Linders, Liao & Wang (2018)	"government proactively and seamlessly delivers just-in-time services to citizens shaped around their individual needs, preferences, circumstance, and location" "Proactive public services are services that a public organization "pushes" toward its clients (citizens or businesses) based on their "needs, circumstance, personal preferences, life events and location"	Pull to Push One-stop Shop One-stop Window	Extracts common trends and enablers: A mature e-government foundation mobile technologies and ubiquitous connectivity (big) data analytics citizen centricity data-driven and context sensitivity Empowerment of front-line civil servants	3 case studies in Taiwan: -e-Housekeeper push services - 1-9-9-9 proactive call service - eServices to the Home	Privacy Accessibility Efficiency Accountability Transparency Inclusion Convenience
Lindgren & Scholta (2023)	"no-stop government means that a client (citizen or business representative) receives a public service from a public organization without having to do anything to obtain the service [2]." In the context of public services, the term 'proactive' means that a public organization anticipates a client's potential or actual need for service [25] and acts before the client becomes active	Public Service Automation No-stop Government Attentive Government No-stop Shop No-stop Government Limited No-stop Government	Three-sided model showing the proposed link between automation and no-stop government on the following axes/dimensions: - the internal organizational perspective (manual, partly automated and automated) - the external organizational perspective (reactive, partly no-stop and no-stop) - the technological perspective (analog/physical, partly digital, digital/virtual)	The study is mostly conceptual, no specific applications settings	Discretion
Murataj & Schulte (2022)	"The no-stop government aims to proactively provide public services to its citizens. No-stop government is expected to reduce the citizens' effort in triggering such processes as they will not have to contact or fill in any forms as previously required by public organizations"	No-stop Government No-stop Shop	A list of expected benefits and concerns	German young adults' expected benefits and concerns regarding no-stop government services	Efficiency Effort (Data) Safety Justice Privacy Control
Pawlowski & Scholta (2023)	"Proactive public services areservices that a public organization "pushes" toward its clients (citizens or businesses) based on their "needs, circumstance, personal preferences, life events and location. More specifically, "a public sector organization acts proactively if it approaches the recipient before the recipient contacts the public sector organization" (Scholta & Lindgren, 2019), thus acting in advance. Proactive public services can be seen as "a crucial step in the creation of a state that keeps citizens and their needs at its very core" (Plantera,2019)." Still highlights conceptual unclarity, and uses this a motivation for a taxonomy that can create academic common ground.	Opt-in and Opt-out Citizen-centricity Once-Only Principle	A taxonomy for proactive public services from the client's perspective, including the following dimensions (for a total of 23 characterstics) Purpose of Proactivity, Timing of Proactivity, Need for Additional Data, Change of Proposed Data or Delivery Options, Choice of Service Receipt, Medium for Proactive Communication, Timing of Communication in Proactive Service Delivery, Type of Core Service.	67 examples of proactive public services in the following countries: Two example objects and their classifications in the taxonomy are portrayed in a table: Receiving information about COVID-19 measures in Sweden and Updating documents because of marriage in Estonia	Consent Choice Wellbeing Accessibility Inclusion
Scholta & Lindgren (2023)	"In the case of a public service, proactivity refers to providing the service or a part of the service without the client's having to request it (Pawlowski & Scholta, 2023)."	Pull to Push Administrative burden Outreaching Government Attentive Government No-stop Government Auto-enrollment Administrative Renewal	The article is conceptual and builds a theory surrounding how proactivity will change the three dimensions (the public sector, digital technology and the service process).	No specific application is used.	(Service) Quality Efficiency Privacy Self-determination Discretion Equality Responsiveness Availability Inclusion Consent Accountability Accessibility Usability Equity Autonomy

Scholta & Lindgren (2019)	"If public sector organizations intertwine their service delivery with proactivity, then this will lead to a shift from a "pull" to a "push" paradigm where recipients do not approach the public organization, but the organization approaches its recipients (Linders et al. 2018). In an ideal scenario, recipients do not have to perform any action to obtain a public service (Scholta et al. 2019)."	Pull to Push Anticipatory Service Delivery Outreaching Government Attentive Government No-stop Government One-stop Shop Limited No-stop Shop No-stop Shop Predictive Delivery	This article is more conceptual and builds a theory surrounding how proactivity affects digitally enabled public service delivery.	No specific application is used.	Efficiency Discretion Legitimacy Accountability Consent Equality Responsiveness Availability Inclusion Privacy Usability
Scholta et al. (2019)	" Proactive service delivery means that the government delivers a service to a citizen when a life event occurs, without the citizen having to request the service." "we extend Linders et al.'s (2015) definition of proactive e-government by adding the layer of predictive service delivery and being stricter in our understanding of proactivity by discriminating between information and service delivery. We classify an information service as proactive if the citizen receives information without initiating a request for it, but in the case of transaction services,the service delivery can be considered proactive only if the citizen receives a government decision on her or his case (e.g., payment of money, building permits) without performing an action."	One-stop Shop Limited No-Stop Shop No-Stop Shop Predictive Service Delivery Life Event Services Citizen-Centricity	An e-government stage model describing the transition from a one-stop shop to a limited no-stop shop to a no-stop shop. Progress in this transition is measured in three dimensions: integration of data collection integration of data storage purpose of data use	The example of applying for family allowance in Austria is used to illustrate the stage model. Cases from Austria, Estonia and Australia are used as classifica-tionexamples.	Efficiency Effort Security Privacy Trust Consent Transparency Effectiveness
Tibilova, Ovcharenko & Potapova (2020)	"Proactive provision of public services means that the initiator of the process is the state, which, on the basis of the analysis of the citizens' data known to it, offers itself to receive the requests for services it is entitled to provide."	Service Quality One-Window Principle Human-Centrism Super Service	"This paper describes two stages of digital transformation of state interaction with citizens and business. The first stage is the construction of e-government, conversion of interaction to electronic form; the second stage is human-centered digital transformation based on proactivity and subsidiarity"	Three stages/forms of proactivity implementation in St. Petersburg are described.	Transparency Efficiency Controllability (Data) Availability (Data) Veracity
Sirendi & Taveter (2016)	Provides no explicit definition, but highlights the importance of stakeholder(and thus citizen-) centricity. Also mentions pull to push paradigm from Linders(2018)	Agent-Oriented Modeling Service Design Thinking Action Design Research	AOM goal model to describe the ideal proative service, focusing on well-being, financial security, social security and feeling cared for by the state.	Family Benefits Service in Estonia	Efficiency Productiviy Effectiveness Security Well-Being
Sirendi et al. (2018)	"The citizen must not seek information or services from government, but the government proactively and seamlessly delivers services to the citizen (Linders et al. 2015). "	User-Centricity Pull to Push Life Event services Agent-Oriented Modeling One-stop Shop Opt-In/Opt-out	Framework for effective appropriation of proactive e-services.The main takeaways: - Existing infrastructure should be integrated - Services of e-government still need to be marketed for the target groups	Two case studies from Estonia and Australia, specifically in the context of disadvantaged users: parents of disabled children and the homeless (Ask Izzy)	Efficiency Effectiveness Accessibility Transparency Trust Control

Figure 3.5: Main findings from the 16 reviewed papers

3.6. Subquestion 1: Relevant Values in Digital Proactive Public Services

Based on Figure 3.5, which included all reviewed papers, values were grouped in dimensions with similar implications.
These dimensions largely represent the prevalent issues surrounding proactivity in public service delivery. They were derived from the literature through assessing the recurring themes: Proactivity is seen as means to achieve **Service Quality** and **Social Justice**. However, concerns about potential losses in **Autonomy** and **Privacy and Security** are listed throughout the literature as well. Finally, since the domain is focused on public services, certain values are focused on the accompanying **Governance and Responsibility** values. Note that some value examples could be grouped in multiple dimensions (such as responsiveness and accessibility). This highlights the interconnected nature of values and how some can enable others. Good service quality, for instance, implies the service being accessible, which can in turn contribute to social justice through inclusion.

- **Social Justice:**This dimension has a high emphasis on intrinsic values like justice, equality and wellbeing. There is likely a high degree of overlap between these values as well, where one being present enables the support of another.
- **Privacy and Security:** This dimension covers anything concerning with data sharing and the consequences this may have.
- **Governance and Responsibility:** This covers all the values arising as a consequence of being a public service, and matters of responsibility, legal matters and the efficiency and effectiveness of the service.
- **Service Quality:** Any value concerning service design of a specific artefact, such as effort on the user's part, usability, efficiency on the user side, and understandability.
- **Autonomy:** This concerns the level of control users have over their data and how the service is delivered to them. It also concerns the level of autonomy the user still has

This classification of values, including examples of which values from the literature review were grouped under which dimension, can be found in Figure 3.6. This also forms the preliminary answer to the first subquestion concerning the key values surrounding digital proactive public services. The dimensions

Value Dimension	Example values	Justification
Social Justice	Justice Equality Equity Fairness Inclusion Wellbeing Accessibility Responsiveness	A dimension focused mostly on intrinsic values to safeguard citizens' wellbeing.
Privacy and Security	Privacy Discretion (Data) Security (Data) Veracity Trust Traceability Transparency Safety	This covers everything revolving data, the key driver for proactive public services
Governance and Responsibility	Responsibility Accountability Transparancy Legitimacy Validity Efficiency Productivity	The principles tied to applications for public services, which have a duty to citizens
Service Quality	Usability Understandability Effort Responsiveness Reliability Convenience Efficiency	More design-related principles (that may serve other dimensions) to ensure the service accomplishes what it should
Autonomy	Choice Consent Control Autonomy Self-determination	From the citizen perspective, the level of control they still have while receiving a proactive service.

Figure 3.6: Value Dimensions

will also serve to inform the coding procedure in the interviews, which in turn help validate and elaborate on this preliminary answer.

4
Theoretical Framework

The following chapter will provide the necessary context to analyze the unit of analysis: Value conflicts and their surrounding conditions. First, the notion and definition of values will be discussed, including some crucial concepts like commensurability. Then, the Value Sensitive Design method will be briefly discussed and related to the approach taken in this thesis. Two different frameworks for addressing value conflicts from the literature are provided, which will be compared and contrasted. As a result, a preliminary frame can be created for how value conflicts could be managed in the proactive public service setting. The resulting theoretical framework lays the groundwork for subquestion 4 concerning how value conflicts are addressed in practice, given that the selection of strategies are used to guide the interviews through the provided information sheet(see Appendix C). As such, this framework builds the foundation for analyzing values and value conflicts, while also supporting the interview process.

4.1. Values and Value Conflicts

Values are a broad concept with numerous potential implications. Numerous conceptualizations are possible (from the very philosophical to the practical). For the purposes of this thesis, a more practical definition was deemed more appropriate, since the framework laid out here is meant to be applicable in practice and understandable for practitioners without experience in designing for values. In Van de Poel (2009), they describe how there is often a distinction made between intrinsic and instrumental values. Intrinsic values are seen as ”good in themselves”, whereas instrumental values are considered good because they contribute to an intrinsic value. This distinction is not always straightforward: Which fall under which category is subject to philosophical debates, as even the philosophers who came up with the categorization admit themselves. In the current research setting, one could imagine that while trust may be an intrinsic value (from the perspective of the designers and practitioners), proactivity itself would be more instrumental, since it could contribute to that trust or to another value, like citizen wellbeing. Although in the strict, philosophical sense of the word, some of the concepts derived in this thesis are contestable values, they were included in the domain literature (see Chapter 3), so they are considered part of the key values surrounding proactive public services.

The domain of proactivity contains various references to values. Sometimes, they are contained in the objectives surrounding proactivity (i.e. efficiency, user-centricity etc), or they are values that must be considered to avoid certain risks connected to the proactive public service domain (transparency, privacy, etc.). There are numerous ways to approach designing with these values in mind. In this thesis, we will include aspects of Ibo van de Poel’s Value Sensitive Design (VSD) approach, since it was specifically tailored with engineering design in mind and is meant to produce concrete design requirements to guide the design process and eventual implementation (Van de Poel, 2013). This approach is thus applicable to proactive public service design, since this is typically achieved through digital applications and processes.

4.1.1. From Values to Design Requirements: Value Hierarchies

Translating values into design requirements is a crucial step in VSD. Van de Poel (2013) explains this process through value hierarchies. Starting from the top of the hierarchy, there is a value. This value can then be translated into more general norms, which prescribe more specific actions that must be taken to achieve said value: The value ”safety” could be specified as the norm ”minimize the probability of a technical installation exploding” (Van de Poel, 2013). The lowest level of the hierarchy represents the design requirements. These design requirements are even more specific than the norms, and can take the shape of features, functionalities or processes that must be in place. Hierarchies can be constructed top down (starting with a value) or bottom up, by tracing back *why* certain requirements are in place (Van de Poel (2009) calls this the ”for the sake of” relation). The paper acknowledges that these specifications and translations are highly context-dependent, and thus require value judgements (that may differ between involved stakeholders). The goal behind building value hierarchies is to make these value judgments more explicit and transparent. This can also reveal where value conflicts may stem from, and under which conditions, which is why this approach was deemed an appropriate place

to start for this research project.

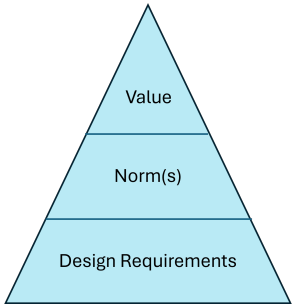

Figure 4.1: Example value hierarchy template, adapted from Van de Poel (2013)

For our research context, this method is somewhat adapted. Traditionally, one starts with identifying the set of important values and specifying them. For this project, it became evident that these specifications vary depending on each stakeholder's interpretation of said value, and defining a universal, adequate set of norms for each value proved infeasible at this stage. Van de Poel (2013) does account for the possibility of multiple specifications for one value, but indicates that some may be more adequate then others. Given the novelty of the research area and the early stages of the example case, choosing a single adequate conceptualization would be more of an arbitrary choice rather than a well-considered decision. Since Subquestion 3 *does* cover features and functionalities, which correspond to design requirements, the norms step was essentially "skipped". The example value hierarchies constructed in Chapter 6 thus contain features and functionalities found in the interviews. This is typically where value conflicts arise: If one requirement could detract from another value that is considered important, the two could conflict. In van de Poel (2015), where value conflicts are introduced, it is argued that specification is the step where value conflicts arise, thus at the norms level. Value conflicts may be resolved at the requirements level (since changing norms is more ambiguous and cultural), where certain design features and options could be considered. This demonstrates how value conflicts are connected to value hierarchies, and these may make the conflict's origin more apparent.

4.1.2. Value Conflicts

According to van de Poel et al. (2011), a value conflict can be identified in case the following conditions apply:

1. A choice has to be made between two options for which at least two values are relevant as criteria
2. At least two different values select at least two different options as best
3. There is no value that trumps all others as choice criterion. If any small amount of the first value is worth more than any large amount of the second value, that first value trumps the latter.

Various examples are provided to illustrate value conflicts. One example discusses the choice between different types of seat belts that have varying degrees of safety or freedom for the car occupants. The other example covers the conflict arising between ecology and safety when determining how to protect the land around the Eastern Scheldt estuary from flooding. Though these examples are rather straightforward, it is easy to imagine how complicated the situation can become when multiple values must be considered. That scenario may certainly apply when designing a proactive application that covers a range of public services with various goals, risks and challenges.

In the van de Poel (2015) framework, a distinction is made between value conflicts and moral dilemmas. All moral dilemmas are value conflicts, but value conflicts are only moral dilemmas if there are values at stake that correspond to moral obligations that cannot be met simultaneously. It can be assumed that in the case of designing public services, moral dilemmas may definitely be present, since a government has a set of moral responsibilities to its citizens. These moral responsibilities could be made concrete in the form of a minimal threshold that should be met on some of the relevant value dimensions. This becomes relevant for the later strategies to address value conflicts, since these thresholds may be

changed or adjusted to ease the conflict. In another article, Flanagan et al. (2008) pointed out that value conflicts were not the result of fundamental incompatibilities between values themselves, but rather the the constraints that these values would impose on a given system or device. This aligns with the perspective in van de Poel (2015), where specification is seen as the step where conflicts may arise. They also mention how this could be resolved through creative redesign, by assessing how these constraints could be changed, which they named ”dissolving conflict”.
Overall, the definition provided by van de Poel should be suitable for the proactive public service setting and the PRA case as well. The third criterion (no one value trumps all others) may be the most difficult to defend, since there may be priorities set for the PRA project. Still, government parties formulating one dominant value to be pursued is unlikely, and opinions on which value should matter most in design likely vary depending on who is asked. Thus, we expect that all criteria will be fulfilled in this research setting, thus this definition and the accompanying approaches to resolve value conflicts can be appropriated and adapted for this context. We do extend the definition by also including instrumental values that may not strictly fall in the moral domain, like feasibility. Such factors are too crucial to ignore and may still be linked to moral factors, such as spending taxpayers' money responsibly.

4.1.3. A Note on Value Commensurability

An important concept to define before exploring the various strategies is Value Commensurability. Although there are many philosophical deliberations surrounding the concept, in this thesis, we will simplify it to describing the ability to assess the relative worth/importance of different values. According to van de Poel (2015), value commensurability is a necessary condition to applying some of the strategies to address value conflicts. It can be further divided into level commensurability and ratio commensurability. The former requires the ability to compare values that may be measured in different ways (e.g. one value that can be quantified, like efficiency operationalized as the number of steps required to perform a certain action, vs. one value that is measured through an arbitrary 1-10 scale). The latter takes it one step further and requires being able to compare values on the same measurement scale.
Incommensurability, in turn, means that it is impossible to evaluate values on a single unit of measurement or scale. The value of justice, for example, lacks a unit of measurement, so two policy decisions or designs are incommensurable on the value dimension of justice.

4.2. Various Approaches to Value Conflicts

In the following sections various approaches to address value conflicts are discussed. They all have advantages and disadvantages, and some may be more applicable to the research setting than others. Explaining how each of them work in theory will serve later discussions in interviews about the practicality of applying them to manage value conflicts. At the end of the chapter in Figure 4.2, All strategies are summarized with their pros and cons, as well as an indication of how applicable they may be in this research setting.

4.2.1. The van der Poel approach

The VSD approach, as described earlier, does not just introduce a way to translate values into design requirements. It also acknowledges the potential rise of value conflicts and introduces various approaches for handling them. This section will discuss each method and consider the implications of using it.

Calculative Approaches

The first three methods introduced by van de Poel (2015) suppose value commensurability, and aim to find the best option. The first, cost-benefit analysis, requires expressing all relevant values in one common ratio scale, typically money. This is helpful because it allows for straightforward comparison of alternative prioritizations. However, the simplicity ends there: Expressing the monetary benefit or cost of a value is difficult to do in a reliable, uncontroversial fashion. How, would one, for example, put a number on the value of trust or inclusion? Furthermore, money may not be a good measure for utility, since money has a diminished marginal utility (a gain in income from 100 to 200 euros typically implies a larger increase in utility than a gain in income from 10.100 to 10200, even though the magnitude of the increase is identical.) This method would also imply that a loss in one value can be compensated by a gain in another, which may not hold for certain fundamental moral values or legislation-protected

rights that public organizations have a responsibility to uphold. Such morally unacceptable trade-offs are called ”taboo trade-offs”. This approach of trading off one value against another characterizes the second calculative approach, in this case without expressing values in terms of monetary units. The question that this trade-off poses is ”How many units of value X am I willing to sacrifice in order to increase one unit of value Y?” Here, the issue of whether one value can compensate for the lack of another arises again, since the fact that a value conflict emerges implies that they are both important and may resist trade-offs. Additionally, one may be willing to sacrifice more or fewer units of a value depending on what level it is at currently. The more fundamental disadvantage of taboo trade-offs remains for this strategy as well.

Finally, the maximin method remains, which scores alternatives based on maximizing the lowest-scoring value. If the values at hand are still freedom and safety, and freedom is the lowest-scoring value for Seatbelt 1 and safety for Seatbelt 2, the option with the highest scoring low value would be selected. However, issues arise here as well. Essentially, this method compares alternatives on different value dimensions (two alternatives are not compared on safety, but the scores for safety and freedom are compared against each other). As the number of alternative designs increase, this becomes more complicated. Also, this method may lead to irrational results: A design that scores far better on freedom, but only slightly worse on safety compared to the other design, would lead to choosing the slightly safer design, even though there is a significant gain on another value.

For the purposes of this study, the three methods are all grouped under calculative approaches because they rely on being able to score a value in some sort of numerical way. This may not be possible in designing for proactive public services, since certain public values have to be upheld and it may not always be feasible to attach a score to them. Furthermore, Government must uphold numerous values simultaneously, so making these calculations may prove too complex. Still, since these calculative approaches are a common tool in engineering design, so they may be interesting to consider conceptually and offer as an option to the interviewees.

Satisficing

Satisficing is performed by setting a minimum threshold for each relevant value (and especially their accompanying design requirements). Each possible design that meets all the thresholds is deemed acceptable, and the eventual design is chosen from the set of acceptable options. This approach appears rather intuitive for designers: in the process of setting design requirements and evaluating prototypes, there are typically standards and best practices that they aim to incorporate. Here, the complications lie in setting the thresholds. For some values, such as privacy, these thresholds may be set by legislation. For others, the NORA principles(see Chapter 5) may provide some guidance on a minimum acceptable level. This would partly address value conflicts, but the issue of selecting the design from a set of acceptable alternatives remains. van de Poel (2015) suggest that this strategy could be combined with others to ensure that a minimum level of a certain value can be met to correspond with certain moral obligations. Still, satisficing can lead to irrational results: A solution that scores just below a certain threshold but significantly better on another criterion may be preferable, but it will not be chosen over alternatives that do meet all thresholds. In this case, it may be advisable to adjust these thresholds, which is where respecification comes in.

Respecification

In contrast to the other methods, respecification requires more consideration and judgment of the values at hand. If the values underlying certain conflicting design criteria can be respecified, the conflict may be resolved without having to make any sort of trade-off. In the seatbelt example, freedom may be reconceptualized from ”being able to do what you want” to ”being able to make your own well considered choices”, which comes with more responsibility. In that sense, an automatic seat belt can still comply with freedom, since the driver chose to use this system.

Specifiying a value is the next step, which implies translating a general value or norm into more specific design requirements. A specification is adequate once satisfying the requirements also implies satisfying the accompanying value or norm. Typically, value conflicts originate from the specifications of these values (which prescribe the design options). Since multiple specifications could uphold a value,

choosing a set that does not conflict with other value specifications could resolve or avoid a conflict. Although this method may appear to be the ideal loophole, respecification may not always be possible or desirable. In some cases, respecification may weaken one of the values, whether deliberately or accidentally.Arguably, this would still imply trading off the weakened respecified value against the other. Of course, this does not have to be the case, but it is something to be warned against.

