Techno-Optimism and Its Impact on Repetitive Civil Servant Decision Making

A Case Study and Insights into AI Case Routing for Welfare Benefits Allocation

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TU Delft

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A Case Study and Insights into AI Case Routing for Welfare Benefits Allocation

By

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TU Delft

Preface

This thesis explores the field of artificial intelligence and its implementation in government sectors, a topic that has increasingly captivated public and academic interest. The journey to the completion of this thesis has been both enlightening and challenging, offering me invaluable insights into not only the subject at hand but also into my personal and professional growth.

The process of researching and writing this thesis has underscored a fascinating aspect of academic work: the disproportionate distribution of effort and results. It became clear also in my case 80% of the outcomes was achieved in 20% of the time. This journey has been a testament to my research flow, where periods of productivity are interspersed with moments of a bit slower progression. Through this experience, I have learned much about my working style and preferences, particularly the joy and productivity found in collaborative efforts as opposed to solitary research.

I owe a debt of gratitude to a number of people whose support has been indispensable. First and foremost, I would like to extend my heartfelt thanks to my thesis supervisors, Nicolaas and my Councyl colleagues, for support and for making me feel like an integral part of their team. Special thanks are due to Haiko, whose readiness for both deep and light-hearted discussions on the 5th floor have been a source of inspiration and fun. Then Roel, a person of many layers, who not only provided the feedback essential for my growth but also involved me in his group of scholars. The diverse insights I gained there have proven to be both valuable and enriching.

On a more personal note, I extend my gratitude to my friends Madison, Morris, and Rhys. I greatly value their friendship and support, both academically and in our shared nerd hobbies. Thy and Mona deserve a special mention for the countless dinner nights and the invaluable advice we shared, navigating through life's challenges together. A heartfelt thanks to Barber, whose frequent visits led to her having her own house key to my place, and to my hockey friends, always ready for post-practice snacks and games.

My family also deserves a special mention. The countless hours spent on calls with my sister, trying to get through 'One Piece' with my brother, and the relentless support from my parents, despite the distance. Thank you. Lastly, I want to express my deepest appreciation to Michiel, who has been with me every step of this journey. I owe you a debt of gratitude.

This thesis is not just a reflection of my academic pursuit but also a mosaic of the support, encouragement, and inspiration provided by these individuals. It is to them that I dedicate this work.

Bo Anne Marij de Vries
Delft, January 2024

Executive Summary

The increasing prominence of Artificial Intelligence (AI) in decision-making, especially in the public sector, marks a shift in how decisions are made and implemented by civil servants. The integration of AI into decision support systems is seen as an opportunity for improving efficiency, accuracy, and effectiveness across various domains. However, the phrase ”beren op de weg” aptly signifies the challenges and obstacles in the practical implementation of AI, particularly in the public sector. These challenges include the need for transparency, fairness, and accountability, as well as the difficulty in overcoming technical, organizational, and cultural barriers. Recognizing these complexities, there is a growing consensus on the importance of collaboration between government, academia, industry, and civil society to ensure the successful deployment of AI in public policy-making.

This thesis attempted to develop a method-type artifact aimed at enhancing decision-making in civil services, with a particular focus on the application of AI-based tools in the allocation of welfare benefits. To achieve this, we employed the three cycles of Design Science Research: Relevance, Rigor, and Design. Our approach integrated a variety of methodologies including literature reviews, document analysis, case studies, expert interviews, actor analysis, and system safety analysis. These diverse methods were drawn upon to gain an understanding of AI's role in public services. Specifically, our research delved into the use of AI case routing in the decision-making process for welfare benefits allocation, examining its implications, benefits, and challenges. One of the key objectives was to identify critical success factors for the implementation of AI in public services. These factor may help support future implementation of AI case routing in a repetitive civil servant decision making context. Furthermore, we incorporated data from a real-life use-case, namely the implementation of Behavioural Artificial Intelligence Technology (BAIT) in the Wet maatschappelijke ondersteuning (Wmo) at the Municipality of the Hague.

In Figure 1 we present a set of our findings with a primary focus on defining the implementation process and its environment. The adoption of AI decision support systems is complex and highly context-dependent, with no one-size-fits-all solution. Each implementation requires a customized approach to effectively integrate AI into government operations, focusing on addressing unique challenges and requirements. Our proposed framework, enriched by expert insights and the use case, is particularly useful for improving repetitive decision-making among civil servants.

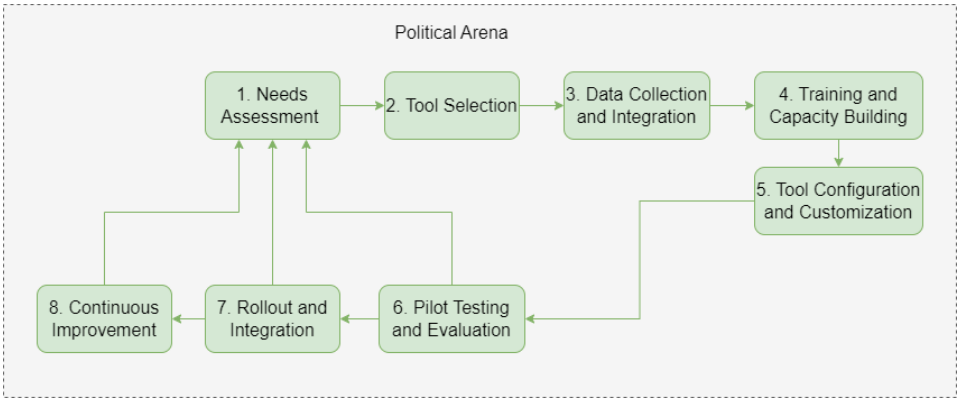

Figure 1: Implementation Process

Nevertheless, this is not a definitive guide to implementation but rather a conceptual framework to aid in the process. Successful implementation is not a straightforward linear process but an iterative one that varies across different scenarios. The key to successful implementation lies in achieving the

objectives set during the initial assessment phase. In our specific case study, this meant enhancing efficiency and accuracy in case routing, which aligns with the broader goal of improving the welfare benefits system's allocation in the municipality.

After defining the scope of our research, our focus shifted to analyzing the key players involved in integrating AI case routing tools within local government decision-making processes, along with exploring the inherent advantages of incorporating AI into governmental frameworks. The integration of AI-powered case sorting in local government decision-making is a complex endeavor. This is due to an environment that is not only shaped by regulatory frameworks set by higher entities like EU institutions but also by the specific approaches of local administrations such as the Municipality of The Hague. Central to the discussion is the impact on citizens, particularly when considering the potential benefits of AI case routing in the repetitive decision-making tasks of municipal civil servants. The integration of AI into public sector operations may hold several opportunities. We found that for our use case the primary benefits could include faster processing times, reduced need for specialised expertise, and enhanced quality of decision-making.

To gain a holistic picture of the integration of AI in local governance, we conducted research into the risks and challenges associated with its implementation. The integration of AI systems like case routing in public sector is complex, involving not just technical aspects but also human agents, societal organizations, and other systems. Both human and technical error are possible causes for risks. A holistic approach is necessary for ensuring safety and effectiveness. The use of AI requires a nuanced and collaborative approach to harness its benefits while upholding ethical standards and societal well-being.

Lesson	Strategy
1: High reliability is neither necessary nor sufficient for safety.	Identify hazards at the systems rather then component level
2: Accidents are complex processes involving the entire socio-technical system. Traditional event-chain models cannot describe this process adequately.	Ensure safety through socio-technical constraints
3: Risk and safety may be best understood and communicated in ways other than probabilistic risk analysis.	Capture the safety conditions and assumptions in a process model
4: Operator error is a product of the environment in which it occurs. To reduce operator "error" we must change the environment in which the operator works.	Align mental models across design, operation and affected stakeholders
5: Highly reliable software is not necessarily safe. Increasing reliability or reducing implementation errors will have little impact on safety.	Include software and related organisational and infrastructural dependencies in system-theoretic hazard analysis.
6: Systems will tend to migrate toward states of higher risk. Such migration is predictable and can be prevented by appropriate system design or detected during operations using leading indicators of increasing risk.	Organise feedback mechanisms for operational safety.
7: Blame is the enemy of safety. Focus should be on understanding how the system behavior as a whole contributed to the loss and not on who or what to blame for it.	Balancing safety and accountability through a Just Culture.