Innovation

Value conflicts could also be solved through technical means: Innovative design may ease the conflict by enlarging the feasibility set. The provided example here is the solution that was found for the storm surge barrier in the Eastern Scheldt estuary. Some solutions were better for the area's ecology, while compromising somewhat on safety. The safer solution (simply closing off the estuary) was damaging to the estuary's ecology. The solution found by a group of students was a barrier that closed in case of a threatening flood, but would otherwise be open to allow the water to flow as it would normally. In the proactive public service setting, use of certain novel technologies, like blockchain or Self Sovereign Identities(SSIs) (see Chapter 5)may make safeguarding privacy easier, with fewer sacrifices in efficiency and user friendliness.

This strategy has the major issue that it does not prescribe *how* one could develop the innovation that eases or resolves a value conflict. Iterating on translating values into increasingly specific design requirements may help. Another suggested approach to guide innovative design is avoiding "value dams" (features that are opposed because they conflict with certain values) and including "value flows" (features that should be included because they support an important value). In the dam example, closing off the estuary fully was a value dam for environmental groups, while government agency Rijkswaterstaat, opposed having no dam to protect the surrounding area at all. Still, this is more of a guideline for design rather than a fully prescribed strategy, but since it seems to be an integral part of many design processes, innovation as a strategy may still be an intriguing approach.

4.2.2. Thacher and Rein Framework

The second approach comes from a different research area, namely policy design. Thacher and Rein (2004) offer various strategies as alternatives to the conventional approach of making a trade-off or attempting to balance competing values. This is also based on the perception that policy actors reach for various other methods, namely cycling, firewalling and casuistry. These strategies help decision makers and policy designers avoid the analysis paralysis that may take place when encountering conflicting values. The difference between this framework and the van de Poel framework mainly stems from their purposes: While the latter was developed in the context of engineering design, where the end product is an artefact, the Thacher and Rein approach hails from the public policy design domain, and takes its examples from this domain as well. The advantage of this approach is that it considers values as dynamic, rather than the more static value to specification to requirement pipeline described by Van de Poel (2013). Thacher and Rein (2004) indeed acknowledge that their methods view values and value conflicts as "an unfolding practice that relies on more complex forms of practical reasoning than the one that underlies the trade-offs approach—forms of reasoning that cannot be reduced to an algorithm because they are shaped by the vagaries of time, place, institutional location, and other contextual features whose force can be difficult or impossible to articulate in advance" (p.482). The factors mentioned here align with the conditions that may impact value conflicts and strategies, and their influence on the design of proactive service artefacts is undeniable. Hence, a combination of strategies from policy design and engineering design seems useful, since both come together in the development of a public policy-based artefact. The policy design that informs regulations on which proactive service artefacts are based falls outside of the scope of this project, so the following approach is taken: For each of the more policy-based strategies, tentative translations to the design setting will be described to see to what extent they could be applicable.

Cycling

Cycling, the first mentioned strategy, implies choosing different values to focus on sequentially. This is a way of addressing value conflicts by bypassing them: by limiting the goals of a policy and prioritizing different values at different stages, new strategies may arise, allowing for novel approaches to a values dilemma. Cycling can occur naturally, as a policy with a certain focus may be overturned once the consequences of other values being ignored become too severe. The provided example concerns whether

police departments prioritize community relations or crime control and correspondingly, the values of liberty versus order. Prioritizing the latter would result in more use of authority, crime prevention and arrests. As a result of such practices in the NYPD, they received criticism of not paying enough attention to liberty and ensuring the community did not feel harassed. In response to this backlash, the department then cycled to focusing more on community perceptions.

Although this process may seem somewhat reactionary, policy makers can also choose an initial option *because* they know they can adjust and cycle to a different approach later. For example, choosing to negotiate before implementing sanctions still leaves open the possibility of taking more drastic measures later. The choice that allows for cycling to an alternative may thus be a more attractive option. Furthermore, Thacher and Rein (2004) point out that cycling can help discover new ways to uphold numerous values simultaneously. By first designing a system that prioritizes providing aid to poor households, and only then adjusting the design to ensure it also promotes self-reliance, may yield a more balanced design than if generosity and self-reliance had been pursued simultaneously. This may even lead to spiraling, which is distinct from cycling in that progress towards a more balanced design is made in the process of sequentially prioritizing different values. Of course, this does come at the risk of downward spiraling: After having emphasized value X at the expense of value Y, the system or policy may have become locked in to a low level of value Y that is hard to restore to a higher level. Approaches to uphold X are too ingrained in the organization's processes, or practices to uphold Y have been forgotten. Still, cycling may be useful when there is uncertainty about how values should be balanced against one another. Cycling does not require determining or ranking the relative importance of certain values, rather, this is determined through experimentation and iteration.

In the setting of proactive public services, and the PRA in particular, this may be somewhat difficult. Once an application has been developed and released, it can be difficult to reverse changes. Furthermore, it may not be desirable: If the design choices are received negatively,this may deter already skeptical citizens from using the system altogether. Given that the consequences on people's lives can be severe (as history has already demonstrated in the Toeslagenaffaire), cycling may be a dangerous approach. Still, the cycling and hopefully upward spiraling *could* help in the design phase by first prioritizing one value, then adjusting in the next phases to ensure other relevant values are included. The main challenge would be determining which value to start with, which would be a contentious argument since it could still imply that the value chosen first is prioritized more than the others. Ensuring that the following values are given equal attention, then, is the responsibility of the team. Still, the resulting choices may make the design process easier, as compromising through this method may be more feasible than attempting to integrate multiple conflicting values simultaneously.

Firewalls

Firewalls are another way of addressing with value conflicts, or rather, bypassing them. One set of values can be pursued in one institution, and values that conflict are assigned for another structure to pursue. Different structures are insulated from one another, allowing them to take full responsibility for their specific set of goals and values. Because all relevant values are represented by a champion institutional structure, no values are dismissed in favor of others.

The idea is that different structures would be free to pursue its core goal, without being encumbered by the responsibilities for other values. However, what determines what should be government's core value? The examples provided by Thacher and Rein (2004) allow for more clear delineation of departments and their assigned values: Humanitarian agencies can focus on their core business, e.g. providing aid to refugees, while they can leave the responsibility of post-conflict reconstruction to other institutions. However, for services like the PRA (and proactive public services in general), multiple institutions and structures are involved by nature, and their integration is an oft-cited necessity to make proactivity work. Thus, insulation is rarely desirable for institutions, especially if they have to interact. The feasibility of applying the firewalling approach in the proactive public service setting is therefore questionable. Multiple institutions are involved by nature, and integration *across* these departments is crucial. Furthermore, the relevant values are often intertwined, so delegating one value to another department does not always make sense (e.g. pursuing efficiency *while* safeguarding privacy is the goal, rather than working towards them separately). In this case, these values have to be considered

simultaneously. For this scenario, Casuistry may be more appropriate (Thacher & Rein, 2004).

Casuistry

When numerous values must be considered at the same time, casuistry may offer another alternative to trade-offs to handle value conflicts. The process begins with assessing the features and context of different situations and determining what would be the best way to approach them. Then, the current case is compared against these situations, and the ways in which they are (dis)similar determine whether past solutions may be appropriate. By building a taxonomy of past cases, how they were resolved and what the consequences were, analogous reasoning can be applied to reach a tentative conclusion on how current situations should be handled. The challenge in applying this approach lies in building a database of specific cases that new cases can be compared against. This already requires significant time and consideration of what makes a situation analogous, and since values are highly context-specific, judgements regarding similarities and differences are difficult to make. Comparable situations in the PRA setting could be similar applications in other countries, but since institutions, values and objectives may differ significantly, the decisions made elsewhere may not even apply. This once again demonstrates the importance of contextual conditions surrounding value conflicts! Furthermore, casuistry requires significant institutionalized knowledge, and in a relatively new application area like proactive public services, this may simply not be available yet. Still, the approach may be considered to look at past public policy decisions where certain values were prioritized and what the consequences were. This may inform what the desired outcome for a proactive public service may be, and in turn, which values should be guiding the design.

4.2.3. Stewart's Extensions

Similar to Thacher and Rein (2004), Stewart (2006) looks through the lens of policy design, but with a focus on policy change. Here, different strategies of conflict management are applied to analyze the process of changing circumstances. Stewart emphasizes that when a new government attempts to make changes, it will face the impact of existing decisions and structures. Much of public policy is partly invisible, but may still inhibit change when governments attempt to implement new policy. Similarly, in proactive public service design, there is a high degree of dependency on existing legislation, available infrastructures and far-reaching dependencies between different services and benefits. Thus, although the strategies in this paper may not always directly apply in the service design context, there may be useful parallels between how value conflicts can be managed in policy design and proactive public service design.

Cycling

Stewart does not change the definition of cycling, but rather adds context to its applicability. She posits that when value conflicts can no longer be accommodated through the other strategies, cycling is used to oscillate between value pairs. This oscillation results from backlash against the outcomes of a policy, which then leads to a rebalancing of the value(s) of focus. Indeed, in the case of proactive public service design, the public backlash resulting from discriminatory algorithms that caused the Toeslagenaffaire may stimulate a focus on the values of trust and transparency.

Structural Separation

This strategy can be seen as an equivalent of the Thacher and Rein (2004) Firewall strategy. According to Stewart, structural separation works sufficiently if there are clearly defined jobs to be done, and stable professional paradigms to accompany them. However, when consistent action across various functions is required, structural separation will cause difficulties. Structural separation or firewalling is also presented as a way of displacing value conflicts, alleviating them temporarily by placing accountability elsewhere. This, of course, may not be a sustainable solution in the long run.

Casuistry

Aside from providing some examples, Stewart does not extend the strategy of casuistry. She does point out that making decisions based on past outcomes, the core of casuistry, is difficult because comparing the marginal utility of different outcomes is anything but straightforward. How would one compare the benefits of an extra hospital against the benefits of an extra frigate for the navy, for example, or, in the proactive public service setting: How would one express the benefits of focusing on inclusion compare

to the marginal utility of prioritizing an efficiency-based design? The difficulty of quantifying or even just measuring the marginal utility of different options is also reflected in the shortcomings of the different calculative approaches in van de Poel (2015).

Hybridization

The first new strategy that Stewart offers appears to oppose the idea that value conflicts inevitably arise: Hybridization, the coexistence of two policies or practices with different value bases, can arise as the result of the inheritance effect, where an incoming government inherits policy from the previous decisionmakers. As new information comes to light through unexpected results of old values and policies, incremental amendments can be made to accommodate new values. This is a cyclical process, where potential interaction effects that arise from these amendments have to be resolved in turn. This approach essentially accepts that new values may build on top of old ones, even if they are somewhat opposed, and incremental adjustments will continue to be made as time passes and new priorities or values are pursued. This approach appears somewhat similar to cycling, but adjustments are based on changing old policy rather than consciously cycling the prioritized values. This approach also seems more suited to the context of policy design rather than the design of a service artefact. Existing policy will influence the design of a proactive public service artifact, and designers will have to build within this frame. The whole PRA project could be seen as an exercise in hybridization: The team is trying to build an application that overcomes some of the shortcomings of existing legislation and application portals. Although this hybridization view is realistic, it is not a deliberate strategy, so it will be considered but not explicitly included in the interview sheet.

Incrementalism

Incrementalism is a decision-making strategy meant to ease technical complexities and lacking sufficient information. When a short-term response is required and change is needed, incremental changes are typically easier to implement and will not be opposed as strongly. Still, when value conflicts are present between new and old policy, even the smallest changes favoring a certain value may be considered undesirable.Enacting change in bureaucracies can be challenging even when change is incremental, as existing values are embedded in professional practices, attitudes and cultures.

Bias

Finally, Stewart (2006) add the ”bias” approach, which is not so much a deliberate strategy, but moreso demonstrates how two existing power mechanisms influence how value conflicts are addressed.The first is the existing policy paradigms, namely the set of assumed values that are inherent to any institution. Values that conflict are typically ”organized in” and ”organized out” through separating them into different departments. However, even when conflicts still persist, existing dominant paradigms still dominate the discussion, and as a result the conflict may be resolved in favor of values that are taken for granted as the consensus within said institution. This dominance of one set of policy paradigms (and their underlying values) is invisible from the inside, because it is so ingrained in the institution’s operations. The second power mechanism is technicization, which is the tendency to deal with value conflicts through technical means. Some performance measures, such as efficiency and effectiveness, are easier to quantify, and these values may crowd out other more abstract values. Stewart points out how the values and language of management have impacted the public sector significantly in in Economic Cooperation and Development(OECD) countries, and specifically in English speaking countries. In the end, organizations typically intend to translate values into management regimes and specific demands. Technical decisionmaking tools are often applied to ease this process, and these are again biased towards quantifiable values. On top of that, technicization somewhat alienates those less well-versed in managerial language from contributing to the deliberation process around value conflicts. The presence of bias in addressing value conflicts in the proactive public service domain is easily imaginable. The focus on efficiency from government clients, but also technicization from the design domain: Wanting to test and evaluate on certain measures makes bias towards easily measurable values likely. Again, this strategy will not be presented explicitly, but will be considered in analyzing the results and conditions in which value conflicts are managed.

4.2.4. Overlaps, differences and deliberations: Which framework to use?

It is important to note that while the framework by van de Poel (2015) is more geared towards design of artefact or system, the Thacher and Rein (2004) framework (including the extensions from Stew-

art(2006) is more focused on policy design. Furthermore, the van de Poel approach is arguably more static: Designing an artifact based on certain established principles and guidelines is a one-off exercise. Even if multiple iterations are developed before a final design is chosen, the idea is typically that this final design is sufficient for at least a time. Policy, on the other hand, is an ongoing process that changes depending on political context. The view on value conflicts from Thacher, Rein and Stewart is therefore much more process-focused. Rather than approaching value conflicts as something that can be resolved through one strategy or another, the different responses are more dynamic over time. Seemingly, the goal is not to *resolve* the value conflict, but rather, to avoid the paralysis that can occur when policy makers are met with value conflict (Stewart, 2006). Each approach then changes policy over time. On the other hand, a design for an artefact has to be finalized at some point, thus the strategies are intended to provide a solution, even if it is imperfect. At first glance, the van de Poel method appears more applicable to the PRA example, at least, since this concerns a specific artefact where decisions have to be made. On the other hand, proactive public services are based on government policy and rely on what it prescribes. Thacher and Rein noted that ”Responding to value conflict is partly a process of exploration and learning, any particular response will rarely endure for long, because new discoveries may make it obsolete.” (Thacher & Rein, 2004). Despite some of the context of their framework not being entirely applicable to the specific case setting of this thesis, it is crucial to acknowledge that addressing value conflict is indeed a process, not just a one-off exercise. This is important to consider when extracting the conditions in which these value conflicts are managed. Even if some of the policy-based strategies are not further considered, they can help analyze the context in which other strategies are applied. Furthermore, interesting interactions may occur between some of the strategies: Some of the van de Poel strategies feed the bias mechanism from Stewart (2006), since translation of values into measurable design requirements is part of the VSD process. By definition, these requirements make any van de Poel strategies prone to technicization. Respecification may also be influenced by said bias, as easily measurable specifications could be favored.

4.3. Overview of Strategies and Applicability

In Figure 4.2, we have provided an overview of all the strategies, including some of their main advantages and disadvantages. As an addition, their potential applicability to manage value conflicts is assessed. This is not intended to reflect which strategy is most likely to be applied, but rather whether it could provide a solution for addressing conflicts in the specific case setting of proactive public service design. The strategies highlighted in bold were included in the strategies information sheet that was provided to participants. Overall, it has become evident that none of these strategies are guaranteed to *solve* a value conflict fully. Rather, they are a solution to prevent them being ignored or endlessly pondered. Each strategy may lead to irrational results in some context, thus their shortcomings should be acknowledged. The van de Poel strategies of cost-benefit analysis, direct trade-offs and maximin were grouped generally under ”Calculative Approaches”, since they all require attaching some sort of numerical score to rank and compare values. Although this may be difficult to perform in a setting where values are hard to measure and operationalize (how does one measure whether a feature contributes to ”trust”), this approach should still be included as it may play a role in pitching certain designs to public sector clients. The other strategies were directly applicable to designing for proactive services, so they were all included. As mentioned, the strategies presented and extended by Thacher and Rein (2004) and Stewart (2006) are more process based and developed in the setting of policy decisions over longer periods of time. Although it is not unthinkable that the design and implementation process of a proactive service artifact will be a lengthy process, some of the strategies are simply not applicable or appropriate to introduce to participants. For example, the decision was made not to include bias in the information sheet, since it is more of a subconscious influence on the approach rather than a deliberate strategy. It will be considered as part of the Conditions Framework, though, as it could play a significant role. Having established the theoretical context behind value conflicts and possible ways to manage them, we can feed them into the coding protocol for the interviews. The descriptions of each of the strategies can help determine which are used or aimed for by experts and practitioners alike. This empirical assessment of how value conflicts could be managed would not be possible without background knowledge on how value conflicts could be addressed theoretically, whether it be through a policy or design process lens.

Strategy	Pros and Cons	Applicability
Calculative Approaches	+ Straightforward comparisons enabled - Taboo trade-offs - Difficult to determine scores	**Applicable,** but limited to the possibility and appropriateness of attaching scores to public values
Satisficing	+ Can account for numerous values + Avoids moral unacceptability - Setting thresholds - Decision problem remains	**Applicable** since it is typically already used in service design
Respecification	+ Encourages re-evaluation of values - May weaken respecified value - May not work for every conflict	**Applicable**, but limited to specific cases
Innovation	+ Encourages creative approaches that could lead to solutions that are clearly better - Not applicable in many cases	**Applicable**, but highly context-dependent
Cycling	+ Allows for optimization on multiple different values - Potential "lock-in" to the first value that was prioritized	**Applicable** as a deliberate design strategy
Firewalling/ Structural Separation	+ Simplifies who is responsible for upholding which value - Integration across institutions is often required	**Not applicable** as a deliberate solving strategy, given the overlap and integration present in the given context
Casuistry	+ Learning from past successes and failures to inform current decisions - Requires significant institutionalized knowledge	**Applicable**, but unlikely to be feasible in an innovative setting with few comparable cases
Hybridization	+ Deals with incompatibilities through building on top of old values	**Applicable** and likely happening in practice, but not a deliberate strategy
Incrementalism	+ Easier implementation and less likely to be opposed - When value conflicts are strong it may still not work	**Applicable** and likely happening in practice, but not a deliberate strategy
Bias	+ Aligns with institutional consensus, so creates support - Favors easily measurable values	**Applicable,** but not a deliberate strategy, rather a subconscious influence on the decision process.

Figure 4.2: Strategy table

5
PRA Case Context

This chapter has the aim to zoom in on a specific case of proactive service delivery, the Personal Regulation Assistent (PRA). Before discussing and analyzing the overall results (including the interviews with case practitioners) this chapter will include more context surrounding values, objectives and the numerous stakeholders involved in realising a proactive public service. According to their most recent Solution Architecture Document, ”the PRA is focused on winning trust, reducing barriers and simplifying service delivery through offering a consistent user experience for becoming aware of user needs, finding accompanying government regulations, explaining, testing and applying for these regulations without having to fill in intricate forms, and receiving proactive notifications based on the user’s own data as well as the ability to have human contact to achieve help.” (translated from (Kaptijn, 2024)). Since this project is still in the technical design and planning phase, the timing matches the objectives of this project. Furthermore, it covers multiple regulations simultaneously, working towards proactivity on a government-wide scale. This makes for a complex setting that should be interesting to explore. Through the documentation, GitHub plans and personal communication with project team members, this chapter will introduce the PRA to further illustrate value conflicts in the proactive public service setting.

First, the scope and objectives behind the project will be investigated. A brief overview of the stakeholders is also provided, after which the core values and principles that flow from this are discussed. Having discussed the main functionalities of the project, the practical implications of these features are discussed. Legal and technological factors partly determine the possibilities for implementation of the PRA, so addressing them will provide auxiliary conditions (aside from values and value conflicts at play) for answering the main research question. Finally, the project will be placed and categorized in the larger context of proactivity in public services, based on the frameworks explored in Chapter 3. This will set up the broader analysis that is performed in the following chapter.

5.1. Scope and Objectives

Figure 5.1 represents a schematic overview of where the PRA fits in the current government architecture, and what it should be able to achieve. In short, it is a client side application built on PRA models (which are in turn based on legislation surrounding regulations and benefits) and application portals/toolkits. Overall, six concrete functionalities for the application can be identified:

- Create awareness (of regulations)
- Assess regulations for eligibility
- Search for applicable regulations
- Explain a regulation
- Proactive notifications to alert citizens of potentially interesting/applicable regulations
- Easy application for a regulation

Interestingly, one of the main triggers for the PRA project was the childcare benefit scandal, which is in turn also the likely reason that many prospective users may be hesitant towards the application initially. One case interviewee posited the following:
”As a result of a parliamentary inquiry, more funds became available to tackle issues surrounding toeslagen, but also a small amount of funds for researching innovation in public services. Since the current landscape of regulations and benefits is so divided and complex, an application that can give a better insight and overview could help. Currently, there is no place where you can perform a check for a regulation. That would be the general goal of this application, since it is just too complex for the people that need it to get what they are entitled to.”

Overall, proactive public services and the PRA itself are intended to tackle these very issues: Confusing interdependencies, mistrust and underutilization of benefits by those who need them most are at the heart of the motivations behind the project. These goals can be tied to values that are shared across the

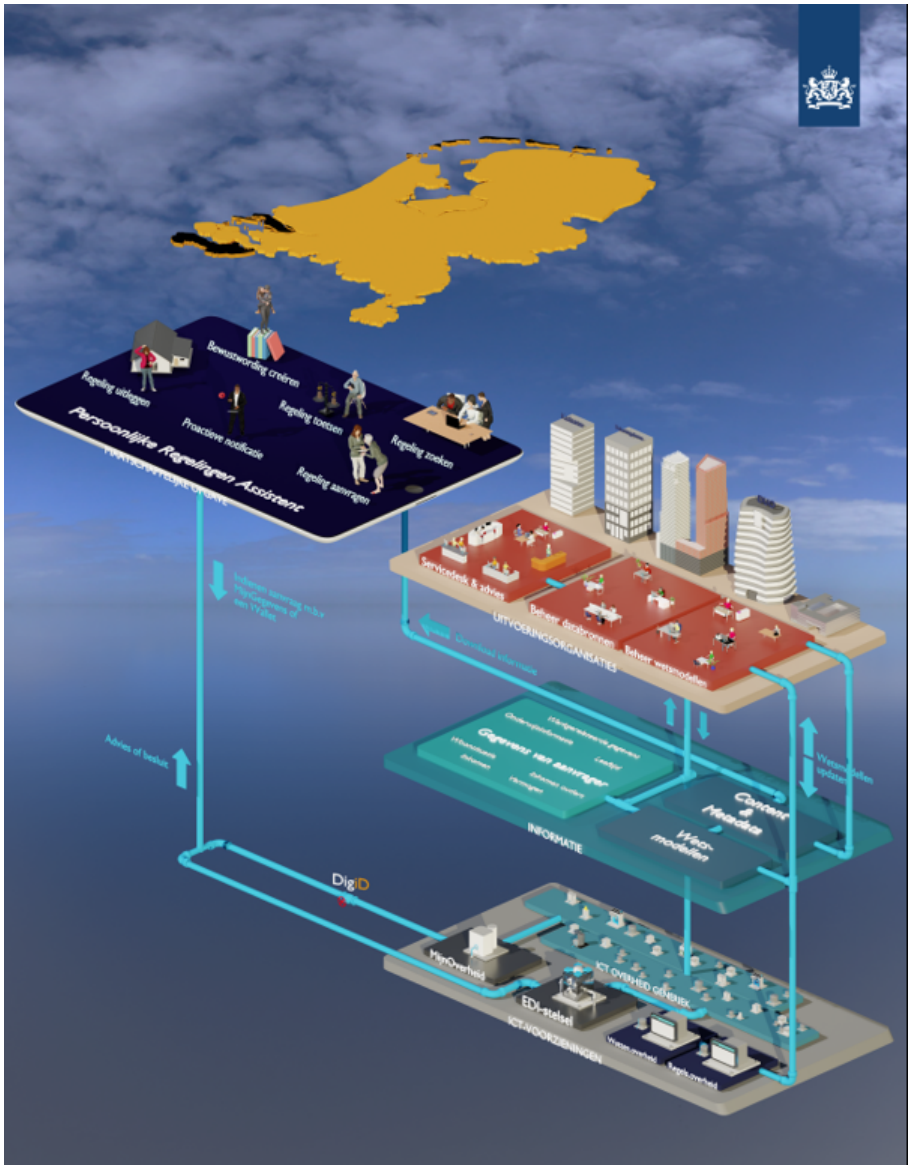

Figure 5.1: Schematic Overview, as derived from Kaptijn (2024)

literature on proactive public services: Responsiveness, trust, understandability, inclusion, and many more. These goals and connected values are centered on the needs of citizens, but also provide an opportunity for public organizations to streamline their processes and services. As such, the different stakeholders and their interests should be discussed next.