Figure 2: Lessons and Strategies for AI System Safety

By drawing on literature and expert interviews, particularly referencing Dobbe's 2022 study, we conducted a system safety analysis. We went trough each of the lessons and strategies for AI system safety depicted in Figure 2. We found that defining clear rules and constraints for the responsible use of AI case routing is important, emphasizing the need to understand appropriate contexts for its application. Holistic approaches, feedback mechanisms and colleague collaboration were all mentioned ass possibilities. However, these current safety measures are seen as inadequate for fully addressing the risks associated with AI case routing. Integrating AI case routing in welfare benefits allocation should not proceed without addressing these safety concerns. It also raises the possibility that AI case routing might not be the most suitable approach for this system. If ensuring safety becomes too challenging or diminishes the benefits of AI implementation, the municipality should reassess the tool's utility, recognizing that not all problems require an AI solution, especially when it poses potential risks.

Upon completing our literature research, we sought to deepen our understanding by bringing in the perspectives of topic experts. The core of our data collection was centered around conducting expert interviews, which were designed and executed in an attempt to achieve a comprehensive grasp of the subject. For our analysis, we employed abductive coding, a process that involves continuously integrating codes, leading to the formation of a few categories from the initial array of codes. This methodical approach resulted in the identification of key themes, as illustrated in the Figures 1.2 and 1.3 below. This integration of expert insights with our initial research enriched our analysis and provided a more nuanced understanding of the complexities involved in the subject matter.

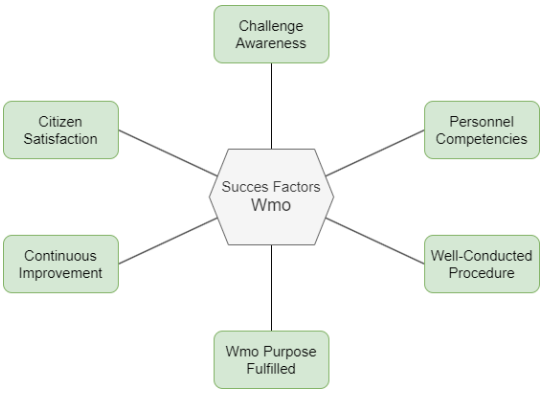

Figure 3: Wmo Success Factors

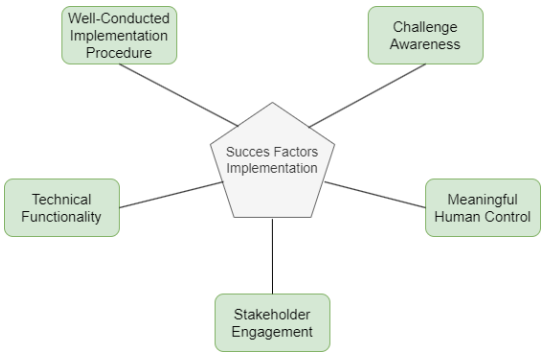

Figure 4: Implementation Success Factors

To validate and evaluate our findings, we undertook a comparison of these results with our initial literature research, aiming to identify any discrepancies or unique insights. Additionally, we engaged with experts who possess extensive experience in decision-making fields to further enrich our analysis. These experts were tasked with ranking, selecting, and evaluating each factor based on its relevance and importance. This rigorous process of expert consultation and comparative analysis culminated in the final selection of critical success factors, which are detailed in the Figure 5. This step was crucial in ensuring the robustness of our findings, allowing us to attempt to draw well-informed conclusions that are both grounded in academic research and validated by practical, expert knowledge.

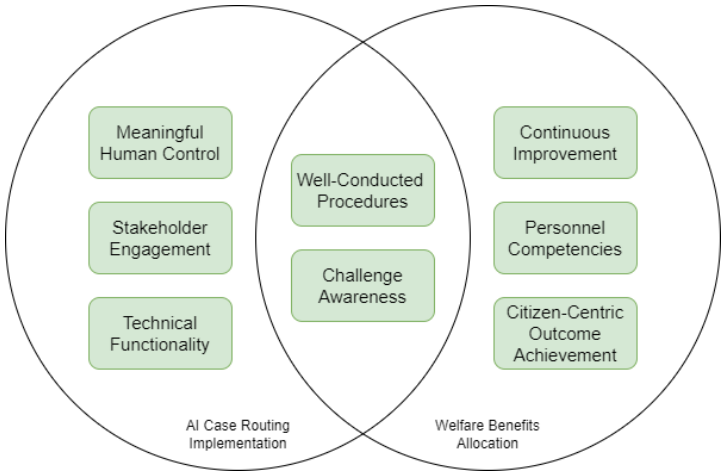

Figure 5: Critical Success Factors

Finally we discussed the initial techno-optimistic bias of our research, assuming that municipalities would greatly benefit from AI adoption. This perspective led to a focus on AI case routing as the primary solution for welfare benefits allocation, potentially limiting the scope and influencing the research outcomes. However, literature and findings challenge this positive view of technology in service contexts. They emphasize the importance of considering customer preferences for human interaction and the limitations of automation. Increased automation does nt always correlate with improved system perfor-

mance, a notion supported by the research interviews. The case study was prematurely concluded as it became apparent that the initial techno-optimistic approach did not align with the actual needs and preferences of the municipality at the time. By reflecting on our research we discovered the importance of critically examining the lenses through which we view problems, especially in the context of AI case routing for repetitive civil servant decision making.

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1 Introduction

1.1. Artificial Intelligence and Decision Making

Artificial Intelligence (AI) has become an increasingly prominent topic of discussion in both the business world and among the general public, driven by advancements in concepts such as deep learning, machine learning, and representation learning (Kubassova et al., 2021). The recent release of tools like ChatGPT by OpenAI has further contributed to the accessibility of AI, allowing more individuals to experience its capabilities (Hill-Yardin et al., 2023). As a result, AI has gained significant attention and is being integrated into various sectors, including the public sector, as part of digital transformation efforts (Balbo Di Vinadio et al., 2022; Gurumurthy & Chami, 2019; Haenlein & Kaplan, 2019).

One area where AI has shown great potential is in supporting decision-making processes through intelligent decision support systems (Phillips-Wren, 2012). By combining research from artificial intelligence, information technology, and systems engineering, these systems have the ability to revolutionise the way decisions are made by leveraging AI tools (Phillips-Wren & Ichalkaranje, 2008). The integration of AI into decision support systems offers the promise of enhanced efficiency, accuracy, and effectiveness in decision-making across various domains.

However, the practical implementation of AI in decision-making processes is not without its challenges. In the government sector, the adoption of AI has been relatively slower compared to the private sector, mainly due to the unique complexities and specific objectives associated with governmental settings (Berryhill et al., 2010). The public sector operates under distinct regulations, policies, and public expectations, making it imperative to carefully navigate the implementation of AI technologies to ensure transparency, fairness, and accountability.

Furthermore, successfully integrating AI tools into decision-making processes requires overcoming technical, organisational, and cultural barriers. The field of AI is dynamic and rapidly evolving, demanding ongoing learning and upskilling efforts for civil servants and policymakers to understand and effectively utilise AI technologies. Ethical considerations, data privacy, and the potential biases inherent in AI algorithms also need to be addressed to ensure the responsible and equitable use of AI in decision-making.

1.2. Relevance

For a number of reasons, the use of AI in government policy-making is a major challenge defined as a 'wicked problem' (Gurumurthy & Chami, 2019). AI has the ability to change the way governments manage resources, provide public services, and make decisions (Reis et al., 2019a). It can assist decision-makers in their analysis of vast collections of data including the identification of patterns and trends, and the forecasting of future events, all of which can result in more effective and efficient policy-making (Sun & Medaglia, 2019). This extensive application of AI to address issues in the economy and society can be both daunting and interesting (Gurumurthy & Chami, 2019). The potential for AI to affect both positive and negative change exists just like it does for any other area of scientific development and experimentation (Reddy, 1988).

Additionally, AI is part of the United Nations Sustainable Development Goals (UN, 2020), mainly concerning the development of goal 9: Industry, Innovation and Infrastructure. However, other sustain-

able development Goals are at risk from an unrestrained roll-out of experimental AI, with developing nations being particularly vulnerable (Truby, 2020).

Thus, the use of AI in public policy raises significant ethical, legal, and social concerns given the lack of a comprehensive framework for the AI challenges for the public sector (Reis et al., 2019a). For example, there are concerns about bias and discrimination in AI algorithms, which could perpetuate and amplify existing inequalities in society (Truby, 2020). AI is also prone to biases and systemic injustice, which results in the treatment of some people or whole communities differently (Feuerriegel et al., 2020). There are also questions about the transparency and accountability of AI decision-making, and the potential impact of AI on jobs and the economy (Berscheid & Roewer-Despres, 2019).