5.1.1. Stakeholders and Involved parties

An important aspect that came up while analyzing the interviews was how the meaning of a value may differ per stakeholder group. Efficiency for a citizen, for instance, may not mean the same as efficiency for a public institution. Based on the documentation and the five-layer figure (see Figure 5.3), multiple stakeholders were identified. They were mapped in Figure 5.2 based on the interviews and said documentation.

- BZK: Ministry of the Interior and Kingdom Relations, client aiming to provide more proactive services
- SZW: Ministry of Social Affairs and Employment
- ICTU: The developing party

- Executing parties: including municipalities, social services or other organizations that may want to employ the PRA
- Caregivers: either appointed professional caregivers or family of citizen in need
- Civil Servants: providing and assisting with public services
- Citizens: main user

The overall cited goal of the PRA project is providing better proactive services, allowing citizens to feel supported, aware of their needs and how government may help fulfil them, so that they can regain their trust in the government. Another aspect of this is ensuring better monitoring and improvement of public service delivery through insights and feedback surrounding the application. Based on these goals, the documentation and practitioner interviews, all the stakeholders mentioned above were mapped on a power interest grid. Note how stakeholders using the application (either for themselves or to assist others) have a high amount of interest, but the least amount of power. Ministries and executing parties have high interest in the application's potential too, since it may serve their goals to become more responsive, trusted and efficient. Even though the goal of the project is to better serve citizens, the multitude of involved stakeholders with more power could lead to interesting interactions when their principles and values do not align perfectly. As such, diving more into the specific values and functionalities behind the application should provide more of an insight into what the PRA is meant to achieve.

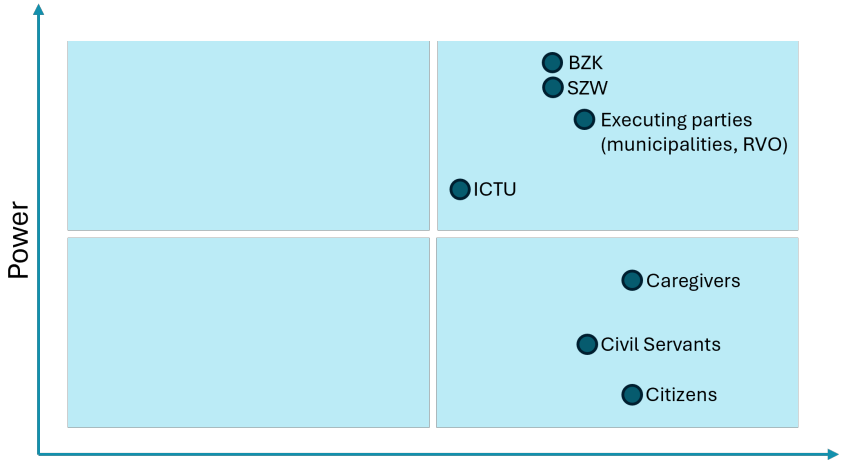

Figure 5.2: Power Interest Grid

5.1.2. Values and Core Principles

NORA, or the Nederlandse Overheid Referentie Architectuur (Dutch Government Reference Architecture), is a framework made up of core values as well as quality goals pertaining to any Dutch public service. The core values are based on policy, and are thus intended to be independent from the political climate (NORA, 2023). Officially, these standards are binding and must be upheld, but when well-argued, it is not uncommon for them to be neglected in practice. Still, they form a good reference for the design of public services, and they are indeed a base on which the PRA Solution Architecture is built. NORA includes five core values for service delivery: Trust, Safety, Future oriented, Effective and Efficient.

Table 5.1: Table on NORA core values, translated from NORA (2023)

ID	**Core Value**	**Description**
KWD01	Trust	Public service delivery makes citizens and business trust government
KWD02	Safety	There is no reason to be concerned about dangers or threats surrounding public service delivery
KWD03	Future Oriented	Public services are prepared for the future

Table 5.1: Table on NORA core values, translated from NORA (2023)

ID	**Core Value**	**Description**
KWD04	Effective	Public services achieve the government's formulated goals and meets the expectations of citizens and businesses.
KWD05	Efficient	Public services have been designed to achieve an optimal balance between costs, timeliness and quality while achieving set goals.

Some of these core values already align with those found in Chapter 3, where effectiveness and efficiency came up frequently. Future Orientation is also a throughline across the literature, and proactivity itself may be interpreted as part of this future orientation. It should be noted that in the PRA solution architecture document, only NORA Core Value 1, relating to trust, has been explicitly processed into epics (Kaptijn, 2024). The principles and goals that lead to this core value (Transparency, Trustworthiness, Receptiveness, Responsibility and Privacy) are meant to be fulfilled by certain epics and features (epics are indicated by &, features are indicated by #) : "The PRA solution is trusted. This would mostly be achieved through personal assistance (&7) to an inclusive target audience (&24), which is shown through Compliance By Design(&6) and through that the strong simplification of becoming aware of(&12), proactively(&8) finding(&10), explaining(&22), assessing(&17) and using(&18) regulations, without complicated forms, but with the possibility to get help through human contact(&19, &20)" (Kaptijn, 2024). One of the interviewees that worked on this document emphasized how trust is mainly built through ensuring that all functionalities are clear, reliable, and understandable, while always ensuring that help is available and personalized to the user. In Figure 5.3, an overview of epics and features can be found.

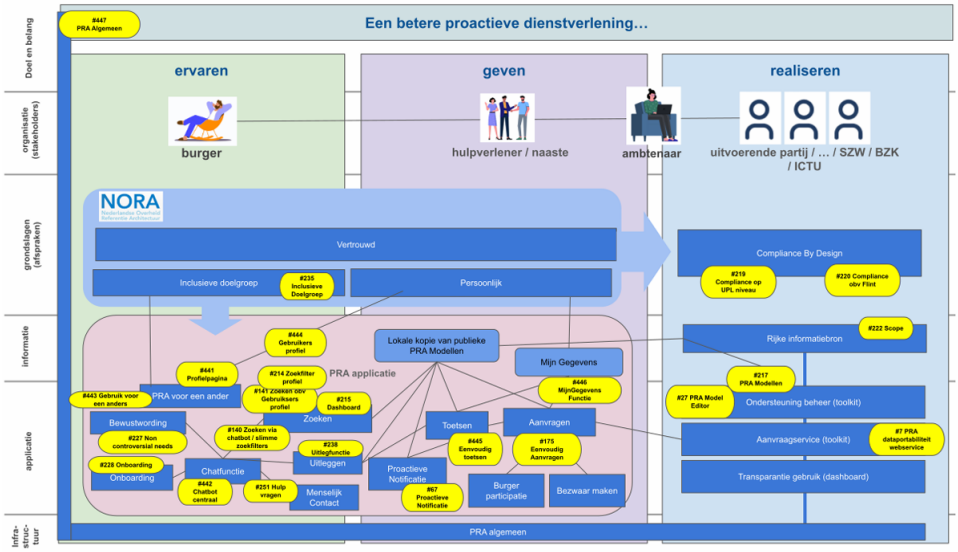

Figure 5.3: NORA five layer scope overview, as derived from Kaptijn (2024)

Notably, the application should not just be usable by the citizen themselves, but is also intended to assist caretakers or civil servants by having all the necessary information to aid someone in one place. Still, the extent to which certain personalized functionalities are feasible for implementation depends on which data is available. One of the interviewees also pointed out how the application can serve as a barometer for use of certain regulations. This is also visible in Figure 5.3, where "Transparantie gebruik (dashboard)" is indicated. Data on how citizens use the app (and whether more applications for certain benefits are sent in and accepted etc.) can provide a valuable feedback mechanism for public organizations. As a result, policy does not just inform the PRA but the data from the PRA can potentially help inform policy. The diagrams shown above and earlier in the chapter represent intent, but both in the documentation and interviews, practitioners acknowledged that a full-fledged, government-wide version of the PRA application still lies far in the future.

5.2. Success factors for implementation

Interviewees admitted that the PRA is an ambitious project that could seriously change the way government works within the Netherlands. Still, there are some legal and technical requirements that will impact what can be achieved, and the choices on these fronts may also have serious consequences for how the application functions. This section will provide a brief overview of these key factors and how they may impact the PRA, introducing some key conditions that could surround and influence both value conflicts and potential strategies.

5.2.1. Legal Support

As became evident in the literature review, there are several privacy concerns surrounding proactivity. Since data sharing across institutions may be necessary for proactivity, these concerns are understandable, even if the safety of the data can be guaranteed: One interviewee mentioned: ”Generally, when it comes to personalized and proactive service delivery from the government, people may get the feeling that government becomes too much like a ”Big Brother is watching you” kind of entity. For some, this might be okay, but for others, this might lead to distrust or even fear. Even if you are just advising people, but especially if you start automatically allocating things, there are risks of making mistakes.” As such, legal support for proactivity and the data sharing required to enable it is a key factor. At the beginning of 2024, a new bill was proposed by SZW (the Ministry of Social Affairs and Employment) : ”Wet proactieve dienstverlening” (Rijksoverheid, 2024).This bill would enable the UWV (government unemployment agency), the SVB (the social insurance bank) and municipalities to share data and proactively check whether people are missing out on resources and benefits they may be eligible for. The bill acknowledges that proactivity may not be desired by some, so an opt-out possibility is included in the proposal. Furthermore, it indicates that the data may only be used to point citizens to options and helping them apply, not for supervision or surveillance.

Despite these apparent considerations for privacy, the Autoriteit Persoonsgegevens (Authority on Personal Data) still has some criticisms: The bill does not mention which types of data would be processed, making it harder for citizens to assess whether they would want to grant permission and if so, for how long (AutoriteitPersoonsgegevens, 2024). In iBestuur, multiple issues were also brought forward by professor Ebbers. One of them concerns whether this approach may actually lead to inequity: The bill gives service providers the freedom to judge which citizens may benefit the most from (proactive) information (Ebbers, 2024). Additionally, the bill would legally require less detailed explanations of which regulations would be eligible for proactive action, processes and data sharing. This could lead to equal cases being treated differently per municipality, even if this only the perception of citizens (Ebbers, 2024). The efficacy of the opt-out principle is also brought into question: When considering that the target audience also includes citizens who are unaware, distrustful or confused about government regulations, this may still lead to issues. The author indicated that ”opt-out always leads to issues in the Netherlands, regardless of how you approach it”. Although this is just one opinion, an interviewee shared this view that proactivity may not always be received well by the Dutch population (depending on which service is made proactive and the level of proactivity). Finally, critics indicated that even if only explanations and advice are provided, citizens may still have certain expectations about the outcome of their application. The way the PRA is received is thus also dependent on how well public authorities communicate information directly, without making promises. Even then, citizens may interpret the outcome differently, and potential rejections may lead to disappointment, frustration and perhaps lessened trust, the very value the application is meant to support.

Validity and Translating Legislation

Setting the right expectations for citizens is a challenge, especially when some of the interviewees indicated that the ambition is for the PRA to be able to perform eligibility checks. As such, another legal question is to what extent people should be able to derive rights from information and recommendations provided in the application. This also relies on how legislation is translated into digestible, understandable information, a goal that the practitioner interviewees indicated to be very challenging. Creating the rule models on which the application will be built is lies at the heart of this issue, but this is also a key technological challenge.

5.2.2. Technological Factors

At its core, the PRA is also an innovative Govtech project, and according to interviewees, several of the cited concerns could be mitigated through technological means. Still, at the very least, legislation must be translated into models for the back end of the application to function. This forms the first key technological factor: Rules as Code models.

Rules as Code

Rules as Code, or the translation of official legislation into machine consumable form (i.e. code), is a category of solutions necessary for implementing the PRA. The application needs to be strongly connected to legislation to provide proper advice, which will require the ability to make calculations and provide compliant explanations of regulations. As such, the chosen RaC model(s) will be the backbone of the PRA's functioning, and this will in turn have significant implications for its compliance with core values. Many RaC solutions, for example, consider explainability for stakeholders involved in the design of the models, but not so much for the end users. A report assessing different models indicated that the following aspects were included for consideration: Scope, Traceability, Explainability, Compliance, Traceable Identifiability, Transparency, Easy to integrate, Affordability and Maturity (Kaptijn & Klaver, 2024). It is emphasized how the resulting rules need to be explained in various forms for end users, since different types of citizens may require different explanatory texts.

In the report, they concluded that none of the considered methods can deliver on all aspects, and they may be more complementary to one another rather than full alternatives. As such, a combination of RaC solutions may be advisable. Overall, these models are not just a determinant of how well the PRA may function, but are also crucial for enabling some of the values that the PRA (and proactive applications in general) are supposed to support: Understandability, explainability, inclusion, and transparency. Transparency, for instance, is directly connected to one of the aspects considered in the report, Traceable Identifiability. This, in turn, is dependent on innovation in another technical domain: Self Sovereign Identities and Data Wallets.

Data Wallets and Digital Identity

Some of the more advanced functionalities of the PRA, like testing eligibility for regulations, applying for benefits/services and proactive notifications, rely not just on RaC models, but also locally gathered personal data in verifiable credential wallets (Kaptijn & Klaver, 2024). The use of these Self Sovereign Identity(SSI) and personal data wallets will allow citizens to gather and enter data automatically from multiple sources. Ensuring the secure processing of this data is a key factor for achieving trust as well. Citizens need to explicitly provide permission for gathering and processing of their data in a central service that provides proactive notifications, which comes with a set of risks. Currently, though, most web browsers do not support client side wallets, so a web application may come with more issues than the smartphone application version (Kaptijn, 2024).

Still, connecting the application to data wallets is cited by both documentation and interviewees as a solution that can overcome privacy concerns (see also Figure 5.1). Wallets could also be in the form of locks, which could be integrated in the form of the MijnGegevens app (also indicated as feature #446 in Figure 5.3). Such a lock could offer users an easy way to give the PRA access to up-to-date data the government keeps track of across various organizations. Other than the user, no one can get access. Additionally, connecting DigiD to the PRA application was also indicated by interviewees as a good approach. Since this Digital Identity format is already trusted by citizens, it would be a helpful way to allow data access while ensuring trust. It should be noted that most current personal data wallet projects can only process a few credentials simultaneously, and for the purposes of the PRA, this will not be sufficient (Kaptijn & Klaver, 2024). As such, innovations in this domain are crucial for incorporating personal data responsibly, while enabling the functionalities that make the PRA personalized and complete.

5.3. The PRA within Proactive literature

Having established the scope, (desired) functionalities and context of the PRA, it can be placed within the state-of-the art literature on proactive public services. In the Bharosa et al. (2021) framework (see also Figure 3.3), it seems to fall somewhere between E2-E4 and D2-D3: Citizens can access collated

information (services) for sure (E2), they might be provided information proactively through notifications (E3), and potentially are recommended services proactively(E4). As for the delivery process, the citizen either complements(D2) or checks and approves(D3) information. It is important to make the distinction here between ambitions and current prototypes: Although the ambition is to be able to recommend services proactively with as little input required as possible, this is highly dependent on whether consent is given by the user to share their data, and whether the legal and technical conditions as described in previous sections support this. The same holds for the delivery process: depending on how much data was shared during the onboarding process, a citizen may need to complement information (D2) in order to send in an application for a service. Even in the case where consent is required to gather data, the citizen does not fully have to provide the information themselves, as it could be gathered through MijnGegevens. As such, the PRA, even in its more simple form, would be classified as moderately proactive.

The PRA could also be considered a redesigning exercise attempting to make public service delivery in the Netherlands more proactive. When looking at the different strategies for service redesign in Kuhn et al. (2021), we can classify the PRA based on three dimensions: The service trigger, the method of data collection, and who is in control of the process. The regulation application service is, in its current prototypes and developments, triggered by the user. However, if proactive notifications are considered a service, they could be triggered by a non-user entity *if* the necessary information for triggering said notification is available. This then depends on the second dimension, concerning data collection, which depends again on how the PRA is implemented. If personal data wallets and connection to the DigiD is possible, then local, concentrated collection of data may be possible. Additionally, if the bill on proactive service delivery was accepted, central data sharing between executing parties would enable more centralized collection. Still, the user may opt out of these functions, given the PRA's intent to ensure trust. This already reveals the classification for the next dimension: process control. If the PRA is able to collect data from different agencies (say, the Tax Office) with the user's permission, then information management lies with the external parties acting on this data. The strategies offered by Kuhn et al. (2021) serve the same objective of the PRA, namely achieving user-friendliness through proactivity. Figure 5.4 visualizes these strategies:

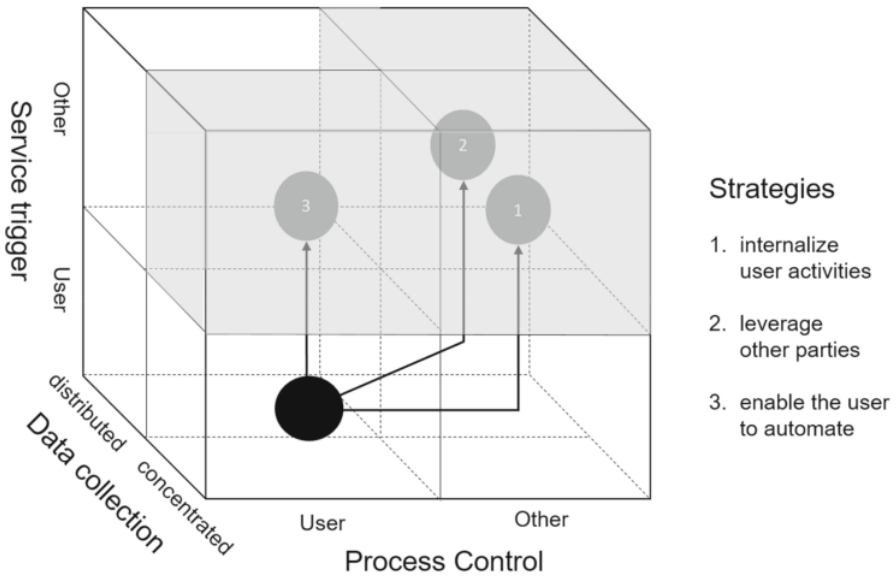

Figure 5.4: Kuhn et al. (2021) Implementation Strategies for Proactive Public Services

Strategy 1 aims to have the service providing entity take over all activities, being triggering, collecting data and controlling the process. Given legal limitations regarding data sharing and the wish to have users retain a degree of control, this does not seem to be the in line with current developments around the PRA. Strategy 2 aims to leverage a third party, such as the relevant public entity, to notify the service providing entity (in this case Government) of a change in the user's information state. An example

could be a change in income, which could affect entitlement to rent benefits. Again, this is dependent on the new legislation regarding data sharing being accepted, but still the public entity would likely contact the user themselves (i.e. a municipality triggering a proactive notification concerning a relevant benefit the user may be entitled to).

Strategy 3 could also be in line with current developments surrounding the PRA application. The application itself forms an intermediary for some activities, like gathering information and helping aid in communication between the involved parties (Government entities, user and others). This intermediary acts as a platform to enable easier, more effortless interactions, but the process control still lies with the user. This strategy would be more applicable when considering the application service, where the application may trigger the service through a notification, but the user is still the deciding factor. Overall, both strategies align with the PRA to some extent: The main differences between strategy 2 and 3 is that in 2, data collection is distributed and an executing party is in control of the process, while in 3, the user is in charge and data is gathered locally. These differences may seem slight or trivial, but may have implications for how the PRA is received and to what extent users perceive it as safe, private and trustworthy. Some may prefer to have more control over the process, while others may appreciate executive parties sharing data and approaching them proactively.

Life Events

One of the most advanced forms of proactivity from the literature review was predictive service delivery, where citizens are already provided information or some sort of service based on (upcoming) life events. In the PRA case, practitioners indicated that in the Dutch setting, life events are not always well-defined enough to be incorporated: ”Not everything that is indicated as a life event really *is* a life event, sometimes they are just themes or user needs. There have also not been that many life events officially identified by the government. Still, they are working on improvements on this front. For demonstration purposes, recognizable life events will be included.” Interviewees admitted that being able to group some regulations based on themes may be very helpful for people facing specific situations. Indeed, in some of the documentation, life events/themes could be found: Buying or renting a home, turning 18, becoming unemployed, and starting retirement were already included. Overall, these divisions based on theme are a far cry from predictive delivery, but are a step towards catering to a specific phase of life. They also demonstrate the ambitions for making the PRA user-centric and based around needs, and moving towards proactivity in general.

Although the general findings and results still have to be discussed, this chapter already revealed some answers for this specific case. The fact that trust as a core value is the only one that has been explicitly processed into epics shows its importance, which makes sense given the reason the PRA project was started in the first place: Reducing the suspicion towards government after the Toeslagenaffaire. On top of that, inclusion and understandability/simplicity are also mentioned explicitly. Trust is also intended to be built through the application enabling responsiveness: The ability to object to e.g. an eligibility decision or to get into contact with the right person to get help is emphasized. Other specific features and functionalities, like proactive notifications and understandable explanations, arise from the core values surrounding the application. However, whether some of these functionalities will be achievable depends on legal support and the technical possibilities. The choices made in these domains will also affect how the PRA is received. Indeed, many of the potential value conflicts (proactivity and privacy, legal validity and understandability, control and proactivity) depend on how and whether the intended features are implemented. These contextual factors also play a significant role in where the PRA will end up in proactivity classifications. If the new law on proactive service delivery passes, more data sharing will be possible, and several of the more ambitious functionalities may be enabled. Furthermore, technological choices, like which RaC model to use, will influence how compliant the PRA is with values like transparency and explainability. This demonstrates how contextual conditions do not only impact the severity of potential value conflicts, but also which strategies may be applied to approach them (innovation may be suitable if a technical limitation prevents safe, simultaneous data processing). These initial insights set the stage for the main research question, while also opening up the opportunity for further deliberations on both the PRA and the wider context of proactive public services. .