Lastly, collaboration between various sectors and disciplines, including government, academia, industry, and civil society, is necessary for the proper deployment of AI into public policy. AI is made up of many different components, yet they all fit together and must all advance for AI to succeed (Reddy, 1988). The potential use of AI in public policy is a challenge that calls for an effort towards tackling organisational, technical, and cultural issues as well as creating new frameworks and governance structures to guarantee that AI is used in a morally responsible way. Although several initiatives to implement AI into decision-making have been created, there is a lack of global strategy and synergy that can assist in resolving challenging issues in the public sector (Sobrino-García, 2021).

1.3. Context

1.3.1. Repetitive Civil Servant Decision Making

Civil servants are individuals employed by the government to perform administrative, managerial, or clerical tasks in various public sector organisations. Repetitive Civil Servant Decision Making refers to the process of making routine or recurring decisions by civil servants or government officials in their day-to-day work. This involves making frequent decisions about similar yet distinct cases, each presenting its own unique set of circumstances that necessitates a customized approach. Despite their repetitive nature, these decisions are often complex and time-consuming. The crux of the challenge lies in this diversity; no two cases, and consequently no two decisions, are identical.

Examples of these are the granting of assistance and allowances or granting permits. Dutch municipalities have been responsible for work and income since 2015, with these tasks being taken over from the national government (BZK, 2019). Therefore most civil servant decision-making is now conducted within municipal context. This recent decentralisation also entails that municipalities have the lead and their own responsibility in certain tasks. Thus, they are also in charge of the digitisation and optimisation of their processes.

1.3.2. Welfare Benefits Allocation

The repetitive civil servant decision making that we focussed on in our research is the Welfare Benefits Allocation (WBA). Welfare benefits allocation refers to the systematic process by which governmental bodies determine the eligibility of individuals or families to receive financial or in-kind assistance based on predefined criteria. This can include unemployment benefits, housing assistance, food subsidies, and other forms of social support. The process involves assessing applicants' financial situations, family circumstances, employment status, and other relevant factors to ensure that assistance is provided to those who genuinely need it.

Much like other routine tasks performed by civil servants, WBA is an example of repetitive civil servant decision-making. Given the high volume of applications and the unique nature of each case, many governments have standardised procedures and criteria to streamline the allocation process. However, despite the standardised nature of the process, it remains a critical function, as the decisions made directly impact the well-being of citizens.

1.3.3. Street Level Bureaucracy

Another aspect we would like to touch upon is the social layer that is involved in these decisions. Civil servants who have direct, day-to-day contact with citizens and clients at the local level are called street-level bureaucrats (Lipsky, 2010). These individuals operate at the ”street level” of public administration, where policies and programs are implemented and services are delivered. Street-level bureaucrats are characterised as members of the public service who regularly engage in face-to-face interactions with residents and exercise a great deal of discretion in how they carry out their duties, notably in how they

evaluate individuals and make decisions (Buffat, 2015). The discretion that comes with street-level bureaucracy separates the work from normal repetitive civil servant decision-making, these decisions can have major impact on people their lives. The work of street-level bureaucrats becomes so politically fraught as a result of interactions with both private citizens and those in charge of public power (Brodkin, 2012). This brings an additional social aspect to the process one that is important to take into account when using decision support tools.

The evolution of street-level bureaucracy has been significantly influenced by the advent of new technological developments, particularly the increase in digitisation and automation within the public sector. This technological shift has introduced various risks and challenges for civil servants, fundamentally altering their operational landscape. In their insightful study, Alkhatib and Bernstein (2019) delve into this phenomenon, presenting the concept of 'street-level algorithms.' These algorithms are pivotal in bridging the gap between policy judgments about individuals and the broader socio-technical system. Alkhatib and Bernstein's research reveals a crucial distinction: while street-level algorithms may adjust their decision-making criteria retrospectively, street-level bureaucrats possess the ability to reflexively modify their approach in response to new circumstances. This comparison highlights the inherent differences in adaptability and responsiveness between human bureaucrats and algorithmic systems in public service, as detailed in their study (Alkhatib & Bernstein, 2019).

1.3.4. Case Routing

Another relevant topic in artificial intelligence is classification, sorting, and grouping (Corrente et al., 2023). AI-based case sorting techniques refer to the use of artificial intelligence algorithms and technologies to automate and optimise the process of categorising and sorting various types of cases or tasks. These techniques leverage machine learning and natural language processing capabilities to analyse and classify incoming cases or tasks based on their characteristics, content, or other relevant factors. Case-based reasoning offers a framework for creating systems as well as a cognitive model of individuals. By offering cases for a person to employ in solving an issue, the case-based decision-aiding method improves a person's memory. Using these scenarios as a reference, the person makes the actual decisions (Kolodneer, 1991).

In many organisations, case routing is often done manually by front office staff or senior employees. This process involves employees assessing and assigning incoming work based on urgency, complexity, and required skills. Front office staff, as the first contact point, play a key role in evaluating cases and deciding on their distribution. Senior employees often contribute with their deep understanding of the organisation's resources and personnel, making informed decisions about the most suitable team member for each task. However, this manual approach can be time-consuming and may lead to inconsistencies, especially in larger organisations or during high workload periods. While it offers the advantage of human judgment, it also carries the risk of bias or error as a result of that same human judgement. Automated case routing systems, increasingly popular, aim to address these challenges by using algorithms for task distribution, though they may lack the nuanced understanding that experienced employees provide.

1.3.5. Critical Success Factors

Critical Success Factors (CSFs) are a collection of crucial issues or performance aspects that are integral to an organisation's continuous health, vitality, and overall well-being. It is essential for organisations to accurately identify and secure these factors, as they represent the pivotal issues or performance aspects that are fundamental to maintaining and enhancing the organisation's health and vitality. By defining these success factors, organisations are empowered to focus on and evaluate the elements that are most critical for their success both in the present and future (Parmenter, 2015). CSFs are broadly categorised as characteristics, conditions, or variables that, when effectively managed, sustained, or maintained, have a substantial influence on a firm's success within its specific industry context (Leidecker & Bruno, 1984). These factors are not static; they evolve with changes in the business environment, market demands, and organisational goals.

1.4. Use-Case

1.4.1. Wmo in the Hague

The repetitive decision-making process that will be highlighted as the use-case for this study concerns a the welfare benefits allocation of the municipality of The Hague, also known as Wet Maatschappelijke Ondersteuning (Wmo). Wmo is the Dutch social security framework that aims to provide support and assistance to individuals who face challenges in participating fully in society due to disabilities, old age, or other factors. The key objectives of the Wmo are to promote social participation, self-reliance, and well-being among citizens. It is designed to help people maintain their independence and lead a meaningful life by offering various types of support and services. These services may include personal care, domestic assistance, support for caregivers, mobility assistance, and various other forms of social support. Local municipalities in the Netherlands are responsible for implementing the Wmo and assessing individual their needs to determine the appropriate level of support and services. Depending on their circumstances and needs, eligible individuals may receive assistance from the municipality or be granted a personal budget to arrange their own care and support (BZK, 2019).

Applying for Wmo support through your municipality is a crucial step in accessing services tailored to the individual their needs. However, the high volume of requests received each year puts a significant strain on workers at The Hague municipality, leaving them overwhelmed with heavy workloads. As a consequence, the decision-making process may be delayed due to lack of capacity to process these requests. Recognising the need for improvement, it is essential for the municipality to address these challenges and find ways to streamline and expedite the decision-making process.

The municipality of The Hague grapples with the task of efficiently processing a substantial number of Wmo applications each year, given its status as one of the Netherlands' major cities. This overwhelming volume often leads to backlogs, placing immense pressure on municipal employees who are already stretched thin. The intricate nature of Wmo application processing compounds the challenge, as it requires specialised knowledge and skills, making it difficult for the municipality to quickly recruit and train new personnel. As a result, many citizens experience prolonged delays in their application, leaving those in urgent need of assistance in a state of uncertainty. This combination of high demand, limited resources, and the potential for hasty or overlooked decisions underscores the need for The Hague to explore innovative, technology-driven solutions to streamline the Wmo application process and ensure timely support for its residents.

1.4.2. Behavioural AI Technology

A TU Delft spin-off company named Councyl created new AI technology called BAIT (Behavioural AI Technology), which allows decision makers' implicit judgement to be made explicit in a precise decision model. The computer program creates fictional choice scenarios and bases its decision on the decision-making of human specialists. BAIT is suitable for repetitive human decisions that are made on the basis of the same set of factors.

One of the advantages of BAIT is that it may help prevent bias in data analysis by focusing on the causal effect of the variables rather than relying on correlations. This approach puts BAIT in a position to uncover hidden patterns and relationships in the data that may not be immediately apparent, which could help prevent bias and improve the accuracy of the analysis. Another advantage of BAIT is that with choice experiments it does not require huge amounts of historical data to be effective. As a result, BAIT can be used with smaller datasets without sacrificing accuracy or reliability. The approach used by BAIT allows for the identification of key variables and relationships that can help experts better understand their own decision-making process and make informed decisions supported by the insights obtained from the analysis.

BAIT operates through a systematic process that begins with the collaboration of the experts to define a specific expert decision, such as whether to grant the welfare benefits. They identify influential factors and set relevant value ranges, adding constraints to avoid unrealistic factor combinations. The structure of the decision-making model is then determined, accommodating nonlinear weights and various model types based on the situation and behavioral theories. This is followed by a choice experiment where experts make hypothetical decisions based on scenarios that mimic real-life situations. The observed choices are then analysed to estimate the weights of all factors using maximum likelihood techniques, refining the model for accuracy. The final model's performance is tested using various metrics. Results, including factor weights, are presented back to the experts, and the model, equipped

with the estimated weights, is used to assess specific artificial choice situations, providing probabilistic assessments and highlighting contributing factors (Ten Broeke et al., 2021).

If BAIT were to be adopted by the municipality it could support the repetitive decision process of welfare benefits allocation. In this process, every case that needs to be routed is fed into the decision model. BAIT processes these decisions and sorts the decisions into different categories based on predefined criteria. Based on the categorisation, cases are assigned to the civil servants. It's important to note that this process is not a one-time event but rather an repetitive process. Decisions may be reevaluated and undergo further analysis or processing within BAIT. This entails a new set of case routing to further define priority cases. The outcome may help improve the allocation of decisions between the different civil servants.

1.5. Research Gap

The following section will provide an overview of the state of the art in literature. The articles will synthesise the relevant research on the topic of AI in decision-making support tools and articulate a knowledge gap on this topic. Finally, a research question and several sub-questions will be formulated.

1.5.1. AI in Public Services

As mentioned in the previous section, a recent development in repetitive decision making is the implementation of artificial intelligence. AI is a complex technology that involves teaching machines to learn from data and make decisions based on that learning (Long & Magerko, 2020). This not only increases the options for automation but also alters the type of automation in that the algorithms at the core of the process get better on their own over time as a result of data usage (Dickinson & Yates, 2021). AI algorithms can analyse large amounts of data, recognise patterns, and make predictions or recommendations based on that analysis (Schank, 1987). AI is thus useful in repetitive decision-making tasks within civil service, as it can help automate certain processes and reduce the workload on human employees. Wirtz et al(2019) explore the potential applications and challenges of implementing AI in the public sector. The authors discuss various ways that AI can be applied in the public sector, including improving service delivery, enhancing decision-making processes, and increasing efficiency and productivity (Wirtz et al., 2019). Numerous opportunities are opening up for governments all over the world due to the growing use of AI. With the integration of AI technology in governmental practises and public-sector ecosystems, traditional modalities of service supply, policy-making, and enforcement may shift drastically in the future (Zuiderwijk et al., 2021).

Many civil service tasks involve sorting and categorising large volumes of documents, which can be time-consuming and prone to error. AI algorithms can be trained to recognise patterns in these documents and automatically categorise them, allowing civil servants to focus on more complex tasks. One example of this is Chun's (2018) framework for using artificial intelligence (AI) to automatically assess e-government forms. The author argues that traditional methods of assessing these forms are time-consuming and error-prone, and that AI has the potential to improve the efficiency and accuracy of this process (Chun, 2008). Another application of AI in public administration is for forecasting high crime risk transportation areas in urban environments. Kouziokas' article highlights the use of machine learning algorithms to analyse crime data and transportation patterns, which can help public administrators develop targeted interventions to prevent crime and improve transportation safety (Kouziokas, 2017). Other examples include the use of AI in transportation management (Reis et al., 2019c), predicting groundwater levels for public administration (Kouziokas et al., 2017) and workflow based information and communications platform (Zheng et al., 2018).

Despite increasing investments in AI research and a growing number of research contributions, AI for public usage is still a young field of research that falls short in describing associated applications and challenges (Wirtz et al., 2019), especially compared to the private sector (Aoki, 2020). Additionally because the public sector must maximise public value, private sector AI practises and digital transformation strategies cannot be directly copied there (Fatima et al., 2020).

1.5.2. AI Implementation Risks and Hazards

The implementation and usage of AI based systems bring potential risks and negative consequences associated with the development, deployment, and use of these programs. These hazards can manifest in various ways and can affect different aspects of society, including individuals and organisations.

For instance with crime prediction tools a mayor issue comes to the surface. There have been concerns about the potential for these tools to perpetuate bias and discrimination against certain groups, particularly marginalised communities such as racial minorities and low-income neighborhoods. If the historical data used to train the algorithms reflects pre-existing biases and discrimination, then the algorithm is likely to replicate and amplify these biases in its predictions (Mayson, 2019). Another hazard that arises whilst using AI for civil servant decision-making are ethical concerns. Making sure that personal data is processed fairly is one of the main difficulties for artificial intelligence (Butterworth, 2018). The use of AI raises the important ethical issues regarding the replacement of human labour by autonomous machines (Čerka et al., 2017). Another hazard concerns the usage of personal data that is required for civil servant decision-making. Many times, issues with privacy and ethics arise from the acquisition of personal data, ownership of that data, and the beneficial effects of its processing (Alexopoulos et al., 2019).

Zuiderwijk et al. presented a thorough analysis of previous research on the effects of artificial intelligence (AI) application in public governance (Zuiderwijk et al., 2021). They created the following eighth categories to structure the challenges of AI use in government (Zuiderwijk et al., 2021).

1. Data challenges
2. Organisational and managerial challenges
3. Skills challenges
4. Interpretation challenges
5. Ethical and legitimacy challenges
6. Political, legal, and policy challenges
7. Social and societal challenges
8. Economic challenges

These system hazards are potential risks and negative consequences associated with the development, deployment, and use of AI. Dobbe suggests that traditional safety assurance methods, such as hazard analysis and risk assessment, may not be sufficient for AI systems due to their complexity, unpredictability, and ability to learn and adapt (Dobbe, 2022b). By examining the issue of accidents in machine learning systems Amodei et al also came to the conclusion that the growing trend towards completely autonomous systems indicates the necessity for a coordinated strategy to stop these systems from inadvertently harming people (Amodei et al., 2016). Additionally, it is a powerful force, a new kind of intelligent agency, and it is already changing the way we live, engage, and interact with the world. Waiting to regulate it once it is mature, would be a mistake (Floridi et al., 2018).

1.5.3. Knowledge Gap

The research presented highlights the growing trend of implementing decision support tools, particularly automation and artificial intelligence, in the public sector. We discuss the potential benefits of these technologies, such as increased efficiency, lower costs, and improved service delivery. However, the challenges associated with their implementation, including data privacy and security concerns, the need for specialised technical expertise, the potential for bias and discrimination in automated decision-making, and the ethical implications of AI usage should also be recognised. The importance of addressing these challenges to ensure successful implementation and highlights the need for legal measures, accountability, and openness in automated decision-making is apparent. While the research provides insights into the application of decision support tools in the public sector, it also identifies several research gaps. These gaps include the need for further exploration of the specific factors that contribute to successful e-governance implementation, the impact of automation and AI on public administration work processes, the effects of AI on public governance, and the ethical and societal implications of AI usage in the public sector. Additionally, we highlight the need for a coordinated strategy to address the risks and hazards associated with AI systems and the importance of developing regulatory frameworks to ensure responsible and ethical AI implementation.

In the context of the Wmo case in The Hague, the potential benefits of AI are evident. Given the vast number of applications and the intricate nature of assessing individual needs, AI could streamline the process, ensuring timely and consistent decisions. Algorithms could be trained to quickly analyse

applicant data, cross-reference with predefined criteria, and prioritise cases based on urgency or other factors. However, the introduction of AI in such a sensitive area also brings forth potential risks and challenges. There's the possibility of algorithmic biases, which could inadvertently favor or disadvantage certain groups. Data privacy concerns, especially with personal health and financial information, would need stringent safeguards. Moreover, the implementation of AI in a public service context like the Wmo is not straightforward. Unlike the private sector, where AI adoption might be driven primarily by profit motives, the public sector's goals are multifaceted, encompassing fairness, transparency, and public trust. The process of integrating AI into the Wmo decision-making framework remains largely uncharted, necessitating careful planning, pilot testing, and continuous evaluation to ensure that the technology truly serves the public's best interests.