6
Results and Analysis

This chapter will cover the results gathered from 9 interviews with experts and practitioners. The results will be discussed per subquestion, and a preliminary analysis is made by aggregating the remarks made by interviewees on each topic. First, the key values are discussed, which is a continuation of both the literature review and the coding procedure. This categorization of values forms the basis for discussing features and functionalities that could be included to support these values. Typically, value conflicts arise at the feature/functionality level, so they are discussed next. Finally, the views on each of the five proposed strategies for addressing value conflicts are considered.

6.1. Subquestion 1: Key Values in Digital Proactive Public Services

After the initial rounds of coding, the values derived from the interviewed experts and practitioners were grouped under the 5 previously identified dimensions from the Chapter 3: Autonomy, Governance and Responsibility, Privacy and Security, Service Quality and Social Justice. After completing the described process of merging and eliminating certain codes, 24 key values surrounding digital proactive public services remained (see also Figure 6.1). Still, other codes remained that may not be considered strictly as values, but that still contribute to value conflicts in digital proactive public services. These contested values are justified below.

6.1.1. Contested Values

Before discussing the more widely accepted values, a few terms came up that were a bit more ambiguous regarding whether they should be seen as values.

Proactivity as a Value

Although it was not considered initially, proactivity arose as a crucial factor itself. Arguably, it may be more of an instrumental value to achieve some sort of goal (examples include inclusion, efficiency, equity etc.), but its innate contributions to value conflicts (which will be discussed later in the respective subquestion) made it a necessary part of the equation.

Data Availability, Effectiveness and Efficiency

These values proved to be the most difficult to group under specific dimensions, and it was unclear whether they should be considered values to begin with. Data availability was often cited as a crucial contributing factor for the effectiveness of a proactive application, as it could contribute to personalization. Still, it is debatable whether that would be enough to have it qualify as an instrumental value.
Efficiency was equally complex: in service design and business process engineering literature (and typically by the interviewed practitioners), it is considered a value. Similarly, the NORA framework forming the foundation of the PRA project's values also includes it as a core value (see also Chapter 5. Still, the main crux proved to be determining *whose* efficiency is implied by this value. The same held for effectiveness: Whether a proactive service is deemed effective depends on whose goals and interests are considered. As such, value dimensions did not fully cover the complexity of the relevant values in the domain of proactive public services.

6.1.2. From Value Dimensions to Value Perspectives

As a result of the complex interactions between values and from whose perspective these values are considered, they were further grouped into three perspectives: The Social and Citizen perspective, the Governance and Client perspective, and the Service and Design perspective (representing the design considerations that connect the two parties). Since the Social Justice, Autonomy and Privacy and Security dimensions are all mostly from the *perspective* of citizens and their values, they were grouped under that perspective (even if e.g. transparency may be something the government should provide, it is the citizen that may desire this value being considered). The Service Quality dimension naturally feeds into the Service and Design perspective: values that are pursued by designers are intended to serve service quality. The Governance and Client perspective considers the values from the Governance and Responsibility dimension. Figure 6.1 demonstrates the resulting groupings by perspective.

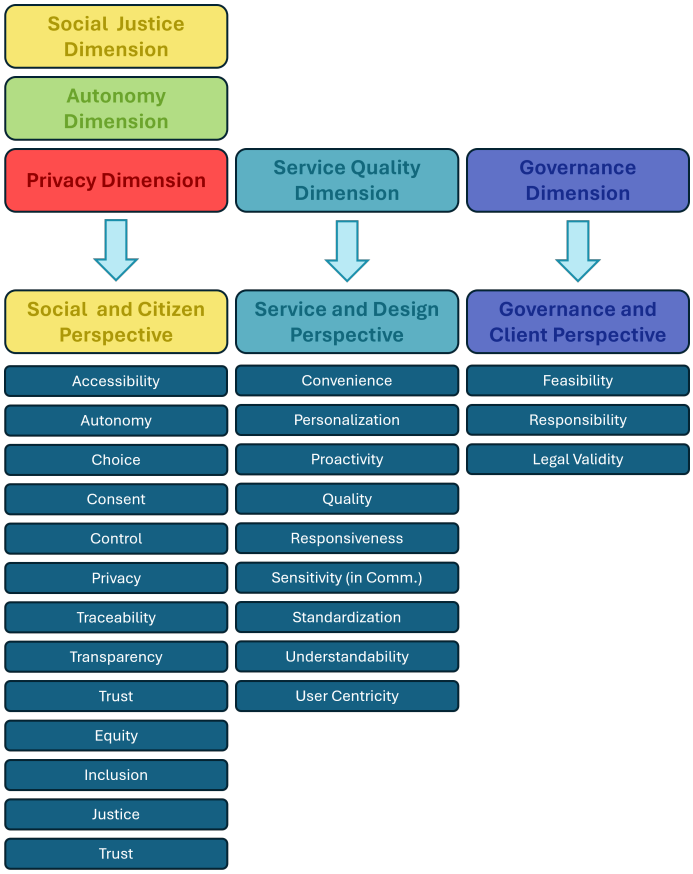

Figure 6.1: Value Perspectives

6.1.3. Summary of Results: Subquestion 1

Overall, although we can still consider the value dimensions a useful classification, dividing key values into different *perspectives* reduces some of the overlap between dimensions and clarifies *whose* values are being discussed. This would enable analysis between not just the values themselves, but also which group's interests are being considered and may conflict with another group's interests. Thus, we have found the key values for proactive public services from the three core perspectives, setting up the stage for further analysis of what this implies for design. It also became evident that not just values, but contextual conditions *affecting* these values could play a significant role. These will be further discussed to answer the main question in 7.

6.2. Subquestion 2: Value-Based Features and Functionalities

Based on the interview quotes with the code for features and functionalities, as well as co-occurring values, several value groupings and accompanying features were identified. These connections are not exhaustive, but rather serve to illustrate how experts and practitioners imagine these values taking shape in a proactive public service application.

6.2.1. Proactivity

First, we consider proactivity as a goal in itself (whether we consider it a value or not), and which features support this idea according to the interviewees. Although the level of proactivity attained in the case example is still very limited (more on that can be found in Chapter 5), the following functions and features were brought forward. A key ambition was implementing proactive notifications, specifically to increase the number of citizens receiving the services and benefits they are eligible for, while reducing the number of people receiving services they are no longer entitled to (like the free travel grant for students). This could prevent people from having to pay back money later. Many interviewees mentioned how once consent is obtained to save and use data, the application can become more proactive as it

can better assess a user's situation. In that case, notifications can also be sent proactively to respond to a change in a user's situation that may affect regulations and benefits. Furthermore, if new regulations are introduced, and the user's income is known, they may proactively be notified of new regulations that may apply to them. Taking it even further, a practitioner mentioned that automatic eligibility testing (followed by a proactive notification of the result) could also be performed in case enough data is available.

Data is a clear enabler for proactivity in all of these scenarios. Still, even with less data, proactive recommendations could be attained. One expert interviewee mentioned how this is typically the level of proactivity that public institutions start with. By assessing data on existing services a citizen applied for, an application could extrapolate them being potentially interested in another service as well. Still, it would be difficult to assess whether these suggestions were actually helpful, because many assumptions would have to be made. Again, collecting data on how users interact with services, and what they do after having received a proactive recommendation/notification, would provide crucial information surrounding how successful these functions really are for achieving proactive public service delivery. One practitioner mentioned how the application is intended to be helpful even if a user is deemed ineligible. Multiple regulations surrounding a certain theme could be suggested to a user searching "I can't pay my bills". After the application performs an eligibility check, this decision is explained, so that the user has more information going forward that may help them determine whether they may be an exception in case they were rejected. Also, data on the use of the application itself may be used to determine how the (limited) proactive functions affect requests and eventual use of certain services and benefits.

6.2.2. Data Availability, Effectiveness and Efficiency

Next, we discuss data availability and how it contributes to the values of effectiveness and efficiency, core values surrounding the notion of proactivity. Proactivity often goes hand in hand with automation, and an oft-cited goal of making public services more proactive in the first place is efficiency. Indeed, numerous interviewees indicated that automation should be implemented where possible. In most of the practitioner interviews, the mention of using a data wallet to load existing available data was mentioned. This data could then be used to pre-fill forms, with users only having to edit or supplant the information where necessary. Having accurate, up-to-date data is a clear requirement for efficient processing and delivery of a service. However, one interviewee mentioned that this may prove to be a technical challenge in case the data changes, and suggested that an "expiration date" for data validity may be used. This interviewee also mentioned how such measures may not be necessary if federal exchange of data is possible, where up to date information can be loaded from the MijnGegevens app or DigiD, existing Dutch government applications. A recurring theme was that such data sharing practices could be controversial, especially in light of the Dutch Childcare Benefit Scandal and privacy concerns in general. Hence, the next section explores the features and functionalities suggested to ensure transparency, traceability and privacy, which may contribute to rebuilding trust.

6.2.3. Transparency, Traceability and Privacy

Aside from general ideas surrounding encryption, anonymization and abiding by data governance mechanisms, a key aspect mentioned across interviews was transparency. Specifically, this pertained to traceability and explanations regarding what data was used for. One expert interviewee indicated that the minimum requirement should be sufficient explanations for each delivery component, how data was used, and what process was triggered. They also mentioned the possibility to opt in or out. Case interviewees agreed on this front: If users are asked to load data, they ought to be explained why this is necessary and what the consequences would be for the service's functioning in case the user was not willing to provide certain information. Another interviewee mentioned the desire to decrease the dependency on user data in the first place, and ensuring they can also fill in information by hand if that is their preference. Another interviewee agreed, but also emphasizes how such manual processing would come at the cost of efficiency (and would be somewhat counterintuitive to the point of having a proactive application). All of these steps were to be part of the onboarding phase in the application, where any request for data is substantiated by an indication of what would happen to it (it always stays within the user's local environment).

This data sharing is thus claimed to be more safe and private through the aforementioned wallet linkage, which is seen by several practitioners as the key to solve privacy issues. Still, they emphasize that

the users should be able to decide and control how they share this data and for how long. Data minimization is also mentioned, and to that end, they emphasized continuously asking themselves whether certain data is required for the correct operation of the application or not. Users should also be able to indicate that they only consent for certain information to be shared once, for the specific purpose they indicated. Expert interviewees agreed that users should be asked whether they want to share and integrate data, and even opt in or out of proactivity altogether. The main emphasis was on consent, but many practitioners did indicate that pre-loading data can make the process more efficient. Here, the intent is to have users check pre-filled data in forms, so they still have control to submit it themselves, but the data gathering can be mostly automated. Finally, a more subtle clue that may help with transparency and eventually trust is the color palette. Case interviewees mentioned that the chosen design aligns with Dutch government color palettes, to indicate that the application is a collaboration and extension of existing public services. This design detail leads to the next section, which covers more value-based features and functions that are centered around service design and user centricity.

6.2.4. Service Quality: User Centricity, Inclusion, Equity

Responsiveness and Inclusion

Although the different conceptualizations of proactivity in public services typically focus on the digital domain (see Chapter 3), one of the main goals is also making public services more responsive. Hence, it makes sense that several interviewees discussed the importance of having ”different access points for service delivery”. From user studies, case interviewees learned that approaching people in different ways can help them. The case application already includes a list with contact points and there is the ambition to have a chat bot, so users can find someone to support them with digital matters. One interviewee mentioned that proactive notifications are part of the ambitions for the PRA, but emphasized how some users may prefer a letter to a digital format. Ensuring there are multiple ways to reach out was also quoted to be part of the ”no wrong door principle”. Interviewees agreed that inclusion and proactivity can go hand in hand, as long as there are still warm leads with civil servants who can help users navigate a more innovative, proactive format.

Part of this responsiveness is also having the ability to indicate disagreement with a decision or advice stated in the application. Part of its functionality is bringing the eligibility test forward (rather than having it happen only once an application has already been submitted), and ensuring users could still send in the application if they think they may be an exception to the rule (more on that later). Generally, there should be a low threshold for contacting someone in case the user disagrees with a decision. A more technically inclined interviewee also mentioned that there should be some sort of recovery procedure or improvement process (although this cannot be triggered by the user themselves), but that this functionality is outside of the scope of the current project. An expert from abroad indeed emphasized the necessity of a backup system, especially if a proactive form of a service is partly replacing or supplanting delivery of services that people rely on for their livelihood. In their country, despite having more proactive options, citizens are still entitled to apply on paper, and there are contact centers and phone numbers provided where a civil servant is available for help.

Personalization, Accessibility and Understandability

Some more design-specific features were also mentioned that were intended to support values like understandability, accessibility and personalization. In one of the use cases regarding pension, an interviewee mentioned providing visual representations and videos to explain regulations rather than text. Or, in case text had to be used, making sure it is kept short. Generally, case interviewees agreed that basic accessibility standards were complied with by design, and users who cannot read or write well should be able to use it. Furthermore, they emphasized leaving the choice with the user, by ensuring the accessibility standards could be chosen during the application’s onboarding process. How the application would interact with the user is also an important feature: A somewhat interactive chatbot was included, and the level of formality and how the user is addressed is also intended to be customizable. There were also multiple considerations regarding the assistant/chatbot feature and whether it should always be there (like a chat bubble), and how proactive notifications would appear on-screen. These factors were mentioned to not just comply with accessibility, but also to ensure sensitivity in communication, which may contribute to trust. One interviewee mentioned that during user studies of a prototype, an elderly lady asked why young people always use the informal ”je” rather than ”u”. This

illustrates how, especially when it comes to more innovative projects, such details can make a difference in the user experience and service quality. This sensitivity in communication was also mentioned by experts, who emphasized that citizens unfamiliar with the proactive approach may be shocked if they are approached like this, especially in the cases that are further on the reactive-proactive spectrum. Furthermore, communication decisions should also be done carefully, since setting too high of an expectation about being entitled to something may diminish trust later if a user's application is denied after all.

Another value-related goal that many case interviewees emphasized was understandability. This took shape in several functionalities. One practitioner mentioned they got positive feedback on their idea to implement a step by step plan guiding users to apply for health benefit or check their eligibility. An important aspect of this is understandable language: Several interviewees mentioned how regulations and explanations should be translatable to simple Dutch. Alternatively, multiple ways of explaining the same thing should be provided. One interviewee mentioned the complexity of accomplishing this, but indicated that there are already such applications available. This also means that there should be little to no jargon, short pieces of text, as well as visually supported presentation of the information. This challenge is exacerbated by the context of the case, where the services are based on legal regulations and eligibility criteria. One interviewee explained that given the interconnectedness of regulations, there are several layers of complexity. If your model is based on legislation, then processing this legal jargon is the main obstacle. A content layer would be required to dissect these layers and ensure people understand *why* they may be eligible or not. Overall, understandability is crucial for facilitating trust in not just the application, but government itself. This also feeds into the level of trust people have regarding their data: if people understand the features and what the application is doing when they load data through a wallet, they are more likely to use it and trust its outcomes. Still, there are numerous aspects of this understandability that must be considered. One interviewee mentioned how it might be good to have multiple languages available within the application, but even the level of Dutch itself was a contested feature. Generally, though, both experts and practitioners agreed that government language should be easier and more accessible if it is to be trusted. As one interviewee put it: ”Trust is a mix of UX, language use and ensuring everything works on the client side. Because we need to reach as large a group as possible”.

Indeed, public services are intended to serve the many. At the same time, personalization was also one of the goals surrounding proactive public services. In some of the use cases described by practitioners, there was a specific target audience. In case a user is not just a citizen, but also an entrepreneur, how would that translate in the application? Would certain data be linked, or would it simply be a checkbox to indicate interest in certain themes? One interviewee mentioned that more specificity to a user's personal situation could be integrated in a simple way through search filters. If a user is looking to make their house more sustainable to get certain benefits from that, asking for their municipality would tailor results and next steps more. Still, another interviewee noted that data availability is an important requirement for extensive personalization. The more data is provided, the more proactive the application can be, and the more useful recommendations are. Naturally, there will be users that do not want to provide this data, and in that case the application should also be able to provide a more global, general image. And this could still be a valid option: One expert interviewee noted that even if citizens are approached through standardized criteria, just the novelty of being directly approached by a public organization regarding services that may be suitable could already be perceived as very personal. In that case, far-reaching personalization through data gathering may not even be necessary for users to *perceive* the application to be personalized. Still, one goal of the PRA is performing eligbility testing for a person based on their data: One of the practitioner interviewees mentioned the potential to gather and process lots of data in the back-end and apply rule-matching to regulations. Even then, they admitted that requesting additional data to handle exceptions may be necessary. The decision then lies in how extensively such exceptions can be covered. Expert interviewees warned about exceptions handling as well: If crucial regulations and benefits are applied for proactively, a backup system for those who are technically entitled but do not fit the ”mold” prescribed by the digitized format/model should be implemented. This is also to ensure inclusion, and aligns with the responsiveness and multiple access point functionalities discussed earlier.

6.2.5. Summary of Results: Subquestion 2

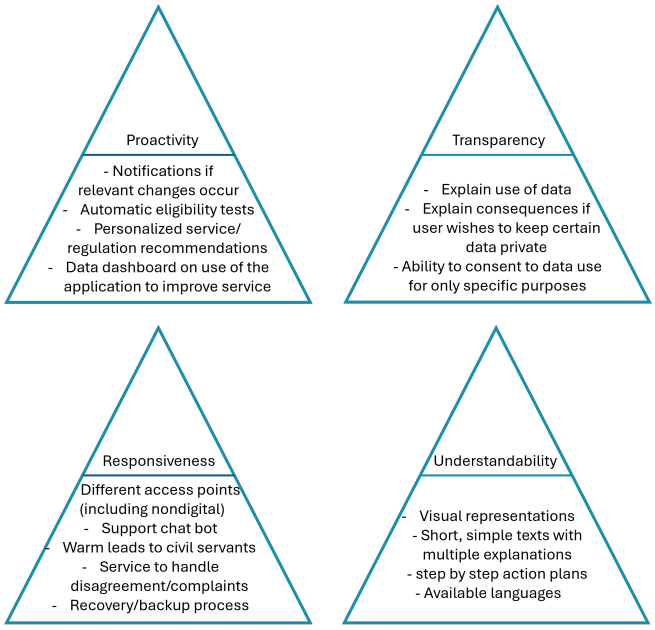

Figure 6.2: Example Value Hierarchies

Figure 6.2 shows some example value hierarchies that were derived from the interviews. Several more could be formulated based on the multitude of values and features that were mentioned, thus a few examples were selected for illustration. They were built both in a bottom-up and top-down fashion(recall Chapter 4): Some interviewees explained what they meant by a value from the start, while other times functionalities could be implicitly tied to a specific set of values. As justified in Chapter 4, norms were omitted, so the bottom layer represents requirements and functionalities. In contrast to the theoretical value hierarchies found in the literature, the requirements and functionalities listed here are not meant to be sufficient or complete. Still, they do reveal how experts and practitioners alike envision how values may be embodied, which can set the stage for potential value conflicts.

6.3. Subquestion 3: Value Conflicts

Having a better perspective on how values may be incorporated in (proactive) public services, we can gain more clarity on which value conflicts may arise. Although the definition provided in 4 was focused on offsetting two values against each other, this proved to be more complex in practice. Hence, the value conflicts derived from the interviews typically revolved around multiple values and dimensions. They will be discussed generally per theme, but again, there is likely overlap.

6.3.1. Ease and Efficiency: But for Whom?

As evident from the literature in Chapter3, one of the most prevalent goals of making the public sector more proactive is efficiency and subsequent improved service quality for citizens. These are often mentioned together, but they may be conflicting depending on *whose* efficiency is prioritized. Indeed, several interviewees acknowledged how the motivations behind becoming more proactive are both internal (making organizational processes more streamlined) and external, being to provide more benefits for citizens and society. These do not always go together. One interviewee acknowledged how the way a project is framed is political, but also influences where money can be invested. Proactivity can serve to make government more efficient and thus cheaper, reducing the load on the public service. But when framed to make government better for each citizen, this social perspective implies more possibilities to invest in a broader portfolio of services to help aid citizens.

One expert interviewee pointed out that these conflicts also revolve around which services are chosen to be made more proactive first. They posited that the services that citizens would most benefit from

if they became more proactive, may not be the most beneficial for public organizations: The services most relevant for citizens, i.e. those that are most frequent and complex to perform, may not have the public organization's priority. Alternatively, they can be made proactive and automated for the public organization, but the citizen is still required to provide a lot of data manually. Depending on the structure and nature of the service, the conflict may lie in whose efficiency is prioritized. Another expert argued that citizens may not just be unaware of services they may be eligible for, but may also forego duties they are not familiar with. In the latter case, governments would be more inclined to ease the process(since it may earn them funds or reduce the time investment required to make citizens comply). Either way, there should be a trade-off to make it more convenient for both parties.

Another expert pointed out that people may need more help to navigate the public sector, pointing at how difficult it is to understand. A digital interface and proactive services are only a part the solution: They argued that the reason proactivity has gained attention in numerous countries is because of its intent to ease some of the difficulties, but the issue still lies with the complexity of current legislation. Although proactivity may be intended to increase service value for citizens, the expert believed that in practice, its intent is also to streamline and automate internal processes and service provision. According to the, the more "noble" value of citizen centricity is more used to justify going proactive. "But on the other side of the scale is efficiency, and service value and efficiency are not always buddies. They can be, but efficiency is also about reducing costs, making things faster and easier for the public organization. And I assume efficiency will win over service any day.". This demonstrates how efficiency can conflict with various aspects and values surrounding service quality, as well as how dependent on governance the outcome of these conflicts may be.

Accessibility, Trust and Feasibility: A Delicate Balance

This question of how easy and efficient the process *should* be for citizens proved to be a loaded, political question indeed. One practitioner mentioned how the goal of the case application was to combat poverty and ensure that all citizens who are entitled to a certain regulation or benefit receive it. The fact that it is currently difficult to apply for such benefits works against this goal. According to them, more attention is paid to combating raud in the current political climate, an attitude which makes it more likely that thresholds for eligibility are heightened. This introduced the conflict between accessibility, inclusion, but also feasibility and trust. How accessible these services should be is a political question, but it does serve to illustrate the complexity of the value conflict: In some cases, accessibility may even undermine trust. One expert illustrated this with an example from Norway: Citizens unfamiliar with how certain regulations worked applied for an easily accessible service, which created certain expectations, even though they were not eligible in the first place. They were turned down, which could eventually undermine their trust in government(Larsson, 2021). This discussion on what expectations are being set when everything is very accessible was, as admitted by the expert themselves, still colored by whichever political ideology is dominant at the moment: Some politicians may favor self sufficiency and autonomy, while others champion accessibility. Still, if the latter is deemed desirable, not just the impact on trust should be considered: If extra work is created for the public organization because of superfluous applications of ineligible citizens, data power, manpower and time is spent. "One would have to estimate that if 80% were likely eligible, that would save time or resources, and that could be worth if if the other 20% was rejected." They also emphasized how digitization itself costs significant resources to implement, and this may affect an organization's stance on proactivity, depending on where the outcome of their cost/benefit estimate lands. If there are funds available and it could be beneficial for government, that would create more support for implementing proactivity.