This result in the following research gap: a lack of understanding with regards to the implementation of behavioral AI technology in the public sector for repetitive decision-making. This research will focus on the WBA in the municipality of The Hague and the implementation of BAIT. The resulting empirical findings might be very valuable for the current literature on the subject. While there's a growing body of research on machine learning and AI, there's a notable gap between these academic endeavors and the practical, organisational realities faced by practitioners in the public sector (Veale et al., 2018).

1.5.4. Research Questions

Based on the research gap mentioned in the previous section, the following research question and sub research questions (SRQ) have been drafted for this proposal:

What are the critical success factors that can be used to evaluate the implementation of AI case routing tools in a repetitive civil servant decision-making process such as welfare benefits allocation?

1. What are the distinct steps in implementing AI case routing tools in repetitive civil servant decision-making processes?
2. What impacts and benefits can be achieved by implementing AI case routing tools in municipal repetitive civil servant decision-making?
3. What are the potential risks and challenges associated with the implementation of AI case routing tools in municipal repetitive civil servant decision-making?
4. What are the relevant themes of the implementation of AI case routing tools in municipal repetitive civil servant decision-making?
5. What are the relevant themes in repetitive civil servant decision-making in municipal repetitive civil servant decision-making?
6. How can these themes be synthesised into critical success factors?

2

Research Approach and Methods

In the following chapter the plans and the procedures for the research will be discussed. It entails all proposed steps from research approach all the way to the actual planning. Additionally, it will span the steps from broad assumptions to detailed methods of data collection, analysis, and interpretation. The approach and methods used in research are critical components that determine the quality and reliability of the findings.

2.1. Research Strategy

The research strategy contains the overall plan and approach that guides the entire research process, from the initial conception of the research question to the final presentation of the findings. In this chapter, we will explore and explain the strategy that will be applied in this research.

2.1.1. Design Science Research

For this research a Design Science Research (DSR) Approach is chosen. DSR is a research approach that tries to generate and test novel solutions to real-world challenges (Johannesson & Perjons, 2014). These solutions take shape in the form of artifacts that can offer insights for future development and ensures the scientific rigour of the study (Venable et al., 2016). Its ability to combine problem-solving and knowledge creation in a cyclical and iterative process is DSR's defining feature. DSR places a strong emphasis on the value of both practical problem-solving and the creation of new knowledge. The knowledge produced by DSR strives to contribute to the creation of new theories and models as well as the enhancement of current procedures and practises, making it both theoretical and practical.

2.1.2. Artifact to be Designed

As mentioned before, a crucial component of DSR is the evaluation of design artefacts and theories. These artefacts can be divided into four categories: constructs, models, methods, and instantiations (March & Smith, 1995). In this research, we will develop a method-type artifact. A method-type artifact, in the context of design science research, refers to a specific kind of tool or process that outlines how certain tasks or activities should be performed (De Sordi & De Sordi, 2021). Unlike model-type artifacts, which are more conceptual and provide a broad understanding of a certain domain, method-type artifacts are more practical and prescriptive. They provide a step-by-step approach or a set of procedures to achieve a specific goal or solve a particular problem. These artifacts are typically developed to be directly applicable in real-world scenarios, offering a clear and structured way to implement a process or carry out a task, often with a focus on efficiency and effectiveness.

This artifact will be based on the themes resulting from the sub-research questions and take shape as a decision making framework. Within this framework the key dilemma's arising from the success factors will be addressed. To inform the design of this artifact, the research will draw upon the latest AI-based tools development, deployment, and operational research, along with an analysis of vulnerabilities. Empirical data from a use-case in a public service institution will be analysed to refine the design. The resulting artifact aims to enhance decision-making for civil servants and has the potential

to be applicable in a broader range of practices, thereby contributing to the development of a scientific body of knowledge and global practices for AI decision support tools.

2.1.3. DSR Cycles

The three-cycle view created by Hevner will be utilised in this study (Hevner, 2007). It is a framework for conducting design science research, which is a research methodology that focuses on creating innovative solutions to practical problems. The three-cycle view consists of three main cycles as can be seen in Figure: 2.1.

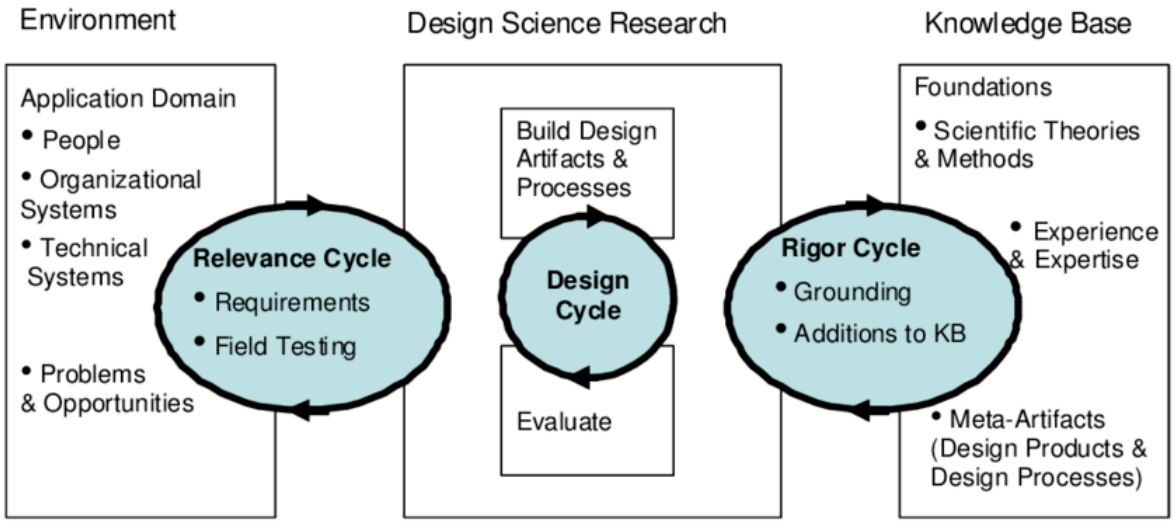

Figure 2.1: Research Flow Chart

Relevance cycle: Design science research often begins by identifying opportunities and problems in an actual application environment. The relevance cycle is initiated with an application context that provides the requirements for research and defines acceptance criteria for evaluation. The output from the research must be returned into the environment for study and evaluation. Results from field testing may lead to additional iterations of the relevance cycle if the new artifact has deficiencies in functionality or if the requirements input were incorrect or incomplete. Feedback from the environment is used to restatement the research requirements for the next iteration of the relevance cycle.

Rigor cycle: The rigor cycle involves the drawing from a wide knowledge base in design science research, including both scientific theories and practical experience in the application domain. The rigor cycle ensures that new designs are innovative and not simply routine applications of existing processes. Research rigor is based on the skilled selection and application of appropriate theories and methods. While grounding theories can be helpful, it is not always necessary for design research. The knowledge base is expanded through the creation of new theories, methods, and design products, as well as through field testing and experiences gained during the research process. Research contributions to the knowledge base are important for both academic and practical audiences.

Design cycle: The internal design cycle is the core of design science research, iterating between the construction, evaluation, and feedback of an artifact until a satisfactory design is achieved. Requirements come from the relevance cycle, while design and evaluation theories and methods come from the rigor cycle. Maintaining a balance between construction and evaluation is crucial, with both activities grounded in relevance and rigor. It is important to test artifacts rigorously in laboratory and experimental situations before releasing them into field testing along the relevance cycle, and multiple iterations of the design cycle are necessary before contributing to the relevance and rigor cycles.

The three-cycle view provides a structured and systematic approach for conducting design science research.

2.2. Research Methods

In this section, we will provide an overview of the various research methods that will be considered for our study. We aim to give a proper understanding of each method's core principles and applications. Following this general discussion, the subsequent section will allocate specific methods to the individual research questions. There, we will delve deeper into how each chosen method can be effectively employed to address and answer the associated sub research question in detail.

A **(grey) literature review** can answer the research questions with a power that no single study has, by combining results and insights from multiple empirical findings. In addition to this, a literature review is an excellent way to synthesise research results to demonstrate meta-level evidence and discover areas where further research is required, which is a critical component of the development of theoretical frameworks and the construction of conceptual models (Snyder, 2019). The data resulting from this review will form the knowledge base of the entire project. This type of research will result in a overview of the potential impacts and benefits of AI decision support tools. It will provide a clear knowledge base on quality criteria.

This will be complemented by a **document analysis**. Document analysis entails a systematic approach to examining and evaluating a wide range of documents (Bowen, 2009). This procedure involves a thorough review and assessment of various types of documents, such as physical papers, computer-based files, and Internet-transmitted content. It will help built a clear framework concerning all laws and regulations that apply to AI and model based decision-making.

The literature will be supplemented by case-studies. A **case study** is a research method used to investigate a phenomenon or situation in-depth, often within a real-life context. It involves analysing a particular case or instance of the phenomenon, gathering data through various methods such as interviews, observations, and documentation, and interpreting and analysing the data to derive insights and draw conclusions (Heale & Twycross, 2018). The cases that will be studied concerns earlier applications of BAIT. These cases will not just confine to the public service systems but also more private organisations. Most of the information from these cases will be extracted with interviews.

Expert interviews are a strategy for gathering data by helping researchers bridge the gap between case studies and cross-national comparisons based on more generic and openly available data. Additionally, the researchers have control over the factors that are essential to the comparison study thanks to expert interviews (Dorussen et al., 2005). By talking to experts and noting everything they say, new insights are documented. Semi-structured interview style is chosen due to enhancement of the objectivity and trustworthiness of the study, thereby increasing the credibility and plausibility of the resulting findings (Kallio et al., 2016). This rigorous development process ensures that the interviews yield valuable insights and contribute to a more comprehensive understanding of the subject matter.

Another key method we will employ is an **actor analysis**. This approach is widely recognised by policy analysts for its importance in understanding the roles of various actors in policy-making processes. An actor analysis not only aids policy analysts in developing a comprehensive understanding of these roles but also assists in evaluating the insights gained from such an analysis. This understanding is crucial for identifying and addressing potential blind spots that may need further exploration throughout the policy analysis process (L. M. Hermans & Thissen, 2009). Additionally, actor analysis is instrumental in managing complexity and in the formulation of problems, which are integral components of problem-solving in policy contexts (L. Hermans et al., 2010).

The next method in consideration is a **system safety analysis**. This approach centers on identifying and managing the emerging risks associated with decision-making and control within dynamic, complex systems. It delves deeply into the sociotechnical interplay of human-machine systems, encompassing a range of processes essential for maintaining safety and efficient operation, such as maintenance, management, supervision, accountability, policy, and legislation. As detailed in Nancy Leveson's "Engineering a Safer World," system safety analysis stresses the importance of addressing system hazards and reducing their occurrence, moving beyond a narrow focus on individual component failure and reliability (Leveson, 2016). This methodology acknowledges that safety is an intrinsic attribute of the system as a whole, necessitating management and control at the systemic level rather than merely at the component level. Furthermore, system safety extends well past the context of hardware and procedural protocols. It includes the consideration of non-technical aspects, such as the attitudes and motivations of designers, the dynamics of employee and management relationships, and the influence of public opinion. These elements play an essential role in shaping the overall safety and effectiveness of a system.

In the concluding part of our discussion on research methods, it's important to address our use of **ChatGPT**, a large language model. Our application of this tool was strictly limited to checking spelling and grammar in our documentation. Given the self-learning capabilities of ChatGPT, we were particularly cautious about data privacy and confidentiality. To safeguard the identities and responses of our interview panel, we ensured that only anonymised information was input into the system and the "Chat history & training" function was disabled. These measures was crucial in maintaining the integrity and ethical standards of our research, while still leveraging the advanced linguistic capabilities of ChatGPT for enhancing the quality of our written materials.

2.3. Research Phases and SRQ's

The research is divided into three phases that correspond to the Design Science Cycles, this can be seen in figure 2.2. One or more sub-questions are addressed in each phase. Together, these respond to the primary research question.

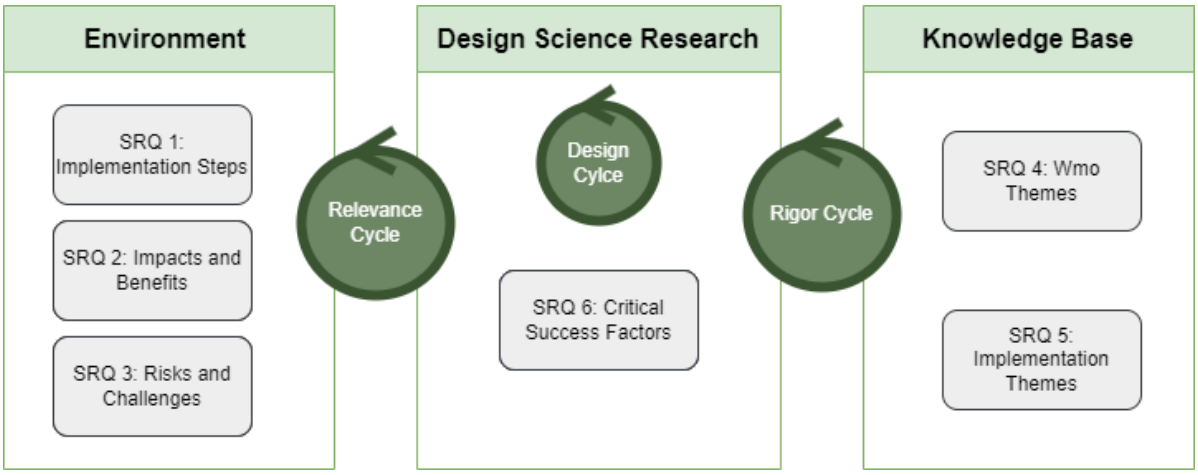

Figure 2.2: Research Approach

2.3.1. Phase One: Environment

The approach for exploring the use of AI decision-support technology in a specific application environment involves several steps. The first research question is part of the relevance cycle in the environment phase. It explores the steps involved in implementing AI case sorting tools in repetitive civil servant decision-making processes, aiming to identify distinct steps and opportunities within the specific application environment. Setting clear boundaries of the process at this early stage is crucial as it provides a structured framework that will aid in the subsequent stages of the research. Furthermore, by delineating what we understand as the 'implementation process', we ensure a shared understanding, reducing ambiguities and potential misconceptions down the line. SRQ1 will be answered

To address SRQ1, our primary approach will be rooted in literature research. We will conduct a thorough review of existing academic papers, articles, and publications that pertain to the topic in question. This literature review will provide a foundational understanding, drawing from established theories, findings, and expert insights.

However, understanding that literature might not capture the nuances of every specific context, we will supplement our findings with insights from case studies interviews. These interviews will offer a more hands-on perspective, allowing us to gather real-world experiences, challenges, and solutions directly from those involved in the field. By combining the broad overview from the literature with the specific insights from case studies, we aim to provide a comprehensive answer to SRQ1.

1. What are the distinct steps in implementing AI case sorting tools in repetitive civil servant decision-making processes?

The nest step focuses on investigating the impacts and benefits that can be achieved by implementing AI case sorting tools in municipal repetitive civil servant decision-making. By analysing the

application domain, including the needs and requirements of stakeholders, this research aims to identify the potential positive outcomes and improvements that can be realised through the use of AI tools. By understanding the key stakeholders and their contributions, including policymakers and affected citizens, this research seeks to uncover potential improvements and the relevance of AI tools in the decision-making context.

For SRQ2, while we will still utilise literature research as a foundational step, our primary emphasis will shift towards the interviews from the case studies. Given the nature of the question, understanding real-world impacts and the intricacies of actor interactions is crucial, and this depth of insight is best captured through direct conversations with those involved.

The actor analysis will be a pivotal component in answering this question. Through this analysis, we will map out the various stakeholders, their roles, interests, and influences in the context of the topic. By doing so, we can better understand the dynamics at play, the potential challenges, and the opportunities that arise in real-world scenarios.

2. What impacts and benefits can be achieved by implementing AI case sorting tools in municipal repetitive civil servant decision-making?

The third step in this approach involves a deep dive into the broader context of the case study. This includes drawing up a broader set of key sources for vulnerabilities and hazards and examining the key organisational and political dimensions that may affect the implementation of BAIT technology in public services. A literature review will be conducted to see what is currently known about how issues arise in this broader context, including how key lessons from system safety can apply to the case study. This will help to identify potential hazards, vulnerabilities, and unintended consequences associated with BAIT technology in the public services domain. Additionally, the general issues found in using AI models in public services will be examined to see how they apply to the case study. This will include issues such as bias, transparency, and accountability. The goal is to identify any potential roadblocks or challenges that may arise in implementing decision-support technology in the public services domain. This will result in the answer for sub research question three.