Another expert had a somewhat different perspective on these conflicts: They mentioned that if theoretically, there would be a lack of funds in case all eligible citizens received a service, that simply means that the service itself or its eligibility criteria ought to be redesigned. In the end, that would be more honest compared to expecting regulations to work only because most citizens do not apply for them. One practitioner also underscored the political nature of adjusting and redesigning criteria :

"Say we make everything proactive, and everyone indeed gets what they are entitled to. Then the funds may not be sufficient. Does that mean we should tighten regulations, so fewer people are entitled? But determining these criteria and who has a right to what and why is a very political, philosophical or even

ethical question. If you provide everything easily and proactively, fewer people might work. To what extent do we find that acceptable?"

Finally, there was another built in political conflict mentioned that supported public organizations' emphasis on cost efficiency: An interviewee mentioned how using public funds efficiently and on the right causes is part of Western democratic values, on top of maintaining openness and transparency. This shows how cost efficiency as a goal is in turn also meant to serve citizens, only making the situation more complicated. This complex interplay between a public organizations' goals, potential outcomes and dominant ideologies shows how the motivations behind implementing proactivity form conflicts within themselves. Efficiency for one party may not imply the same for the other, and the very success of providing certain services proactively may make it financially infeasible or even undermine the trust proactivity was intended to inspire. More conflicts may still arise when looking beyond the goals underlying proactivity, namely when looking at the data required to enable it.

6.3.2. Proactivity, Privacy and Data

As mentioned, data availability is a key enabler for implementing proactivity. This can feed more value conflicts surrounding privacy depending on the regulations that exist within the public setting and between organizations. One expert mentioned how in Estonia, the boundaries between the public and private sector were blurring. Privacy concerns appeared mainly as a reaction to the intent to collect as much data as possible. In some cases, this data was not even collected to use in the moment, but more as input for future transformations of public services. This prioritization of data access, but only for governmental organizations, did result in a more open government, but in turn there was a lack of trust at the beginning. Still, the interviewee admitted that audiences are typically critical towards new advancements. This highlights some of the emotional factors that may fan the flames of a value conflict. Another expert interviewee briefly mentioned the interplay between administrative burden, learning costs, compliance costs and psychological costs. Potentially, becoming more proactive would lead to reduced learning costs (since a user would not have to learn to navigate the different services and regulations themselves), but it could affect compliance costs (i.e. privacy) negatively. This, in turn, could contribute to psychological costs that could indeed take shape as lack of trust.

Another expert also mentioned their concerns regarding this data collection. To go fully proactive, or even in the case of more basic service recommendation systems, a lot of data would have to be stored and analyzed in a way that is currently not allowed in many countries (including the Netherlands) for integrity reasons. They mentioned that despite the call for more data sharing within and between institutions, these statements are made in a political climate where the public sector that would put such a proactive system in place is trusted. However, if this changes in the future, these services and accompanying data may be used for surveillance. They emphasized how the same technology that enables proactivity may be used for other purposes, and the conflict lies in the possibility of a new service contract enabling surveillance. Countering these concerns is the frequently mentioned idea that the more data is provided, the better a proactive service can function. Practitioners pointed out that the relevance and specificity of the PRA could be improved through more data on its use. One interviewee suggested that there is also some nuance regarding the type of data people are willing to provide: A zipcode is far more willingly shared than bank account information, but generally, quite a few of the respondents in user testing mentioned how they felt as if the government knew a lot about them anyway. Even so, all interviewees mentioned the importance to safeguard the privacy of users. This conflict between proactivity and privacy may seem rather straightforward and obvious. However, the ways in which data may *contribute* to equity and justice rather than stand in its way should also be considered. One expert mentioned how this data may contribute to insights on defining eligibility criteria to ensure sufficient coverage and inclusion. This potential was also mentioned by a case practitioner: Based on a user's searches in the application, metadata can be gathered on which regulations were matched to their situation, and for instance what percentage of users did not end up applying because of certain steps/criteria. This information could still be kept anonymous, but would provide insights on the target audience that could help improve the application's services later on. When the interviewee was asked whether there was an ambition for the application to be able to inform policy and eligibility criteria (rather only the other way around), they confirmed. This once more reveals the complexity of value conflicts surrounding data and privacy. More and richer data could contribute to better proactive

services (and, potentially better policy), but it could in turn cause serious harm. Still, with the necessary data in place, value conflicts could arise within the application and use of the proactive service itself.

6.3.3. Standardization, Personalization and Responsiveness: The Quest for User Centricity

One of the main stated ambitions for proactivity in public services is making it more citizen-centric. This is also a natural progression from how proactivity works, in the sense that it can gauge which services may apply depending on a user's personal situation. As discussed, though, proactivity may also be employed to streamline internal government processes, which relies more on standardization of eligibility testing, data gathering and service delivery. Standardization on the one hand, and personalization on the other, represents another value conflict mentioned by interviewees.

One expert mentioned that when trying to act in compliance with EU best practices, it is advisable to develop services and interfaces that are as standardized as possible. This could stand in the way of making certain processes as user-centric as people would like to. However, they also posited that they need not necessarily conflict: Standardization can *feed into* user centricity: If there is no standard, users have to navigate between multiple platforms and interfaces, which is often experienced as a nuisance at best, and confusing at worst. The expert concluded by saying that the service itself may still be user-centric, while having a standardized interface, which would mitigate this conflict. They also mentioned that any additional degree of proactivity may already be perceived by citizens as highly personalized, compared to the status quo public service delivery. As such, more standardized aspects may not be a problem

However, another form or interpretation of standardization may still form a conflict with values in the Social and Citizen perspective. Numerous interviewees mentioned the need to establish the "standard" eligible citizen for a service(either stemming from legislation surrounding a regulation already, or to enable a degree of automation). If a citizen falls outside of this definition, they may be excluded from receiving the service proactively, or being notified of their potential eligibility. Defining the categories of eligible citizens was thus mentioned to be a crucial process where sufficient coverage should be ensured. "You have to think about these categories and potential exceptions, and make choices regarding whether the outcomes are something you want or not". Another expert agreed that specific groups falling outside of the norm may lead to exclusion, and they posited that one of the main issues of proactivity is its reliance on having to assume many things about a citizen. One interviewee mentioned that the definition of parent is often a contentious point, but may have serious consequences for several social benefits. Indeed, as the literature from various use cases and countries has demonstrated, it is typically the citizens that are most in need of certain services that are excluded in the standardized eligibility criteria, which could work against the goals that many interviewees stated to have for implementing proactivity. As such, the standardization versus personalization conflict may lie more in standardized eligibility criteria and automation excluding people, rather than standardized interfaces (which are typically adjustable through standard accessibility settings).

Digitally Enabled, Physically Supported?

Another way in which personalization may conflict with standardization, is through the degree of responsiveness, i.e. whether citizens can get into contact in case something goes wrong or they need personal assistance. One interviewee commented:

"If you understand personalization as citizens being able to go to City Hall and talk to people that will help them with their specific situation, then no, that is not included in a typical proactive service. But with proactivity, you typically consider standardized digital services. This personal contact and interaction is something that could be missing in Proactive services."

One expert interviewee mentioned the existence of contact centers in their country, ensuring responsiveness even if a citizen were to fall out of the standardized criteria of a system. Still, they acknowledged that this may not be the case in other countries, and thus it is crucial to not standardize or automate systems for services that people depend on for their livelihoods, as this may create many social problems. Again, they emphasized how even if a large group may be served by automation and

have their burdens reduced, the group that is excluded typically needs the service the most.

”I think it’s a bit dangerous when public organizations have all these fancy consultants running in their buildings talking about standardization and personalization without understanding the impact the design could have on people’s lives. Another colleague met consultants that said, ’this service will only cover 60% of eligible applicants, but that’s fine.’ That’s *not* fine when it has to do with citizens who have a right to receive this. This makes it difficult to go fully digital or fully proactive because you have to have a way of including everybody who is entitled, and how do you decide that?”.

Practitioners did consider this inclusion of those who are excluded digitally, and one interviewee argued that an application like the PRA could actually support this extra help: ”A small group of people will require personal contact. The civil servants who can provide personal assistance will have a reduced load because of the application, allowing them to communicate more quickly with the people who truly need it.” Another practitioner added that there should be a list of contacts included in the application so people can find support in digital matters. Still, they added that implementing this in practice is difficult, given the multitude of organizations that fall under the government umbrella. Another practitioner also foresaw difficulties: A generalized application may add to the workload of civil servants and aid workers at municipalities, if they suddenly have to provide digital assistance while they already have their own systems in place. They also stressed that the application is online and although the intent is there to have the option to contact physical services, the goal is to keep it mostly digital. Still, they emphasized: ”It is hard to serve everyone. The interests are not uniform across organizations, and there is also a difference between what the realm decides and what executing organizations end up doing.”. Furthermore, responsiveness may be endangered as well by the accessibility vs. feasibility conflict mentioned earlier: If civil servants have to process more applications or requests/complaints from people who were not eligible in the first place, responsiveness may be reduced for those who actually need help. Overall, these conflicts are difficult to predict, but highlight the challenges of making digitally enabled proactive services work for public services and citizens alike.

6.3.4. Understandability vs Legal Validity: An Exercise in Dissecting Complexity

Digital inclusion and responsiveness are not the only one aspects that may influence how useful and helpful proactive applications end up being: Understandability is another complex aspect of this. One of the goals for the PRA was to make the ”jungle” of government regulations and the information surrounding it more accessible and understandable for citizens. However, as mentioned by one of the practitioner interviewees, enabling simplicity when working on a foundation of complex legislation is a serious challenge. ”If you have no background information, it will remain a challenge to explain complex stuff in a few screens. There is also just a lot of information available on different government websites, so how can we arrange that to make it digestible?” In essence, the Dutch case setting implies having to build simplicity and proactivity on a maze of interdependent, complex systems and regulations, which will make understandability a difficult value to incorporate.

This understandability is not just important on its own: It may also serve to support trust. Another interviewee commented how crucial it is for citizens to understand *why* something is a certain way. This is where the value conflict between understandability and legal validity arises: Legal texts are not accessible because complex jargon is used, but fully translating the source text to simple language makes it no longer legally watertight.The practitioner that brought this up concluded that this conflict will require a close collaboration between the design team and government, to ensure citizens can derive some legally valid information from the text. However, the interviewee warned that realism is important here, especially on the government side: If they demand the texts are bulletproof, it could be that no one uses the service or applies because they do not understand what happens when they do, especially given the trust issues that are already present. ”The government as a client needs to come to the table with the user to ensure these expectations are aligned.” Another practitioner agreed, and stated that everything should be understandable and complete. They mentioned that to retain simplicity, their team created a ”happy flow” that works for around 80-90 % of people. The challenge of translating complex legislation into simple rules to determine eligibility will always exclude some people, and striking that balance is a persistent challenge.

Again, multiple interviewees mentioned how this also partly comes down to what goals the public organization has for the service. One practitioner agreed that the biggest conflict may be accessibility and ensuring the application is inclusive, so citizens also understand *why* something is a certain way. However, they also commented that this understanding overturns the entire government and the way service delivery works. They questioned how desirable it would be to implement all these regulations in a single app,since this would also reveal more confronting legislation and flaws in the system. One expert added that public organizations typically want to be legally covered, and as a result, services may be less understandable and complex. They stressed that this value conflict should be considered more by public organizations, to see whether they are ready to take the risk of being sued if that means being more understandable and accessible. This, indeed, heavily relies on the goals they set. Still, even with these goals at the top of the agenda, public organizations also have limited budgets and time constraints, which will influence their deliberations on what risks they are willing to take. Of course, these contextual conditions are discussed in more detail in the next chapter.

6.3.5. Inclusion and Feasibility: The balance between short-term wins and long term transformation

Although feasibility is a complex concept, and it may be disputable whether it is a value in the strictest definition of the word, several value conflicts may also arise because of its importance to public projects. One expert mentioned that in Business Process Management, four indicators are used, namely cost, time, quality and feasibility. Increasing either the indicators of cost, time, or quality implies a loss in feasibility. They added that even without using these dimensions explicitly, there will likely be trade-offs made on these fronts, and conflicts between different perspectives. They mentioned equity and efficiency as an example: If equity is defined in terms of designing requirements collaboratively (through codesign, cocreation or coproduction), that means having to consider all groups of citizens, including minor groups and vulnerable groups. Defining and reaching these segments is already a challenge, let alone including all of these perspectives in the process. Thus, if the aim is to champion equity in the design process, this will likely imply a loss in efficiency (with increased cost- and time requirements, and lowered feasibility). Another conflict surrounding feasibility/efficiency concerned long term resilience/-sustainability versus demonstrating short term effects. The latter may be tempting from the public sector perspective, as it can help prove the benefits of a service to its citizens. Thus, this could lead to them prioritizing the most surface-level effective solution, which may not be the most resilient in the long term.

Although this long-term resilience was not mentioned by other interviewees, most practitioners did acknowledge having to focus on short term wins since feasibility is a factor. ”There are not unlimited funds. We need to make an estimation depending on the people we *have* spoken to see whether our idea could be a solution. But we are definitely facing a value conflict regarding if we do one thing, we cannot do another, even though the second solution may help more people.” This interviewee acknowledged how some solutions can help various target audiences, but it could occur that one solution is more easily implemented, while another is very expensive and time-intensive. If the latter is a great solution, but only suitable for a small target audience, that may not be worthwhile. They also added that trying to help everyone with the application is an exercise in futility, since those who do not trust the government in the first place will not download the application. They *are* trying to help a large group of people, and thus, tailored solutions may not always be feasible, since that would be harder to automate (as was already discussed in the section on the personalization conflict).

Finally, many of the practitioners recognized that no solution is ever truly complete. One mentioned the importance of considering whether the assignment provided by the client (government, in this case) gets to the bottom of the real problem. Typically, a client may already have an idea of how a problem should be solved, but during the process, it may be revealed that the problem was different or this proposed solution may not be suitable after all. Another practitioner stressed that alongside core values of trust, transparency, livability and justice, realism is also crucial. ”Especially with a greying population, it will be difficult to implement new systems like this with little personnel. If we intend to serve everyone digitally but also support more people in a responsive manner, implying the possibility for human contact, that will still require a lot of work, despite digitization.” Finally, one practitioner acknowledged that like many tools, this one is also just applying a bandaid to the wound of an overly complex system of regulations. The PRA may serve as an inbetween solution, but they mentioned that citizens may have to adapt

again if the system changes in the future. Overall, the goal to reduce poverty by combating the non-use of benefits is a costly exercise. The practitioner acknowledged that these costs may be won back through increased efficiency, but at this stage, it is difficult to predict that. These conflicts demonstrate the delicate balance between the potential benefits of a proactive solution, and the costly reality that public organizations may face by trying to uphold multiple values.

6.3.6. Summary of Results: Subquestion 3

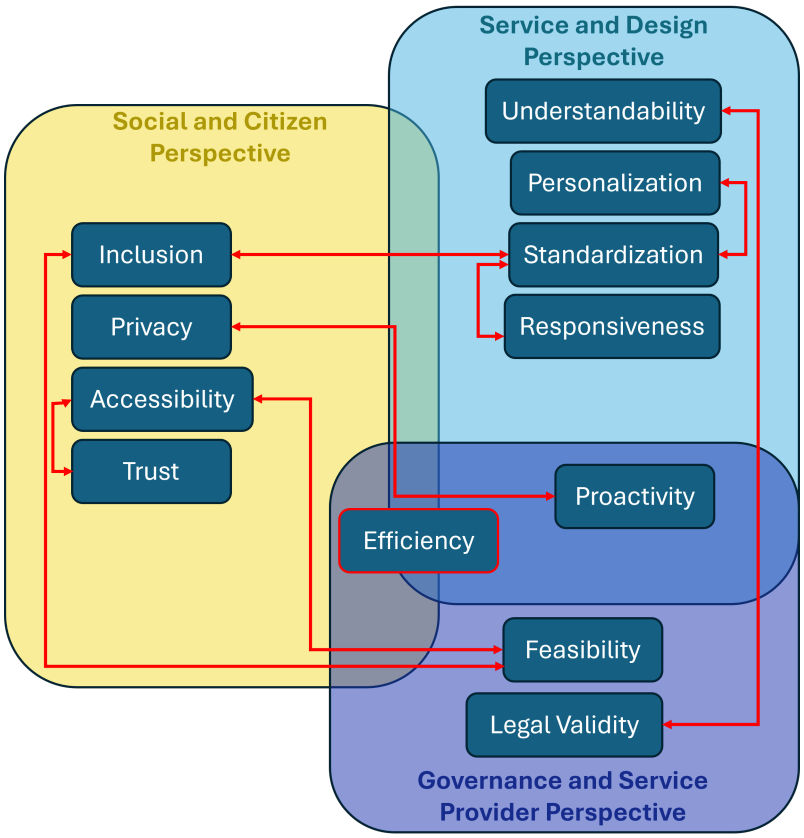

Figure 6.3: Overview of Value Conflicts

Figure 6.3 visualizes the main value conflicts discussed above. Interestingly, they do not just occur between different perspectives, but also *within* perspectives: If certain regulations or application procedures become too accessible, this may lead to a loss in trust if the result of the application or eligibility check is still negative. Standardization and personalization can conflict, and in turn, responsiveness may be reduced if an application is too standardized. Another key observation is that efficiency can conflict with most of the other values, since it is relevant for all three perspectives but may ”internally” conflict if, for instance, a more efficient process on the governance side implies more work on the citizen side. Overall, the following list of prevalent value conflicts was derived:

1. Inclusion vs. Standardization
2. Inclusion vs. Feasibility
3. Privacy vs. Proactivity
4. Accessibility vs. Trust
5. Accessibility vs. Feasibility
6. Understandability vs. Legal Validity
7. Standardization vs. Personalization
8. Standardization vs. Responsiveness
9. Efficiency (internal and with most other values)

Several conflicts have interactions between one another: Understandability is necessary for trust, but this may undermine legal validity. If, as a result of that, a citizen thought they were eligible, but they are rejected, this may undermine trust. Also, conflicts may arise because of multiple reasons: Making an application process very accessible may conflict with feasibility, not just because of the complexity of making legislation digestible, but also because this accessibility may lead to many more applications to process (and potentially higher expenditure for the government). These are just a few examples to illustrate the complexity and the non-exhaustive nature of value conflicts. Finally, many of the conflicts mentioned were context-dependent, meaning their presence and severity can vary depending on the conditions. The implications of this and which conditions may affect them will be discussed when answering the main research question in the next chapter.

6.4. Subquestion 4: Strategies to Address Value Conflicts

This section will discuss the ideas interviewees had about strategies to address value conflicts. This may provide context for the conditions in which they are addressed, as well as some of the underlying assumptions about value conflicts in general.

6.4.1. Calculative Approaches

The first approach presented to interviewees, calculative approaches, refers to all methods from van de Poel (2015) where each value relevant to the design was given a score to compare numerous design options on different values. One expert interviewee commented that they were unsure whether it was generalizable, but that it would definitely be used in software design, given the analysis of associated risks and impacts of each product or service that is typically performed. They also indicated that it would probably be combined with other approaches, since combining qualitative and quantitative estimations is advisable. The exercise of assigning these values and estimations is a qualitative exercise either way, which is unavoidable. They concluded that making these calculative trade-offs would likely be used if there is no better, alternative method, since just using this quantitative approach would not be a good method to rely on alone. Another expert interviewee agreed that combining quantitative and qualitative aspects is always a good idea in information systems research, since they concern analysis of complex wholes. They acknowledged the use of applying numerical scores to assess priorities, but considering other aspects simultaneously is also important. The final expert interviewee added that including informal aspects (aside from the formal and mathematical approach that calculative approaches suggest) should help to cover a wider range of design scenarios. They also commented that this approach is valid, but could be combined with others, like satisficing. Another interesting comment was that the very process of using this approach could help understand the nature of conflicts more.

The process is simultaneously something that some of the interviewees questioned. One expert interviewee referred to an automatic bus card allocation service for elementary school students, and how the outcomes of this would be rather easy to calculate since the costs, benefits and eligibility criteria are known. ”It’s easy to go calculative because it’s a small, delimited process with limited impact on people’s quality of life”. Other services are more clustered, and in turn, their impact would be difficult to foresee. As such, it would be difficult to attach a number to each possible approach or outcome. They concluded: ”In some of these conflicts, we will not be able to fully understand until the system is in place and we can see the actual consequences.”

One practitioner agreed with the experts that it would likely take a long time to assess the costs, benefits and value weightings for a complicated tool like the PRA. Still, some of the interviewees on the project team recognized part of the methodology in their approach. Specifically in user studies, they would assess how frequently users on a panel mentioned specific features, helping them prioritize certain values for the further design process. Another interviewee added that this type of user study is more qualitative in nature, and these results can be difficult to quantify. They would also typically be performed with only 12-15 people, so it would be more common to look at their general input, and recurring comments and feedback. Both admitted that this was not as concrete as attaching scores, but still, implicit trade-offs were being made based on this general impression of what users prioritize. Both interviewees agreed that assigning numbers/scores to values for each combination of features and functionalities would be difficult, especially determining who should be the deciding factor for these scores. Another

practitioner suggested looking at the different target audiences for the PRA application, and choosing the feature or design that would solve the problem for the largest group of people. One interviewee agreed and provided the example of assessing the size of the target audience for determining what type of proactive communication to use. If more people can be reached when letters are sent on top of digital notifications, then that could be prioritized.

Another interviewee expressed doubts about the approach in general, especially the process of expressing values in numbers. They deemed this problematic unless these expressions were based on citizens' opinions themselves. They also mentioned the lack of a universal definition of what is fair or transparent, given that it is so context dependent. Even if they were based on citizen values, scoring these for all involved people would be very difficult to do. Again, this interviewee brought up having to make choices regarding whether the largest stakeholder group should "win", or if there ought to be an attempt to look for consensus. Overall, most interviewees saw some merit in the method, but questioned the feasibility of attaching scores and the process of making the eventual trade-offs for choosing designs.