For SRQ3, our methodology will mirror that of SRQ2 in its reliance on both literature research and case study interviews. While the literature will provide a foundational understanding, the crux of our insights for SRQ3 will be derived from the interviews of the case studies, capturing the depth and nuances of real-world experiences.

Diverging from SRQ2, SRQ3 will incorporate a system safety analysis. This analysis is pivotal in understanding the potential risks, vulnerabilities, and safety measures associated with the topic in question. Through the system safety analysis, we aim to identify potential hazards, assess their severity, and recommend mitigation strategies, ensuring that the system operates safely and effectively.

3. What are the potential risks and challenges associated with the implementation of AI case sorting tools in municipal repetitive civil servant decision-making?

2.3.2. Phase Two: Knowledge Base

The focus of the following research phase encompasses two critical research questions that explore the implementation of AI case sorting tools and the overall decision-making process. Research Question 4 delves into the identification of critical success factors (CSFs) associated with the implementation of AI case sorting tools. By drawing upon scientific theories and methods, this investigation aims to contribute to the existing knowledge base by providing innovative insights and approaches to ensure the effectiveness of the implementation process. For SRQ4, our investigative approach will be anchored in the insights derived from the case studies and the accompanying interviews. The firsthand experiences and perspectives of the interviewees are invaluable in understanding the intricacies of the subject matter.

These interviewees, with their on-the-ground experience and expertise, will be instrumental in identifying the critical success factors. Through their narratives, we will discern the elements that have consistently played a pivotal role in successful outcomes, as well as the challenges that need to be addressed to ensure success.

4. What are the relevant themes of the implementation of AI case routing tools in municipal repetitive civil servant decision-making?

Simultaneously, Research Question 5 investigates the broader decision-making process within which the implementation of AI case sorting tools occurs. By considering both the implementation process and the overall decision-making process, this research strives to gain a comprehensive understanding of the intricacies involved. The findings from this exploration will inform the design and construction of the artifact, ensuring its seamless integration into decision-making practices. By addressing these research questions, this study aims to advance our understanding of critical success factors and decision-making processes related to AI case sorting tools, ultimately contributing to the development of more efficient and effective decision-making practices. For SRQ5, our primary source of insights will again be the case studies and their associated interviews. The lived experiences and expertise of the interviewees will be central to our understanding of the subject.

5. What are the relevant themes in repetitive civil servant decision-making in municipal repetitive civil servant decision-making?

2.3.3. Phase Three: Design Science Research

In the third and final research phase, the focus is on envisioning the key contribution that the project is working towards and creating an artifact to support it. This research question falls within the design cycle of the design science research phase. It focuses on how the identified themes can be synthesised into critical success factors (CSFs). By evaluating the artifact created in the research process, this question aims to assess the effectiveness of the designed artifact in improving decision-making. Through rigorous evaluation using CSFs, the research aims to provide insights into the performance and impact of the artifact, contributing to the development of a scientific body of knowledge and global practices for AI decision support tools. This will answer the sixth sub research question.

6. How can these themes be synthesised into critical success factors?

2.4. Data Specifics

In this section, we delve into the data utilised in the project, shedding light on its characteristics and origin. The data serves as a fundamental building block, providing a comprehensive understanding of the subject matter at hand.

2.4.1. Data Sources

The following list contains all data sources that will be used in this possible thesis.

- (grey) Literature: By conducting desk research. similar to the literature study from this proposal, useful data on the topic will be collected. An extensive literature review will provides a focus on the earlier-identified problems and establishes a theoretical background for the rest of the thesis.
- Councyl: Due to the cooperation with Councyl they are willing to provide their own data on the BAIT software.
- Open Data: Data that is freely available to the public concerning AI in public services.
- Experts: These are people who are knowledgeable on the topic either by studying it themselves or working in a related field.

2.4.2. Type of Data

There are two types of data that can broadly be defined as; qualitative and quantitative. Quantitative data relate to information that can be quantified numerically as opposed to qualitative data, which can mostly be communicated trough writing. For this research, both types of data will be used.

2.4.3. Primary mode of Inquiry

The primary mode of inquiry is a way of classifying research approaches. In this case, a combination of multiple modes will be used namely; observation and simulation. By observation of the real-world the

primary basis for answering a research question is formed. Simulation entails imitation of the operation of a real-world process or system by using its representation. In the following chapter the reasoning and implementation of these inquiries will be discussed more elaborately.

2.5. Flow Diagram

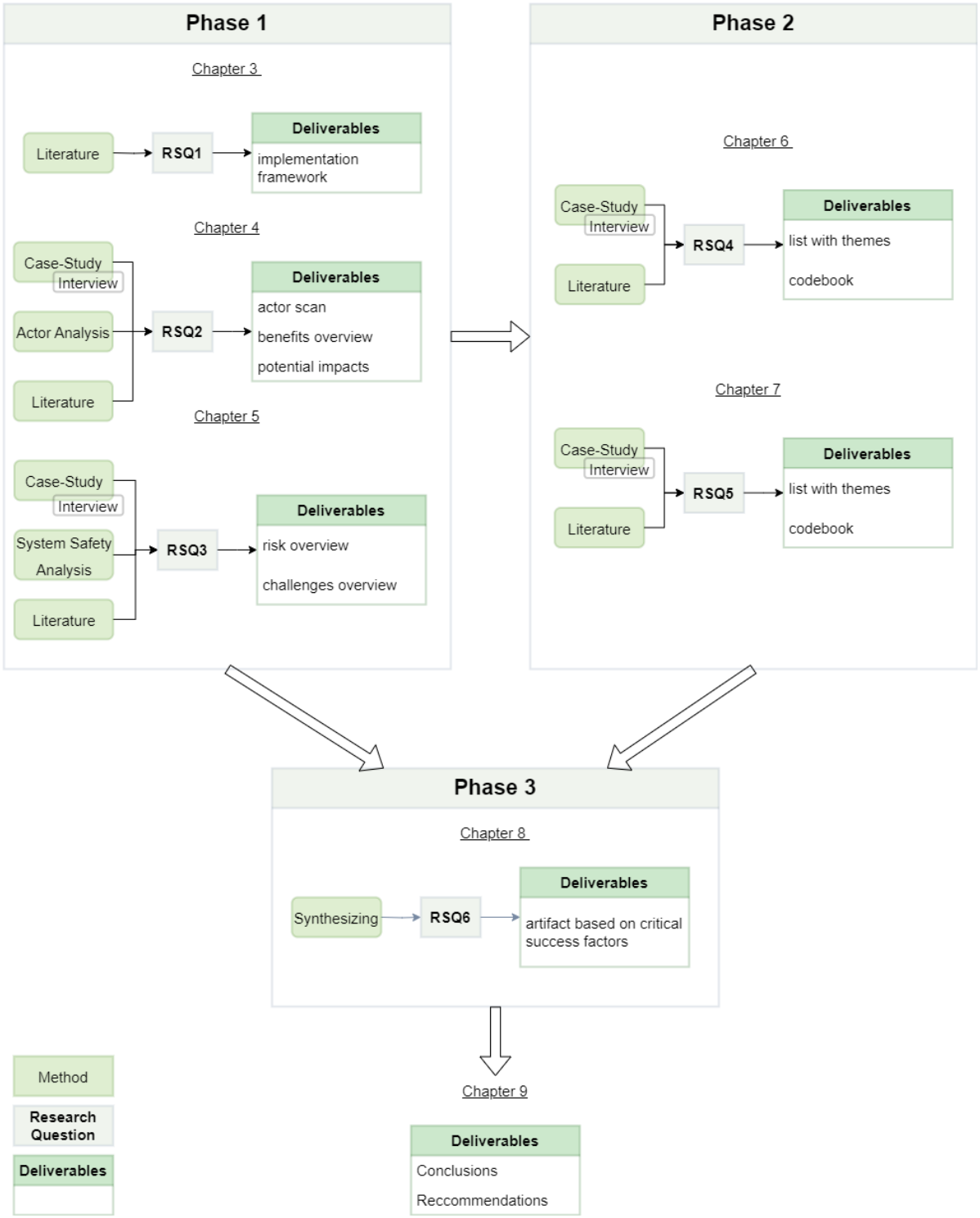

Figure 2.3: Research Flow Chart

3

Implementation Process

In this chapter, we present the first set of findings from our research. Our main focus was to clearly define the implementation process or AI case sorting tools for repetitive decision making within a municipality. We looked into various (grey) literature sources and gathered important insights, which we'll discuss later on in the section. While the literature gave us a good starting point, we will also rely on our case study and the interviews to get a deeper understanding of the topic. This chapter aims to address the first sub-question.