6.4.2. Satisficing

The next strategy, satisficing, involves setting minimum thresholds for certain values and choosing a design option that meets these requirements. The expert interviewees saw merit in this strategy, and commented on its prevalence in practice. One interviewee mentioned that in software design, this strategy is typically a mandatory step, and in most cases it is incorporated in the development cycle by design. Especially in public services, where requirements engineering is common, it would have to be used to ensure the service would work as expected. They also mentioned you could interpret this strategy as a special type of calculative approach where minimum scores are pre-determined. Another expert commented that the usefulness of the strategy is also dependent on the public organization and how they specify their values: Especially if there is a specific criterion that must be met, a Knockout (KO) criterion, this strategy could be especially suitable. Similar to calculative approaches, the interviewee commented that the very exercise of satisficing could help understand the conflict and the priorities the organization has better. One interviewee added that satisficing may be applied to the outcomes of an application: "If we can cover 80% of the population with a digital service, that's fine. When it comes to eligibility, if we do a risk analysis and find that 80% of people who apply are eligible and it will save a lot of time, then it's worth it if the other 20% will get a rejection decision."

The practitioners could also come up with examples of satisficing. One interviewee mentioned the conflict between understandability and legal validity, and how satisficing could be applied here to make a translation of legislation that is understandable *enough* for those who do not encounter legal language regularly. In a similar vein, an interviewee brought up choosing the language level that 80% of people would be able to use, rather than striving for 100%. They also commented that satisficing may be the best way to deal with value conflicts in a democracy. "If you are planning to design something for all citizens, you cannot avoid the fact that you will not be able to satisfy everyone. In the end, with most government related services, you will end up satisficing." Other practitioners agreed that it is hard to satisfy everyone, but there is likely a large solution space where most people will still be satisfied enough. Still, just like for the calculative strategies, the challenge of who decides or chooses persisted in the discussion: One interviewee commented that even with threshold values, how would one make the choice if two satisfactory designs have the same overall score, but one scores better on some functionalities for one target group, and another for a different audience? This interviewee admitted that in the end, the larger target audience would likely "win". Finally, they posited that although some decision making processes may appear to favor satisficing, this is not always by choice. In practice, the costs involved with realising a design also play a significant role, which may encourage satisficing to simply keep the costs manageable. This hints at how contextual conditions also determine which strategy may be applied to manage value conflicts and make tradeoffs.

6.4.3. Respecification

This strategy focuses on changing a value's specification, so that the conflict is eased or disappears altogether. One expert mentioned that it might be used, but likely only if major concerns in the existing service delivery were identified. The strategy may also fit into process re-engineering practices

to help make tradeoffs between value dimensions and performance indicators. They mentioned that alternative specifications may have to be considered to account for rainy days, especially when something was built to work perfectly on a sunny day. In that case, respecification may be necessary to justify a solution that covers rainy days as well. They viewed such respecification as more of a way to mitigate negative consequences, so they deemed it a countermeasure rather than a strategy on its own.

The other experts were generally skeptical. One commented: ”Privacy is as it is right? If you lay out what the elements of privacy should be, then I can’t say, let’s take out this criterion and then it fits. While the other strategies are about calculation and finding out the value that is most important or the most suitable design.. With respecification, I change the values. That’s more a way of mitigation.” They also commented that by redefining the value or the service, the conflict persists. In that way, the strategy does not provide a solution, since the underlying issues persist. On top of that, the interviewee was concerned that by using this strategy, the conflict may be made to look less relevant. Respecification was also deemed rather high level and general, making it difficult to apply. Another interviewee commented that conflicts cannot be eliminated by design, and as such, those who design the services simply need to make some difficult decisions. The practitioners agreed: Typically, these situations are complicated, and there will likely always be conflict, especially in the context of having different political movements and different prevalent values. ”One citizen may think a design or decision is amazing, while another will not.” Another participant also acknowledged the difficulty of the variety of goals and interests involved. ”Sometimes you do need to reshape or reformulate, but if the conflict will fully disappear, I’m not sure. I’m not sure if that’s a bad thing either, in the end, most will look at it from their own different perspective anyway”.

One practitioner *did* see potential for the strategy to work in practice, comparing it to AB testing. ”Take trust in the government. Say the way it was formulated forms an issue. You could keep iterating until the problem is as small as possible, or indeed until there is not as much of an issue anymore. Maybe I am misinterpreting, but that’s how I see it.” Others mostly struggled to imagine respecification as a usable strategy. One interviewee even deemed it dangerous. In the context of using pesticides in agriculture, he mentioned that this strategy would advise respecification of safety thresholds to justify using it. ”That sounds problematic to me, because you must have had a good reason to specify those standards like that in the first place. Of course, you can come to an agreement together that initial boundaries were a bit extreme. But it is *very* important to be open and transparent about it, and include everyone in that process”.

6.4.4. Innovation

Innovation as a strategy refers to attempting to find a novel solution that can support both conflicting values, reducing or eliminating the value conflict. The experts appreciated the strategy in theory, but had doubts about the practical generalizability. One commented that its applicability depends on the nature of the public service, where for some, an innovative solution simply cannot be expected. They mentioned that in Estonia, the aim to use this strategy was certainly there. However, they also said that this strategy appeared to be ”more of an art than a science”, and remained more on the conceptual or theoretical level that may work for finding solutions in the long term only. Another expert appeared to agree: ”This sounds like simply finding a solution to solve the conflict. The question is how? If there is a conflict between two values, then it is there. It is not really a helpful solution I would say. It’s also very high level.”

The practitioners were generally less skeptical. They mentioned how the PRA project in itself is a solution intended to solve current conflicts, even though this solution has more conflicts embedded within it. Some also mentioned examples of how innovation could be used to ease certain value conflicts. Using a data wallet, rather than using data directly, would ease many of the conflicts surrounding privacy, a common value conflict in this area. Since many steps are being taken around this innovation, the next steps build on top of this. A practitioner working on the design confirmed this by saying that they are naturally trying to be innovative. They provided the example that if people deemed the procedure for requesting a certain service too difficult, they would do extensive research to pinpoint where the problem would lie to try to generate solutions that could ease this difficulty. Another interviewee pointed out that when being presented the strategy infosheet, they immediately thought that innovation was

definitely a strategy they used and aim to apply to improve the project.

Still, they also foresaw difficulties surrounding this strategy. One interviewee agreed with the experts that not every conflict can be solved through innovation. Another mentioned that even though this is not a straightforward strategy to perform, the point is mainly to keep looking for a solution. They then added that this would come at the risk of thinking too much in terms of a solution, rather than considering what is really necessary and sufficient for people to live with. Realism was also mentioned as an important aspect of this: Serving everyone and implementing a solution with few employees and resources is challenging, which will in turn require innovative solutions to get by. Thus, despite being rather non-prescriptive, innovation is not just an aspirational strategy: It may be necessary to achieve some of the goals of the PRA as well as proactivity in general.

6.4.5. Cycling

Cycling as a strategy is about prioritizing different values at different times, for example through prioritizing one initially, optimizing for that value, and only then incorporating others. Responses to this strategy were rather mixed. One interviewee compared this approach to iterative design, but while that process is horizontal (considering multiple aspects simultaneously), this approach is more vertical, going one by one, which they deemed rather unusual for software development. They mentioned concern over overlooking some potential outcomes. It was also mentioned that if one value is prioritized and building others on top of that, the eventual design would also be affected by the order in which they are prioritized. Alternating or rearranging this order could help, but that would be very resource consuming and potentially infeasible in practice. Furthermore, if one value is prioritized for the moment, the others are traded off against it, and the challenge would be to ensure that this prioritization would not yield a very negative result for other values. Attempting to forecast these scenarios, again, would require assessing a large number of potential options, which would be costly and time-consuming. The interviewee did point out that they believed it could lead to good designs, especially if the strategy was combined with others.

Another expert also questioned how this method could be applied in practice, but they could imagine it working when taking a strictly theoretical perspective. Another interviewee did see it occurring practically, though not necessarily as a deliberate strategy: They mentioned that cycling could result naturally from applying the other techniques. As an example, those strategies might lead to the preference or prioritization of one value. The following example illustrates how cycling can me be used as a response or counter measure after one value has been prioritized at the expense of others: ”In Estonia, you could say that at some point, they prioritized data access for different public entities. And in that way, efficiency was prioritized. They started prioritizing privacy after, when they understood that they are conflicting, and by focusing on one they have some losses in the other.”

Practitioner interviewees also recognized (aspects of) the strategy in their own work: ”I suppose cycling is a strategy. Interesting it mentions privacy as an example. We have a few starting points that we wanted to include from the start, such as Privacy by Design or Compliance by Design. And these principles are meant to ensure privacy and transparency. Based on that, we make decisions, and the rest can follow later.” Another interviewee agreed, and added that cycling may be appropriate when there is a very complex problem that requires an integrative, innovative solution. They considered it a good approach to first optimize for one aspect, and then work towards a system that can offer it all. Another interviewee also indicated that they thought this aligned with their approach, specifically since they were trying to find out what is achievable in the short term, which is then prioritized. Focusing on the ”low-hanging fruit” and adjusting the approach after was deemed suitable for the current situation. Still, another interviewee expressed some doubts: ”Cycling seems very complicated. How could you say that in one period, trust is important, and not in the next? That seems a bit strange for this case. I don’t think you can give any of the values less priority during one period.”

6.4.6. Combining Approaches

Interviewees were also prompted to offer suggestions for combining strategies. Three different interviewees suggested combining calculative approaches and satisficing. One even indicated that satisficing just seems like a subdivision of calculative approaches, with the distinguishing factor of setting thresh-

olds. Another interviewee commented something similar, indicating that these thresholds are simply an additional criterion, so more of an extension of existing calculative approaches. Rather than just selecting the approach with the lowest/highest score for a certain value, minimum values are selected as well.
One expert interviewee suggested combining calculative approaches with cycling. By first assigning scores and choosing the design that scores highly for one value, and then trying to adjust the design by trying to incorporate the design that scored highest for a different value and second highest for the original. Finally, an interviewee suggested that calculative approaches and satisficing could be a natural aspect of respecification. They argued that by respecifiying a value, its definition is changed to something that at least satisfies the objective for which the value was included in the first place. Overall, many interviewees argued for some combination of methods, since they recognized how neither strategy will be a catch-all ”solution”. Additionally, as evident from the many concerns, questions and considerations, the chosen strategy is also highly dependent on the contextual conditions.

6.4.7. Summary of Results: Subquestion 4

Overall, all strategies were considered to a certain extent by both experts and practitioners. Interestingly, both types of interviewees were concerned with the practical applicability of each strategy. Calculative approaches were considered a valid, systematic approach, as long as qualitative factors and methodologies were not ignored. As the literature on the method already predicted, many were concerned with how to assign numerical scores to abstract values, as well as how to handle making choices between similarly scoring designs. Also, using calculative approaches for complex systems that include many values, features and consequences was deemed a time-intensive exercise. Satisficing was acknowledged as an already prevalent method that may be suitable, especially in complex settings where many values are important. Notably, interviewees commented that this may be necessary in a democratic setting. These first two approaches were deemed more prescriptive, and the process of calculating and satisficing itself was seen as potentially helpful to better understanding value conflicts.

Interviewees were more skeptical towards respecification, because it does not truly resolve the conflict so much as bypass it. This could come at the risk of painting value conflicts to be less relevant, and could be used to justify changing standards that were established for ethical or safety reasons. Innovation was seen as a desirable approach, but difficult to apply in practice, since there is no clear process that always leads to a solution. Furthermore, it could lead to focusing too much on solutions. Still, practitioners coined it as the strategy they aimed for and already used. Finally, cycling was received to be rather applicable in the project setting of the practitioners. There were still concerns regarding the values that would not be prioritized, but the practical use of being able to focus on short-term wins at the beginning of the cycle was emphasized as a main benefit of using cycling. Most interviewees also recognized that this strategy is sometimes applied as a countermeasure against backlash due to prioritizing one value (group) for too long. The main findings have been summarized in Figure 6.4.

Figure 6.4: Overview of Results on Strategies to Address Value Conflicts

7 Discussion

Throughout the interviewing and coding process, multiple contextual factors that influenced relevant values, features, value conflicts and strategies arose. They were categorized in six general types of conditions: Political, Governance, (Design) Procedural, Social, Legal and Technological. By evaluating how these conditions influence both the rise of value conflicts themselves and the strategies that may be used to address them, the main research question can be answered. The findings will be integrated in a conditions framework that can be used for further research. Some tentative recommendations are provided for further practice and research. Finally, the limitations of this study are discussed.

7.1. Conditions: bringing it all together

Initially, the aforementioned conditions were deemed ”external” factors that were to be kept outside of the scope of this research. Now, they are at its core. This decision was made because the presence of value conflicts themselves is highly dependent on the context, which also determines which values are deemed important in the first place. Furthermore, specific conditions on the legal and technical front may determine how values are specified and translated into features and functionalities. It also became evident that environmental conditions, like resources or timescale may determine which strategy is chosen. As such, conditions are the connecting factor between the aspects studied in this research, and tie the research questions together.

7.1.1. Political Conditions

Political conditions do not just refer to which parties are governing at a certain moment in time, but also the ambitions, priorities and goals government has. This, in turn, determines what funding may be available for which kinds of projects. One interviewee mentioned before that some projects may be decided against because priorities (and available funds) have been directed elsewhere. The last couple of years, for instance, there has been a lot of attention on fighting fraud. In that scenario, the inclination to make the application process more secure (i.e. adding additional steps and thresholds) may be prioritized over being user-centric and accessible. This may explain why some services are easier to perform, while others are difficult: Renewing a driver’s license is comparatively straightforward, while applying for welfare benefits is not. The current system is built on the idea that citizens have to make an effort to get certain benefits, and proactivity overturns this notion completely. Thus, the political preferences regarding autonomy versus social welfare will be a significant influence here, and determine *how* proactive (a set of) services can become, and in turn which conflicts may be present.

Interviewees outside of the Dutch setting also indicated that views regarding proactivity change depending on how much funding is available. The transparency and honesty of the political climate also plays a role here: If lack of funding results in it being more desirable to have *fewer* citizens applying, then either eligibility criteria would have to be tightened or the ambition to be proactive could be foregone overall. Another political aspect is ideas surrounding responsibility: If the use of certain services and benefits is interpreted as the job of executing organizations and ministries themselves, this may lead to more support for proactivity (and inclusion related values.) Overall, most of the found conflicts would be affected by the political conditions a proactive service/application would be developed in. Next, we consider how this would affect the strategies that may be used. One of the main challenges for using calculative approaches is which factors ought to be included in the analysis. Political preferences may lead to weighing some values, like (cost) efficiency or autonomy, more than others. It may also influence which stakeholder groups are prioritized. Respecification may also be used to accommodate changing political climates and values, although this may not necessarily address the conflict, but rather reduce its severity by adjusting its specifications. A natural connection can be made between cycling and political conditions: changing circumstances will affect priorities, which cycling accommodates.

7.1.2. Governance Conditions

Governance conditions are closely tied to political conditions, but here the focus is more on the actions taken by government, rather than the political ideologies surrounding it. First, the motivations and

goals of government translate directly to the problem definition they provide to the implementing parties designing a proactive service/application. Some practitioner interviewees already indicated that there may be discrepancies here already: ”If the client has an idea of how a problem should be solved, this will be the focus, even if we are not sure that was the problem to begin with.” The PRA case demonstrates ideas about how to solve the problem of disuse of regulations, poverty and mistrust towards government. However, even interviewees themselves admitted that this form of proactivity could be seen as ”sticking a band-aid on a larger problem.” The complexity of legislation and public services themselves are at the core of the issue. Of course, proactivity and data based on such applications may help inform what the issues are in current regulations and eligibility criteria. As indicated before, this may contribute to a feedback loop for policy, and allow for cyclical updates.

Still, given the complexity of the problem and proposed solutions, interviewees also indicated that short-term wins could be prioritized, as small steps towards goals are both more feasible and can add value in the short term. The timescale of a project or the intended results thus also form important conditions. This may imply prioritizing feasibility, especially when funding for innovative projects is uncertain. Another governance-related condition is the influence of standardization and ambitions to comply with these standards. One interviewee mentioned connections to WECA and the NL Design System informing their best practices, which in turn influences which values are prioritized and how they are specified. Finally, the existing public service support facilities form a crucial governance condition that was mentioned by (foreign) experts and practitioners alike. The availability of helpdesks, backup procedures and other contact points determines how severe the value conflict of standardization vs responsiveness becomes: If reaching out to get help in case someone falls out of the digitized, standardized format is supported, the conflict would not be as severe. A ”government wide helpdesk” project is in development (and PRA documentation refers to this as a crucial supporting project). Still, the risk of being sent from ”pillar to post” remains, and governance conditions determine how much of an issue this will cause in the proactive public service context.

Governance also refers to how decisions are made and by whom. These factors align with some of the main questions interviewees had about strategies: Who decides the weight and minimum score for values in the calculative and satisficing approaches, for instance? Satisficing, in particular, may be influenced by governance conditions, as these prescribe the acceptable costs and minimum viable requirements a project must meet in case of conflicting values. Innovation as a strategy was deemed as more suitable for long-term timescales and solutions, since it may not always yield results immediately. As such, governance conditions certainly affect whether this strategy is deemed suitable, since it may require long term investment. On the other hand, innovation was also seen as a necessary avenue when resources are scarce: If proactive applications can reduce the strain on a graying workforce, innovation may be necessary. This is a matter of interpretation, though, and thus reliant on current political- and governance conditions. Finally, the matter of prioritization based on timescale shows why cycling may take place as a strategy, where demonstrating results on the short term may take precedence over goals and values that may take longer to achieve.

7.1.3. Process and Design Conditions

Process and design conditions are closely tied to governance, but concern more the design process itself and who are involved in it. Several interviewees discussed how values may be better incorporated in the design process if some form of collaboration in place. One described how equity may be achieved by codesigning, cocreating or coproducing with citizens. However, this is not that straightforward: ”We have to define the differences between groups of citizens, of vulnerable groups or minority groups for instance. We first have to acknowledge them, which is already pretty tricky and challenging, as it can be really difficult to cover all of those groups and sample those participants with whom to collaboratively design this. This will also result in increased costs, time and resources.” They also concluded that by striving for this equity in the design process, you may lose efficiency and delivering the project in a shorter amount of time. This shows how the decisions about the chosen design process and user studies may directly affect value conflicts surrounding efficiency. Another interviewees also acknowledged how a quadruple helix approach (involving government, research institutes, businesses and citizens) will help make as objective of a judgment as possible, especially when it comes to determining the right level of proactivity. Still, these discussions can take time, and sometimes, it is also

important to consider when a choice is good enough.

Another important factor connects process conditions and governance: The client that initiates the design process for the executing project team. Practitioners indicated that part of the process is also determined by what the client (the BZK ministry in the PRA case) wishes to be emphasized and highlighted. In the end, they are the party to provide funding, so many of the choices must be validated by them. Still, the interviewees said they directed the process by validating their assumptions with potential end users and advising the client on what may be the right direction. Furthermore, the process conditions are also subject to change as a result of other conditions (like the political climate): The project has been changing constantly, and there are several differing opinions regarding what one of the main goals, rebuilding trust in government, should constitute. Additionally, the question of the problem definition (as previously mentioned under governance conditions) also differs across stakeholders. One interviewee indicated that the realm has an idea of what executing organizations (like municipalities) should be doing, but interests are not always aligned if there are also local projects in development that serve similar objectives.

Process conditions also play a significant role in which strategies may be applied to manage value conflicts. During the design process, testing data and insights from user studies may inform calculative approaches. This does mean that there has to be a sufficient amount and variety of data on all the factors deemed important by the client/governing party. Furthermore, if multiple use cases and user groups have been considered (as was the case for some of the PRA tests), the process also influences *whose* values get prioritized in case one user group is bigger, holds more influence or is more vocal. Satisficing is an avenue that may be taken if the process takes a long time, there are various stakeholders with different opinions involved and it is more important to reach a decision that is ”good enough”. There are also process conditions that may lead to respecification: As mentioned by interviewees, if the design has been built on sunny day scenarios for the most part, respecification may be required to account for rainy days, or if new information comes to light from user studies or other stakeholders. Recall how one interviewee emphasized that when standards or thresholds for values are changed, it is all the more important to include stakeholders in these decisions. This hints at the possibility for the chosen strategy to affect conditions as well. Finally, choosing to prioritize one (set of) values during the initial design phase may make the process simpler, which could in turn feed the cycling approach.

7.1.4. Social Conditions

Social conditions concern the general sentiment of citizens towards government, but also their level of preparedness for a proactive public service. Recall from the systematic literature review that citizens' social and technical conditions influence their readiness for proactivity (Khasmammadli & Erlenheim, 2022). Although learning costs, compliance costs and psychological costs *could* be reduced by more proactive services, there may also be initial difficulties experienced by citizens. Furthermore, there may be stigmas about receiving certain services, so being automatically approached because they may apply to a citizen's situation can be a sensitive matter. Cultural factors are also part of social conditions: One expert interviewee from abroad mentioned how services that are already proactive in other countries may not be well-received in the Netherlands, which was indeed confirmed by a Dutch interviewee. Automatic enrollment for kindergarten, for instance, would likely not be welcomed by the Dutch population, even though it is commonplace in Denmark. This shows the interaction between the services that are chosen to be more proactive, social conditions and how proactivity is received.

Communication towards citizens regarding proactivity is a crucial aspect of social conditions as well, as it may shape expectations about (proactive) public services. These expectations influence the value conflict surrounding accessibility and trust, as well as inclusion and standardization (in case the standardized, automated format excludes some citizens). Trust is therefore not just a value,but also a social condition that can strengthen or diminish the severity of value conflicts. Furthermore, in the PRA case, more awareness of regulations and how they work may also have a disadvantage: How certain regulations and eligibility criteria work are now brought to citizens' attention. This may also shape their expectations and perceptions, and in turn shape value conflicts and appropriate strategies. Still, one interviewee posited that people will always be somewhat hesitant to change, and discussions are inevitable. According to them, the current governance climate is definitely focused on including citizens

and ensuring they do not feel that decisions are being made without their involvement. Especially when it comes to the choice of which services to make more proactive, the input from the affected stakeholders can be used. Still, recall that proactive services citizens could benefit from the most may not be the most beneficial for public organizations to tackle. Easing the complexity of certain services and making them proactive may help citizens, but may imply additional costs and effort for government, which is not always compensated by more efficient internal processes. Additionally, an interviewee suggested that governments may be inclined to first make the services that are required *duties* for citizens (like doing their taxes) proactive, so the likelihood of mistakes is reduced. This is understandable, but may not be as well received compared to making services that enable access to certain *rights* (like social welfare or benefits) more proactive. Thus, social conditions are very influential, but may be outweighed by political and governance conditions (which are of course also intertwined with social conditions).

These social conditions do not immediately imply the choice for a specific strategy. Of course, in case readiness is low, it would be wise to ensure whichever strategy is used ensures that citizens are included in the process. Strategies that were more controversial during the interviews, like respecification, may be less suitable in that case, especially given the risk that it can be used to make valid concerns/conflicts appear less severe. Finally, cycling can arise directly as a result of changing social conditions. Backlash from citizens because of a design or policy choice can start a new cycle of prioritizing values that have been too low on the priority list.

7.1.5. Legal Conditions

Legal conditions refer to the legislation that may enable proactivity or inhibit some of its functionalities. It can refer to data governance mechanisms, policy surrounding data exchange between institutions, as well as the general state and inter-dependencies in legislation. The latter plays a rather obvious role in value conflicts, given that it is part of the reason for the understandability vs validity conflict existing in the first place. Furthermore, the data necessary to facilitate certain functionalities (especially for applications that are highly proactive) typically requires data sharing across institutions, which is certainly not allowed in every country. GDPR constraints also play a role in this. Indeed, several interviewees confirmed that some innovative, proactive approaches are not allowed due to integrity reasons, or because strict regulations make implementation too difficult. However, legal conditions do not just ”stand in the way”: public organizations typically also wish to be legally covered, with less understandable explanations and legislation as a result. This, in turn, affects the various value conflicts surrounding understandability, accessibility and inclusion. One interviewee emphasized that integrating regulations in one place may expose flaws in the system, which may also be seen as a risk for the public organization. It will be up to them whether they are willing to take this risk if that means being more accessible for citizens, connecting legal conditions to governance conditions.

One way in which legal conditions could imply or inspire the use of specific strategies is through establishing minimum thresholds that proactive services/applications must comply with. These thresholds may then be used to apply calculative approaches or satisficing. Furthermore, if certain legal conditions on data privacy front are currently not met (or they form a value conflict), innovation could be used to overcome this. In Chapter 5, the necessity for innovation on the Digital Identity/Wallet front was already mentioned as an example.

7.1.6. Technical Conditions

As mentioned in the previous section, some conditions need to be in place for specific proactivity functionalities to be implemented in the first place. Legal and technical conditions are somewhat intertwined on this front: Technical conditions may alleviate issues originating from legal conditions. As mentioned, technological innovations in the data wallet/digital identity domain can enable safer and more compliant data processing, potentially easing value conflicts. However, several plans for making services more proactive (specifically the PRA) rely on codifiable models of legislation. The interviews revealed that these models have not been developed yet, while they are crucial for making calculations regarding eligibility and providing in-app advice. Which models will be used for this, and how exactly this may affect value conflicts, remains to be foreseen. However, the choices made regarding these models, which form the architectural backbone for such an application, may certainly affect value conflicts, as they vary on values like explainability and transparency(see also the potential impacts of chosen RaC

models in Chapter 5).

Technical conditions are intuitively connected to innovation as a strategy: In order to get the right technical conditions in place and potentially easy value conflicts, an innovation process may provide the solution. Technical conditions may also shift the goalpost in terms of what is considered ”safe” or ”private”, which would influence the scoring of calculative approaches and satisficing. Finally, recall the mechanism of technicization mentioned in Stewart (2006): Technical decisionmaking tools, and in turn easily quantifiable values and performance measures, may be favored over more abstract values. This shapes the conditions and outcomes of some of the strategies for managing value conflicts, especially since a technocratic perspective (”technology will solve these value conflicts”) was favored by several interviewees.

7.2. Condition Framework

Based on the different types of conditions discussed above, the following framework was developed, as depicted in Figure 7.1. Note how the box for conditions is surrounded by a dotted line, indicating the uncertainty still present. Given that this is exploratory research, this aligns with the goal of theory formation. Furthermore, conditions are shown to likely affect chosen strategies, but the arrow is bi-directional: Strategies may change conditions, especially in case innovation is successfully applied and possibilities may change. Finally, throughout the research, it became evident that conditions do not just influence strategies, but may also strengthen or ease value conflicts themselves, as indicated by the arrow pointing up to value conflicts. To further illustrate this, the numbers in each condition box represent the value conflicts most affected by this set of conditions.

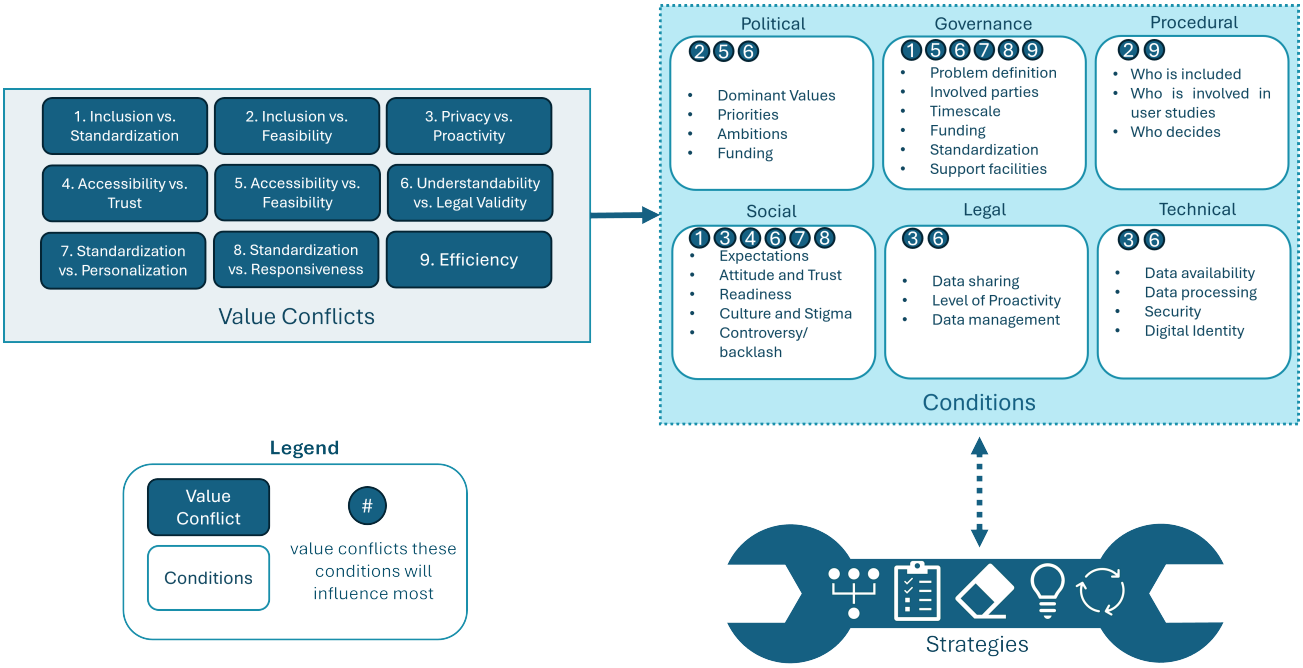

Figure 7.1: A Condition Framework

This framework essentially summarizes the answer to the question: ”Which contextual conditions influence the strategies for managing value conflicts in digital proactive public services?”. Although conclusions are tentative, the conditions indicate the many factors that must be considered when approaching a value conflict. No strategy is a catch-all, ready-made solution, and contextual conditions play a crucial role in determining which path to take. Overall, managing value conflicts in proactive public services demands considering who must be served, what their values are, and which prioritization may be wise in the given setting, especially when the consequences are difficult to predict.

7.3. Tentative Recommendations and Reflections: Moving Forward

The framework presented above is the result of exploratory research, and at the moment, it is descriptive rather than prescriptive. This does not mean that the found results cannot help guide future action and research. First, it became clear from the start that values (at least for non-ethicists and non-philosophers) can be rather ambiguous, and may be interpreted quite differently. Crucially, the latent values and preferences should be uncovered, since the values an application is *said* to promote may not be the values that are actually worked towards or prioritized. This may lead to misalignment between stakeholders and potentially, value conflicts. Thus, getting clarity on concrete goals, purposes and preferences for a proactive application should be the first step. Several expert interviewees recommended a multi-stakeholder engagement approach for this. Thus, how a value conflict is *currently* managed (or ignored), likely also reveals more about the priorities of involved stakeholders. In the example case, the emphasis on efficiency and short-term wins revealed the limitations inherent to a public service setting: Funding, time and support for a project. It is also hard to predict the actual effects of large scale proactivity, given that the outcomes are dependent on so many different factors. It may make government more efficient, but if increased accessibility and ease lead to more superfluous applications and additional work for civil servants to deal with exceptions handling and complaints, it may be too costly or even stand in the way of helping those most in need.

7.3.1. A Meso-Level Learning Strategy: Working towards long-term solutions

Even so, these practical limitations could be used as a way to foresee and manage conflicts: With the knowledge of these constraints, focusing on implementing whatever adds the most visible value for citizens first may help build the support necessary to keep a project going. This line of thinking is more ”bottom-up” than starting with a goal/value from the outset, and considers ”what is” rather than ”what should be”. This takes the found conditions more into account from the start, and works within these constraints. It could also be valuable to focus on features and functionalities that may serve multiple stakeholder groups simultaneously (which is already partly done in existing examples of pre-filled forms). This ”holy grail” approach is a slight departure from the line of thinking applied by the VSD approach: here, the same specification is used for one value within a project. By thinking instead on the feature/functionality level, there may be functions that serve multiple different values for different stakeholder groups, even if they each envision the goals of an application differently. This could even lead to a new, revised strategy for addressing value conflicts. Rather than envisioning a strategy as a one-off application of a method, a more agile approach could be taken: Try out a design, experiment with functionalities, and adapt where necessary. As the implications of choosing a specific set of values and specifications for these values are not always clear from the outset, such a learning strategy can help clarify perspectives, align priorities between stakeholders and set the direction for future designs. The approaches described above would have to be implemented in collaboration with multiple stakeholders,but assigning responsibility to the product owner of a specific service/application might be helpful for setting specific goals and aligning various perspectives.

Still, more coordination may be required to set the further agenda for proactivity in public services, especially when it comes to implementing applications that span various organizations like the PRA. Current legislation is not prescriptive enough and not innovative enough to keep up with proactive developments, while requirements or best practices resulting from individual projects and case settings may be too context-specific. This is where an organization at the meso-level (i.e. between the macro levels of national legislation and government and the micro level of an individual project) could be helpful. The Overheidsbreed Beleidsoverleg Digitale Overheid (Government-wide policy consultation Digital Government, or OBDO) would be a good candidate for this role: In the Meerjarenprogrammering Infrastructuur Digitale Overheid (multiyear planning infranstructure digital government, or MIDO) framework (van Binnenlandse Zaken en Koninkrijksrelaties, 2024), the governance structure for developing the Generieke Digitale Infrastructuur (Generic Digital Infrastructure, or GDI) is laid out. OBDO is represented as an organization at the strategic level that may advise ministries at higher levels based on knowledge from different projects, developments and innovation programs. OBDO advises on policy surrounding digital governance, as well as determining which generic functions and capabilities the overarching infrastructure should have. They also provide advice on prioritisation and financing.

Crucially, they could function as an evaluative organ that project teams can reach out to when encountering value conflicts. Based on such queries, practice and experience, architectural guidelines could be formulated in a way that is not too centralized (since this would be too generic) but not too decentralized either (which would be too situation-specific. This idea is somewhat reminiscent of the Casuistry approach from Thacher and Rein (2004), where based on a taxonomy of known scenarios and cases, decisions can be made for a new situation(see Chapter 4). By having an organization-spanning, authorized organ that can provide advice, a learning strategy can be supported, where gathered knowledge from past cases may inform the future. This is just one example of how governance may help provide a platform for addressing value conflicts. Future research can look more into the various opportunities for how this could be realized and the details of how this would function. Still, the potential for such an organ to help manage value conflicts is clear: It can not only provide advice in the present, but also build the knowledge about value conflicts in proactive public services so they may be better addressed in the future.

7.3.2. Other Reflections

Interestingly, several interviewees (and especially the practitioners) had a rather technocratic view, arguing that many of the found conflicts would be solved with the right technical enablers in place. This aligns with the van de Poel Innovation strategy, which was indeed favored by many interviewees. This perspective makes sense given their innovative line of work. However, the framework also revealed that there are far more factors that may form a hurdle than technology alone. Legal conditions surrounding data sharing may form a tough barrier to overcome even when the right enabling technologies are ready for use. Furthermore, managing social conditions like citizen readiness, trust and stigma are necessary to get support, which is in turn dependent on political conditions. If the design process is more inclusive, these risks may be somewhat mitigated, but this would take time. These interdependencies highlight how a hybrid approach, considering multiple conditions and strategies, is crucial for eventual implementation of any proactive public service.

The strategy overview (see 6.4) also revealed that there were quite few differences between the view of the experts versus the practitioners. Some of these differences were not too suprising: Experts considered the theoretical value of certain strategies (e.g. how the process of executing a strategy may be a useful exercise for better understanding the value conflict), while practitioners commented frequently on the practical implications such as resources, *how* to assign scores and priorities, and the complications of decision making in democratic settings. Both perspectives may be useful, and in future research, having both groups interact and discuss the different strategies may provide new insights on addressing value conflicts in proactive public services.

7.4. Limitations, Opportunities and Contributions

This study was an exploration of value conflicts in proactive public services, how they may be managed and under which conditions they take place. Of course, there are numerous limitations to this research and the taken approach. First of all, the novelty of the subject matter was both an opportunity and a challenge: Value conflict research typically occurs in a more philosophical/ethical domain, with limited examples of the theory being applied in a practical, ongoing setting. As such, developing an interview protocol for extracting practical insights was challenging, and the line of questioning was kept rather open. As a result, developing concrete codes and themes was difficult. The resulting list of values could be refined more in future research and by using a larger dataset of interviews to expand on and clarify each code. The structure that was eventually applied in this study may be a start to more systematic, empirical approaches for researching values and value conflicts.

Still, the identified value dimensions, perspectives, conflicts and conditions could be a start for researching value conflicts and designing for proactivity in the future. Other procedural limitations included the materials that were provided during the interview. Potentially, the ordering of the strategies may have biased participants towards one or another (one interviewee wondered if they were ordered from best to worst), even if no intentional ordering was applied. Furthermore, the information provided was deliberately kept rather limited to keep it concise for interviewees and allow room for them to organically bring up value conflicts and ways to manage them. This sometimes led to some misinterpretations of

strategies during the interview. Though clarifications were provided in the moment, it may have helped to have a concrete value conflict example/case study that all the strategies could be applied to, which would provide a more fair comparison. If the strategies were not fully grasped from the outset, this may have contributed to some of the data not being entirely representative.

Ironically, one of the main recommendations for the PRA case and proactive application design in general, being to involve prospective users, was not integrated in this study. This was mostly due to the timing of the project and the progress of the chosen case: Some user studies had been conducted by the project team, but they were mostly performed to assess people's initial reactions to the concept rather than in-depth discussions about potential concerns and value conflicts. Still, future research could include citizens as another source for input, whether it be through a large-scale survey or selecting a few civilian interviewees. This could help assess which values people prioritize and how they would like to see this reflected in (proactive) government applications. Furthermore, the initial steps were taken to consider multi-stakeholder decision-making and design processes, but they were not studied to their full extent (partly because not every stakeholder was interviewed and this fell outside of the scope). Connecting the domain of value conflicts with multi-stakeholder processes and decision-making would be an interesting future avenue, since it aligns with the recommendations provided by interviewees and may shed more light on how it affects value conflicts and strategies.

Furthermore, the resulting analysis was rather tentative. The initial plan was to develop a decision tree where, based on conditions and value-specific situations, a strategy could be recommended. However, given the novelty of the research area and the fact that only one case was studied, it was difficult to justify such a prescriptive, formulaic format. Furthermore, the time constraints allowed for only a limited amount of data being collected, making it hard to generalize findings to proactive services in general. Even though insights from experts who were not associated with the PRA case were included, the analysis is rather context-specific (which was also necessary to attain concrete insights, given that the value conflicts that arise depend on how such a proactive application functions). Thus, the findings may not be applicable to other settings. By considering the conditions in which the specific value conflicts arose and are addressed, though, a more general framework was developed, which may be applied in other contexts as well. As such, the conditions framework, tentative as it may be, can form the basis for future analyses. The conditions could be studied individually, but ideally, a research design could be set up that would consider their interdependencies alongside the perspectives of different stakeholders. This could then provide stronger substantiations for the theories developed on how conditions influence value conflicts and the strategies that may be chosen to manage value conflicts.

Finally, we must acknowledge that values and value-centered design research can be colored by normative perspectives. Even though the decision was made to keep the research focus empirical, some normative undertones were unavoidable: In interviews, participants expressed normative opinions regarding what values *should* be prioritized, and views on the various strategies also included judgments regarding how responsible or ethical certain approaches would be. This introduces the inevitable limitation of bias, which could also originate from most of the interviewees being part of a project group working on a proactive application and thus being optimistic about its potential. As such, the interviewees may not have been representative of the broader population. Additionally, given the early stages of the project, participants may have been hesitant to disclose criticism or value conflicts. There may have also been bias stemming from the researcher's personal perspectives and interpretations on the subject matter. Rather than seeing this limitation as a call for avoiding bias and subjectivity altogether (which may be impossible in values research), future research could focus on *incorporating* normative stances. This could be done by letting participants rank and prioritize values, react to specific value conflict scenarios and perhaps provide recommendations on how to apply strategies in a value-sensitive manner.

7.4.1. An Overview of Academic and Practical Contributions: A Few Bricks on a Long and Winding Road

As evident, the field of proactive public services is rife with high expectations, ideas and hopes. It can be easy to forget that in many countries, including the Netherlands, the path to realising these promises is long and winding. The PRA project studied here reflects these early-stage complications. In turn,

the tentativeness of the findings in this thesis are a product of the research area's novelty. Still, the contributions made are multi-fold, for both the academic fields of digital (proactive) public services and value sensitive design and practical applications.

First, categorized overviews (both per value dimension and perspective) are provided of the relevant values in the proactive public service setting. This may be a stepping stone for future research, and may even serve as a starting point for values discussions and workshops in design processes of proactive applications. Furthermore, examples of value-supporting features and functionalities are suggested, which may also help guide future applications. The presented strategies may in turn inspire teams to use a deliberate thought process when encountering value conflicts, even if these strategies may not always yield a definitive solution either. Simply attempting to implement such a strategy may help bring to light priorities and conflicts between stakeholders, and start conversations that are currently underexposed. As mentioned, the more empirical approach taken in this thesis for assessing the management of value conflicts and the applied strategies may encourage future researchers to take a closer look at how values are approached in practical settings, and take their findings beyond the philosophical and theoretical domain. Strategies as described in van de Poel (2015), Thacher and Rein (2004) and Stewart (2006) were typically identified and analysed based on past situations, while this thesis explored the potential of using these strategies deliberately *during* a process. This sets up an interesting direction for future explorations in value conflicts research, whether it be in the (engineering) design domain or the policy and governance research area. The main deliverable of this project, the conditions framework, also contributes to bridging the gap between values research and practical applications. It highlights the main value conflicts, which may be further discussed and elaborated on in value-sensitive design research, but crucially, it explores the practical conditions that will impact these value conflicts and in turn, the strategies that may be suitable. The framework thus exemplifies the contributions of this thesis, as it connects the often theoretical research domain of values (and accompanying value conflicts) with the practical realities of designing and implementing proactivity in digital public services.

Finally, this rather lengthy discussion chapter itself is an important part of this thesis' contributions. Specifically, the suggestions regarding a learning strategy and setting up an organization-spanning governance structure provide practical avenues for both researchers and practitioners. This focus on governance is inspired by the findings that these conditions are especially influential (as the framework demonstrated, most value conflicts were influenced by governance). In turn, having an authorized organ gather, analyze and deliberate on practically occurring value conflicts legitimizes the research into and management of value conflicts in digital proactive public services. Overall, a combination of research on the governance surrounding value conflicts and multi-stakeholder decision processes, as well as an authorized organization that can deliberate and advise on these matters, can support the design and implementation of value-sensitive, proactive public applications in the future. There are still many questions left unanswered and thus many opportunities for future research, but this does should not be taken as a sign that this thesis' contributions are negligible: Knowing which aspects must be explored further helps lay the road towards both theoretical insights, as well as proactive public service applications that serve and support each stakeholder's values and goals.

8 Conclusion

A common saying around technology is that a tool is only as powerful as the hands that wield it. One could also posit that a proactive application is only as helpful as the outcomes it can achieve, which is of course also dependent on the intentions of its proponents, developers and implementers. This research project focused on the conditions under which value conflicts are managed in proactive public services. Since the case study used as an example application is still in the early stages, this provided an interesting environment to study the values, value conflicts, and views on addressing these value conflicts during the design phase of an application. Still, the timing of this project proved to be a challenge, too: So many of the potential discussed outcomes were highly context-dependent, and since the application has not been fully implemented and released yet, the focus was shifted to conditions instead. These may serve as a framework that could be applied to uncertain situations to analyse how value conflicts may be affected and addressed. This project thus served multiple objectives: Mapping the key values, assessing the resulting value-based features and functionalities, analysing which value conflicts (may) arise and presenting the strategies that could be used to manage them. The surrounding conditions tie it all together: They form the environment that shape stakeholder values, affect the severity of value conflicts, and they may inform which strategies are applied.

First, the relevant values were extracted from interviews and documentation. Based on the literature review that covered the general landscape of proactive public services, five value dimensions were identified: Social Justice, Privacy and Security, Service Quality, Autonomy and Governance and Responsibility. The PRA case study itself revealed that Trust was a crucial value that the application was intended to inspire, as well as Inclusion. As the implications of these values were discussed, the difficulty of defining them became apparent, since one value may mean one thing for a user/citizen, and another for a designer, civil servant or government. As such, the values were further categorized into perspectives, instead: the Social and Citizen Perspective, the Service and Design Perspective, and the Governance and Service Provider Perspective. Efficiency was prevalent across the literature, but also in the interviews, but proved to be hard to categorize (it is both beneficial for citizens to receive what they need efficiently, as it is for government to have efficient internal processes. On top of that, it is also an application design value). Still, the resulting perspectives presented a more concise overview of what the values and objectives are for proactive applications.

Next, the resulting features and functionalities were discussed, both specifically for the PRA and generally based on ideas experts and practitioners had about what a proactive application should be able to do. Rather than just having a single value tied to a single feature/functionality, the result was more a feature/functionality tied to numerous values. For proactivity itself, numerous features were discussed, including notifications to alert citizens to potentially relevant services, personalized recommendations, and (partially) pre-filled forms and eligibility checks. Most of these features required quite a lot of data input and integration. As a result, transparency and privacy were also considered key values: The ability to keep data localized or enter it manually was mentioned (despite this partly defeating the purpose of a proactive service application), alongside clear, transparent indications of what gathered data was used for. Generally, simple explanations proved to be a key feature, also to ensure the value of understandability, which can in turn contribute to accessibility. Visual representations, a variety of different explanations for the same regulation, and keeping texts short and digestible were all mentioned as desired functionalities. In addition, inclusion also implies ensuring those who are less digitally able or need help can be served, so the value responsiveness was included through various features: There should be recovery processes in place, as well as easy ways to get into contact with a person to get assistance. Even in an idealized application that works perfectly and is fully understandable, some citizens may fall outside of the automated regulations or they form an unforeseen exception, so this responsiveness is key for inclusion.

Having established what a proactive public service application should be and what the implications are for their design and functionalities, potential conflicts could be derived. Eight main conflicts were identified (with some connections and interdependencies between them). On top of that, efficiency was

singled out as a key conflicting value with several of the other dimensions. This showed the complexity of value-related goals and how they might lead to unexpected outcomes: Proactivity may be meant to promote accessibility and inclusion, but an automated (and efficient!) format may not lend itself well to outlier situations, which are typically the citizens who need services the most. Additionally, accessibility may be a noble goal, but if the wrong expectations are created, it may diminish trust when citizens get less than what they had hoped for. There were also several observed interactions between value conflicts, further complicating matters. Numerous strategies were presented to interviewees as options untangle and manage value conflicts: Calculative Approaches, Satisficing, Respecification, Innovation and Cycling. All had their own benefits and drawbacks, and most interviewees were skeptical about the practicality and time-effectiveness of some of the approaches. There were also concerns about the applicability of some strategies, since descriptions of how to apply them were not always complete and ready to use. Many seemed to favor some combination of strategies and approaches, while also acknowledging that some may be used hastily as a response to backlash resulting from mismanagement of a value conflict. This demonstrated that participants also realised that a strategy to manage value conflicts should not just be taken at face value: Several influencing conditions may make a strategy more or less suitable. Even examples of innovation, the strategy that many participants connected to and reportedly used (despite it not being very instructional/prescriptive), may require certain technological conditions and legal allowances to work in practice.

As such, a Condition Framework was established to synthesize the relevant contextual conditions that influence the presence and severity of value conflicts as well as the strategies that may be applied. As mentioned, technological and legal conditions may affect the severity of data-related value conflicts, political conditions may influence which values are prioritized, as well as how certain projects are received, which may warrant use of specific strategies. Similarly, governance conditions like timescale and funding may favor short-term wins even if other values are considered more important. Procedural conditions have been a throughline of this research, given that the stakeholders involved and those deciding the eventual requirements are key to which values are eventually prioritized. Potentially one of the most influential conditions are social conditions, often the very reason public organizations wish to implement proactivity in their services. Factors like trust and readiness are meant to be supported, and if they are not, value conflicts may be severe and stand in the way of successful implementation of proactivity. But perhaps more importantly, if those involved with developing proactive public services are not sensitive to social conditions, they may not be able to achieve the very goals that inspired them to aim for proactivity in the first place: Improving public services and hopefully, as a result, serving the well-being of citizens. In the realm of proactive public services, the chips are not down yet: The outcomes of specific applications are difficult to predict and at times counter-intuitive. This makes it all the more important for public organizations and implementing organizations alike to think critically about the goals they have for their services, and how they may be achieved.

8.1. Research Significance and Link to Management of Technology Program

This research project was performed in the context of completing a MSc in Management of Technology (MOT). This author's main motivation for following this course of study was learning about technologies in their societal context, and that is exactly what was explored in this thesis as well. Although in MOT, this is typically researched in a business context, one could argue that government is one of the largest service providers, since every Dutch citizen is confronted with this institution throughout their lives. Hence, the application domain of innovation and technology in public services is equally (if not more) relevant as a comparable corporate setting. One of the objectives of the programme, as stated on the website, is as follows: "How can we use the abundant technological opportunities to affect our mission, objectives and strategies?" For government, the mission behind making public services more proactive is improved service delivery for its citizens.The "how" of this matter is central to this thesis, since value conflicts may influence how and whether the supposed objectives of proactivity are achieved. Furthermore, proactivity is enabled and driven by technological opportunities. Said technological opportunities can both create and mitigate value conflicts, depending on what functionalities they enable and how responsibly these innovative practices are handled. Thus, this project fits in well with several of the MOT objectives and central themes.

During the MOT program, Value Sensitive Design was also addressed in multiple courses. It was typically cited as the way to ensure ethical and responsible implementation of new technologies. The key to this was stakeholder involvement and ensuring their values are incorporated in the design process. In practice, however, these values can conflict, and there is no prescribed method for overcoming such conflicts. On top of that, in the development stage, it is the practitioners and developers that have to make these decisions and trade offs, typically without every stakeholder present (as this would be a rather inefficient and likely infeasible exercise). Furthermore, in the course Inter- and Intra Organizational Decisionmaking, the conflicting views and priorities of stakeholder groups took center stage, and the complications that arise from this became apparent. This was indeed demonstrated in the different value perspectives that were found, as well as the conflicts that arose between values considered important by different stakeholders. Overall, this thesis expands on both the value-sensitive design domain and the proactive public service domain: VSD approaches are evaluated in a practical context, culminating in an overview of strategies to manage value conflicts. By emphasizing the contextual conditions in which proactive public services are developed and implemented, a comprehensive conditions framework was created. This enabled us to connect value conflicts, contextual conditions, and strategies for managing both, providing a tentative theory that can be extended and tested in a variety of case settings in future research.

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A
Interview Protocol

Interview Question (Expert)	Possible Follow Up Questions	Justification
Which motivations and values do you think lie behind the ambitions to incorporate proactivity in e-government?	What are examples of how these values were translated into design requirements from specific use settings?	Subquestion 1 Reveals goals, motivations which are tied to values
How do you imagine these values take shape in a proactive public service?	How would you specify these values to make them more concrete?	Subquestion 2 Yields specifications, more context on what is meant by a value and opens conversation to features and functionalities
Which evaluation criteria would you use to assess whether these values were included in the design of the service?	Who would you involve in assessing such an application?	Subquestion 2 More information on the process of design, as well as features and functionalities as criteria for evaluation
Which value conflicts could arise?	Do you think this conflict always arises, or only under specific conditions? Which conditions?	Subquestion 3 Value Conflicts
Given the provided strategies and approaches, which would you think are useful to manage value conflicts in proactive public service?	How do you think value conflicts could be addressed? What do you think the designers and developers could do to address/resolve these value conflicts? When do you think this strategy would work/would not work?	Subquestion 4 Opens discussion about managing value conflicts, which strategies could be applied and under which conditions

Figure A.1: Interview Protocol: Experts

Interview Question (Practitioner)	Possible Follow Up Questions	Justification
Wat zijn volgens jou de achterliggende motivaties voor het PRA project?	Wat zijn jouw persoonlijke motivaties voor de PRA?	Subquestion 1
Welke waarden worden meegenomen in het design van de PRA?	Welke waarden vind je zelf belangrijk?	Subquestion 1
Als jullie de PRA applicatie (of het prototype/pilot model ervan) gaan evalueren, waar gaan jullie dan op letten qua evaluatiecriteria?	Wat zouden de ideale uitkomsten van de applicatie zijn als het eenmaal geïmplementeerd is? Wie worden betrokken bij de evaluatie?	Subquestion 2
Welke waarde conflicten kunnen ontstaan?	Denk je dat dit waardeconflict altijd ontstaat, of alleen onder bepaalde omstandigheden? Welke omstandigheden?	Subquestion 3
Gezien de genoemde strategieën, welke gebruik je zelf/zou jij gebruiken voor het maken van ontwerpkeuzes in de PRA? Waarom?	Welke andere opties zou je gebruiken om dit soort waardeconflicten te managen? Wat denk je dat designers en project begeleiders zouden kunnen doen om deze waardeconflicten aan te pakken? Onder welke omstandigheden zou deze strategie wel/niet helpen?	Subquestion 4

Figure A.2: Interview Protocol: Practitioners

B
Codebook

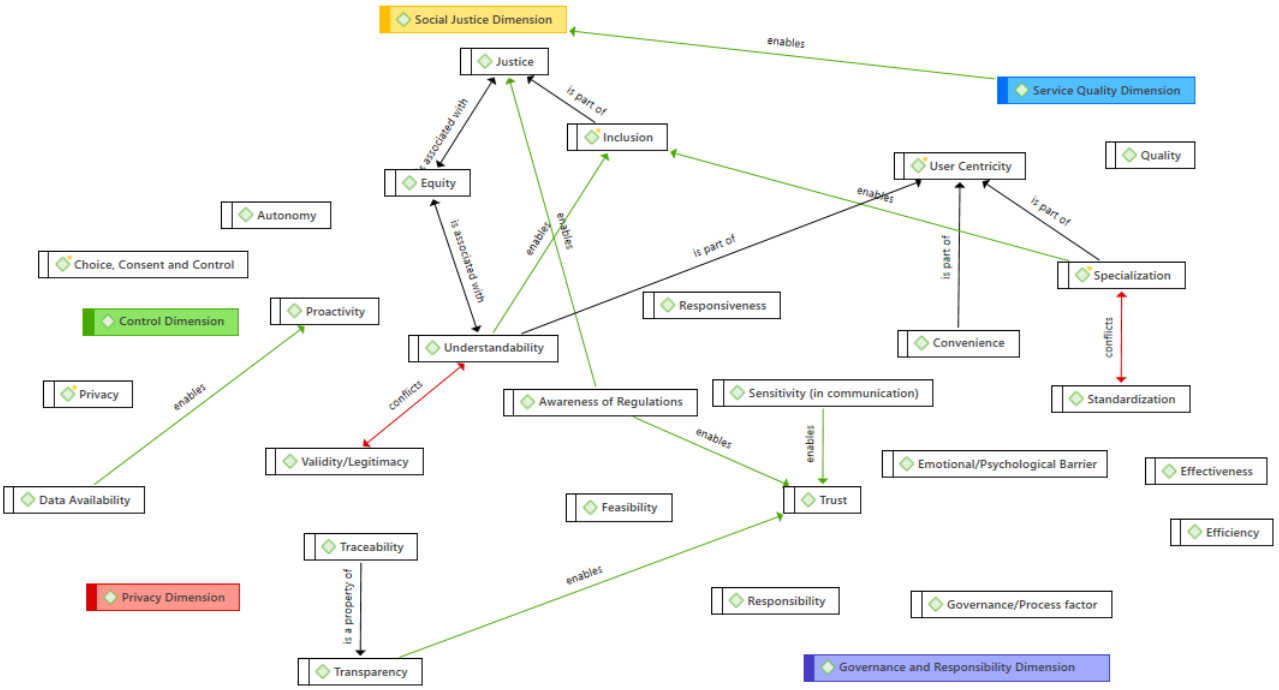

Figure B.1: Initial Code Network

Quote	First Order Code	Freq	Second Order Code
"As said, different politicians have different ideas on how much help you can get and how much the individuals should be self sufficient. "	Autonomy	5	**Autonomy Dimension**
"We are giving the citizens the choice to share data and be proactive."	Choice	19	
"we have some very strict policies regarding what data can be collected and what sort of consent we should obtain."	Consent	5	
"...je deelt persoonlijke gegevens, maar niet voor een langere tijd en je hebt zelf je controle van hoe je dat dan doet"	Control	9	
"Ja, dat zijn dus de stukjes, ook met de privacy van dat je als je gegevens vraagt dat je ook uitlegt, waarom vragen we deze gegevens, waarvoor worden ze dan gebruikt? Wat houdt het dan in?"	Privacy	24	**Privacy and Security Dimension**
"transparency, I would rather break it down into sufficient explanation accompanying all the components of the delivery with as much explanation as possible to ensure a citizen is really aware of what is happening"	Transparency	27	
"Dat er altijd even wordt uitgelegd, waar komt dit dan vandaan? Wat is het doel hiervan? Wat maakt het dan voor verschil als jij dit wel of niet deelt?"	Traceability	6	
"Vertrouw bijvoorbeeld, kan je meer uitstralen als je meer aangeeft waarom iemand ergens recht op heeft, dus je krijgt dit vanwege deze en deze reden in begrijpelijke taal, dus niet een heel juridisch tekstboek."	Trust	31	

Figure B.2: Codebook

Quote	First Order Code	Freq	Second Order Code
“For equity, for instance, you could translate it into providing public services across multiple channels in ways which are convenient for the end user.”	Equity	8	**Social Justice Dimension**
“And what you really have to do is really define these categories of eligible citizens and there you have to really be careful that you basically cover all citizens that you want to cover.”	Inclusion	40	
“De grootste motivatie en ambitie is eigenlijk om te zorgen dat burgers krijgen waar ze recht op hebben en dat je dus armoede hierin voorkomt.”	Justice	21	
“De vraag is natuurlijk ook wel van, ik denk dat het in de uitvoering wel ook lastig is om met heel weinig personeel. iedereen die op deze manier te bedienen en dus het vraagt ook wel weer die innovatieve oplossing.”	Feasibility	36	**Governance and Responsibility Dimension**
“So then it's just a question of who should do the work. Is that the public organization, if they do the work, then it becomes proactive. But if we have such an interface between the citizen and a digital interface in between, we can also push the bug over to the citizen and then it will become completely individualized, because then this person will apply for what they need. “	Responsibility	3	
“Maar ik denk zeker dat we samen kunnen kijken van kunnen we dan een vertaalslag maken dat het wel juridisch kloppend is, maar dat het wel begrijpelijk is voor degene die niet dagelijks met juridische taal te maken heeft?”	Validity\ Legitimacy	26	

Figure B.3: Codebook (ctd.)

Quote	First Order Code	Freq	Second Order Code
“I still might be required to provide a lot of data, so that is really complex and difficult for me”	Convenience	25	**Service Quality Dimension**
“We wilden kijken in hoeverre je persoonlijke voorkeuren kunt meenemen, vooral omdat de persoonlijke regeling assistent jouw assistent is, die gaat jou attenderen op dingen. Maar ja, hoe vaak wil je als gebruiker geattendeerd worden?”	Personalization	34	
“Do they perceive the government as helpful, that they maybe receive more services, and it takes maybe less time for them? Is there a higher service quality?”	Quality	6	
“Je moet heel laagdrempelig in contact moet kunnen treden, dus ook als je vindt dat dat er iets niet klopt of dat jij het er niet mee eens bent.”	Responsiveness	30	
“Met de persoonlijke regeling assistent willen we eigenlijk zorgen dat op een proactieve manier, maar ook een soort van vriendelijke manier dus niet dat je een soort van de les wordt gelezen, maar op een vriendelijke manier begeleid wordt om jouw zaken te kunnen regelen”	Sensitivity (in communication)	18	
“we maken de toepassing die heel veel mensen moet helpen en geen maatwerk oplossing is specifiek. “	Standardization	21	
“Het grootste conflict is denk ik toegankelijkheid. Dus is het inclusief genoeg voor iedereen om te gebruiken. Je kan het ook zo uitleggen, begrijpt iedereen waarom iets zo is, waarom het zo gaat.”	Understandability	42	
“If we truly want to be citizen centric, then we need to acknowledge that citizens are not similar to each other, they are different. It's not a homogeneous group where everybody wants the same thing or have the same needs or have the same abilities and knowledge to interact with these services.”	User Centricity	37	

Figure B.4: Codebook (ctd.)

Quote	First Order Code	Freq	Second Order Code
“Hoe meer gegevens jij aan de persoonlijke regeling assistent geeft, hoe beter deze assistent jou op de hoogte kan houden van wat voor jou relevant is en waar jij voor in aanmerking komt.”	Data Availability	35	N/A, varies
“What I also experienced in my research is that public organizations also become proactive because it's better for the internal processes, they have less citizen inquiries, they have better data and so on. So they become proactive to make their internal processes more efficient.” “Do they perceive the government as helpful, that they maybe receive more services, and it takes maybe less time for them? Is there a higher service quality? “	Efficiency	31	
“Ik zou willen kijken van neemt het gebruik van een regeling toe, bijvoorbeeld. Worden er bijvoorbeeld minder fouten gemaakt, want je kan ook gewaarschuwd worden met een PRA voorbeeld dat als je recht op toeslag verandert dat je meer gaat verdienen, dat je dat bijvoorbeeld uitzet.”	Effectiveness	24	
“Citizens do not have to do anything to receive a service if you do it like that, you can treat all the citizens equally and all citizens that are eligible according to certain criteria. And if you set these criteria as you want and properly, then all would receive that.”	Proactivity	45	
“Dus als jij je wallet hebt gekoppeld, dat betekent dat je eigenlijk veel sneller door je aanvraag heen kan, want bepaalde gegevens zijn dan al ingeladen. Je kunt ze dan nog een keer dubbelchecken of aanpassen indien nodig, maar alles is er eigenlijk al.” “Als je een model maakt op basis van de wet, dan blijf je in die wollige tekst hangen die de wet geeft, dus je zal er ook een content laag over dat model heen moeten zetten die nou ja, die gelaagdheid in uitleg gaat geven?” “I think if you do go proactive with really important stuff, then you have to have a backup system to deal with all of those people who are entitled to that service, but for some reason do not fit the mold of the digitalized you know format.” “Je moet heel laagdrempelig in contact moet kunnen treden, dus ook als je vindt dat dat er iets niet klopt of dat jij het er niet mee eens bent.” “Je kan altijd vanuit de PRA de stap kan maken naar persoonlijk contact wanneer die wens er is.”	Features/ Functionalities	98	N/A

Figure B.5: Codebook (ctd.)

Quote	First Order Code	Second Order Code
“Ja, het is van de zotte eigenlijk als mensen ergens recht op hebben, dat ze het zo moeilijk mogelijk maken om het aan te vragen. Omdat je niet wilt dat potje leeg gaat, of dat soort dingen, en afgelopen jaren is natuurlijk super veel aandacht geweest voor fraudebestrijding en dat tegengaan en as je daarop focust, dan maak je het juist heel moeilijk, nog heel veel drempels opwerpen om te zorgen dat alleen de mensen die het echt nodig hebben, dat die het krijgen. En die drempels weghalen.” “If we talk about the first motivation of making life easier for citizens, then that would be the service value position, you know to increase service, improve service to citizens. And that's a more noble value that you want to send out, since you know we care about you, we want to make life easier for you. And that is why we want to go proactive. But then on the opposite side of the scale, we have efficiency and those two are not necessarily buddies. They can be, but they are often, I think, in conflict with each other.”	Value Conflict	N/A
“Ja, ik vind altijd waardes uitdrukken in cijfers, tenzij het de ervaring van de burgers zelf is. En daarin dat meegenomen.. Vind ik geen optie. Er is geen universele definitie van wat fair is of wat transparant is, zeg maar. Het is context afhankelijk en je kunt dat eigenlijk niet helemaal automatiseren, daar zijn gewoon echt wel een hele hoop papers van. Het doet mij denken aan een soort conflict resolutie methode waarin je gewoon eigenlijk die waarden iets meer concreet maakt, want waarden zijn nog best wel abstract en hoog over.”	Calculative Approaches	Strategies
"I only define as an additional criterion, to say that I do not only select the approach with the highest or lowest value, but I defined some additional criteria that should be fulfilled, right? So I have an approach that is maybe the maximum approach or the best approach in one criteria, but it does not fulfill this threshold criterion. So then it's basically out, right. “	Satisficing	
“...I would say with redefining the service on redefining the value, I mean, the conflict is still there, so for me then redefining a value, I mean that doesn't really solve the conflict that actually exists there. So, three as I understood it, is not really a solution because the underlying conflict is still there. Even if I define things differently then I can only say OK, that is maybe not a conflict that is not relevant for me anymore\.	Respecification	
“Innovatie doen we natuurlijk ook sowieso, dat we kijken naar hé, We krijgen de opdracht, ik zeg maar even iets, aanvragen, mensen vinden het aanvraagproces te lastig dat we dan gaan kijken naar OK, waar zit dat dan precies? Hoe kunnen we dat doen en daar dan ook mee gaan testen en er dan achter of proberen te pinpointen van waar exact het probleem zit en daar dan oplossingen voor bedenken.”	Innovation	
“We hebben een aantal uitgangspunten gekregen waarin we vanaf het begin al wel bezig zijn, dus privacy by design, een compliance by design. Op basis van waar besluiten wordt genomen en de rest volgt later.”	Cycling	

Figure B.6: Codebook (ctd.)

C
Strategies Infosheet

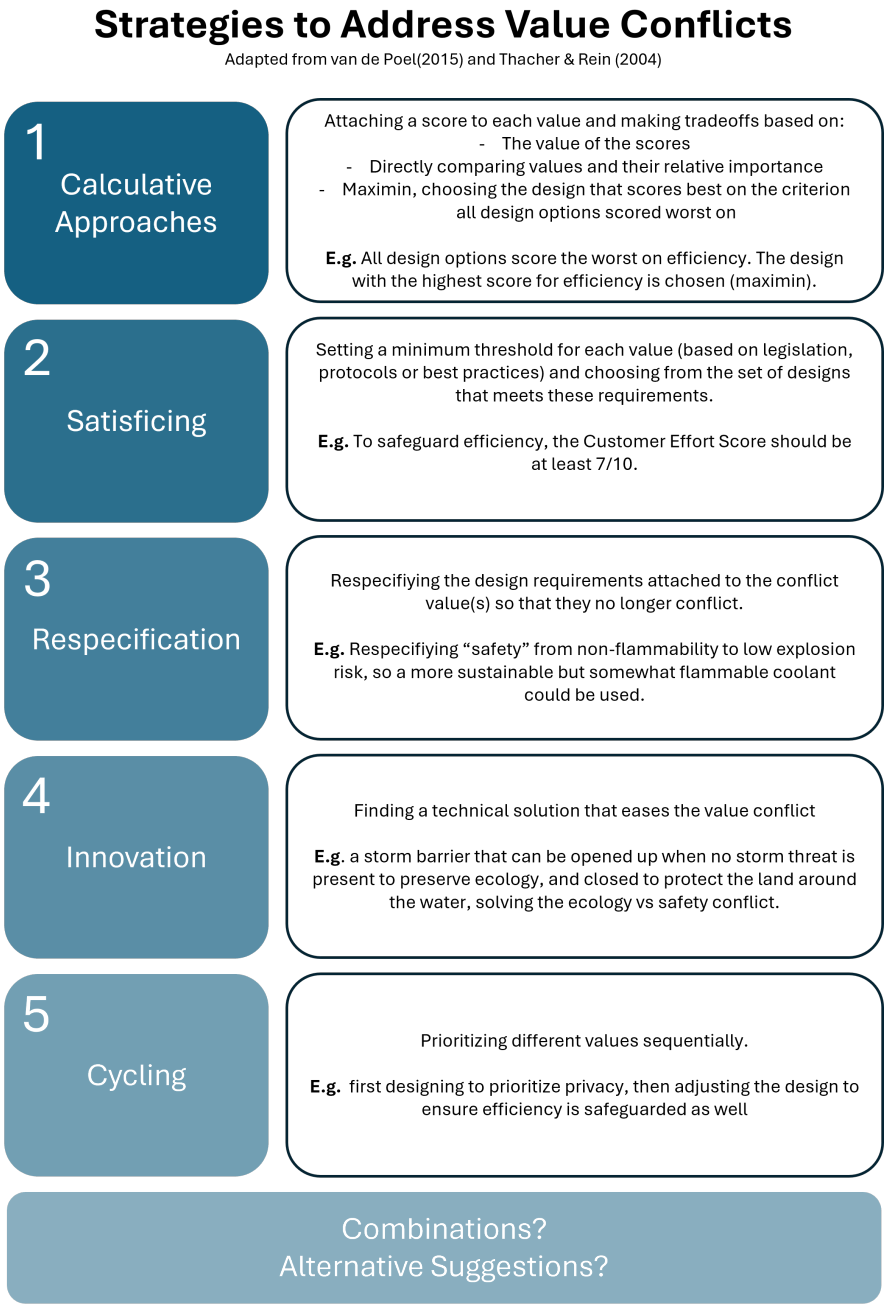

Figure C.1: Strategies Infosheet

Figure C.2: Strategies Infosheet (Dutch)