1. What are the distinct steps in implementing AI case routing tools in repetitive civil servant decision-making processes?

As mentioned above, it was planned to enrich these findings with a case study. However, we were unable to perform the complete research due to the municipality of The Hague deciding not to implement case routing for their Wmo application process at the time being. Their decision was influenced by their initial investments in the process, having already invested significantly in manual case routing. Despite the potential for improvement through the implementation of BAIT, they chose not to proceed for now, citing the sunk costs in previous improvement attempts. This decision led to our sub-research question not being completely answered in the way we initially envisioned, highlighting the complexities and real-world challenges in the implementation of AI in public sector processes.

3.1. Implementation of AI in the Government

For this research, we will establish a foundation for the implementation process by referring to the works of (Fixsen, 2005; Meyers et al., 2012). Their studies will serve as the baseline for understanding the key elements and best practices in the implementation of our project as depicted in Figure 8.1. We will adopt a systematic approach to implementation, following a series of well-defined steps to ensure efficiency and effectiveness. Each step will be supported by relevant literature, case study findings and interview insights. This research is specifically centered on exploring the AI tool implementation within the context of repetitive decision-making processes in a municipal setting. By integrating insights from various sources, we aim to create a comprehensive and well-informed implementation strategy.

It is important to understand that this framework is not a depiction of a standard or universally applicable implementation process. It is based upon and tailored to the implementation of AI case routing tools within a municipality. Nevertheless, implementation processes can differ depending on specific circumstances. Therefore, this figure should be considered more as a theoretical guide, offering a structured approach to understanding the implementation process rather than a definitive or practical road map. It does not represent an ideal or realistic implementation process, the figure should be viewed as a conceptual framework.

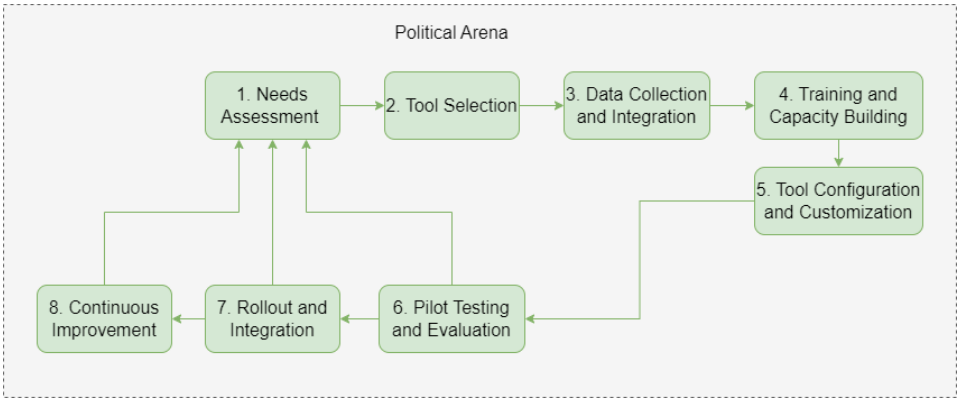

Figure 3.1: Implementation Process

3.2. Artificial Intelligence Implementations for Case Sorting in the Public Sector

In recent years, there has been a growing interest in utilising artificial intelligence for case sorting in various domains, ranging from government agencies to private organisations. AI-based case sorting techniques have demonstrated a potential in improving efficiency, accuracy, and decision-making processes. This section delves into the implementation processes of AI-based case sorting techniques, including the adoption processes and the quest for consensus on implementation practices. By examining the literature, we explore the factors influencing the decision to implement AI-based case sorting, organisational readiness for adoption, and challenges encountered during implementation. Through synthesising findings from various studies, we aim to identify commonalities and best practices that guide organisations in effectively implementing these techniques. By providing a comprehensive understanding of implementation processes, this chapter contributes to the development of guidelines and frameworks for smooth and successful integration of AI-based case sorting, enabling organisations to harness the full potential of these techniques for improved operational efficiency and decision-making.

3.2.1. AI case Routing and Sorting techniques

As we delve into the literature, we will identify and discuss the different tools and techniques employed in AI-based case sorting. Nevertheless, the literature on AI-based case routing techniques offers a limited body of knowledge. Therefore we will include an examination of machine learning algorithms as well as natural language processing techniques for text classification and sentiment analysis. By highlighting the diverse range of approaches, we aim to provide insights into the strengths, limitations, and suitability of different AI-based case sorting techniques in various organisational contexts.

Henkel et al. (2014, 2015, 2017) explores the potential of implementing language technologies in public organisations. They introduce a business and IT architecture model that provides an overview of IT systems traditionally used by public organisations in their interactions with citizens. The model identifies problems faced by public organisations using conventional IT solutions and suggests how language technologies, such as text mining and information extraction, can address these issues. The research is grounded in cases from Swedish public organisations and emphasises the importance of language technologies in enhancing efficiency, service delivery, and decision-making processes.

There are also mentions of sorting algorithms throughout literature. Some examples include the paper by Peters and Procaccia (2021) that explores optimizing the number of pairwise comparison queries to rank user preferences using probabilistic information. Pan et al. (2007) introduce an algorithm for mining high-quality cases from raw data to enhance case-based reasoning competence. Lai et al. (2021) discuss using artificial intelligence to efficiently manage the life cycle of retired lithium batteries in large-scale sorting and regrouping tasks. There is also a case sorting algorithm for power system transient stability assessment, categorizing cases based on stability severity Xue et al. (2015). Finally Thode (2022) developed an algorithm for grouping products to maximize volume discounts, optimizing order combinations for a limited number of products.

In the field of sorting algorithms that incorporate decision-maker input, there are several noteworthy developments. The 1000minds software implements the PAPRIKA method (Hansen & Ombler, 2008)

to assist in decision-making processes. This tool enables users to enter different options, set criteria, and conduct pairwise comparisons, facilitating more informed decision-making. It includes analytical tools and survey features, helping users align their decisions with their priorities (Howard et al., 2018). Another development is Behavioural AI Technology (BAIT), created by Councyl, a spin-off from TU Delft. BAIT is designed to simulate fictional choice scenarios, reflecting human decision-making patterns. Its aim is to clarify implicit aspects of decision-making and assist decision-makers in recognizing their unconscious biases. In healthcare, BAIT has been used to provide additional information to medical professionals, aiding in decision-making and enhancing the understanding of data through an emphasis on the interactions between variables (Councyl, 2023).

3.2.2. Limited Knowledge

It is worth noting that the examples mentioned above primarily highlight the use of AI in domains outside the public sector. While AI has gained attention and adoption in various fields, its application specifically for case sorting in the public sector remains a relatively novel approach. Limited information is available regarding the implementation and effectiveness of AI-based case sorting techniques in government operations. Furthermore, it is important to acknowledge that not all the articles referenced may exclusively fall under the umbrella of AI, but rather encompass a broader range of algorithms and computational methods. Given the current state of research, there is a need to further explore and examine the potential benefits, challenges, and best practices associated with AI-enabled case sorting in the public sector.

To address this gap, it is necessary to adopt a broader research approach that encompasses neighboring fields, such as the general use of AI in government. By exploring implementations of AI in government, valuable insights and lessons learned can be gained, shedding light on the implementation process of case sorting tools.

3.3. Implementation Steps Run-Through

In the upcoming section, we will delve into each of the steps depicted in Figure 3.2, which outlines the implementation process supported by existing literature. We will draw upon research from Meyers et al. (2012) and Fixsen (2005), which highlight the significance of a systematic approach to implementation. These studies emphasise that implementation is not a linear process but rather a dynamic and iterative journey. It involves a series of steps that may require adjustments and refinements as new insights are gained and lessons are learned throughout the process. As we explore each step, we will take this opportunity to further elaborate on the case of the Wet Maatschappelijke Ondersteuning (Wmo). The Wmo presents a complex scenario, and through the lens of these iterative implementation steps and the support of literature, we aim to understand how AI technologies, such as BAIT, can enhance the decision-making process in social support and care services within the municipality of The Hague. We would like to clarify that this figure is neither an illustration of an ideal implementation process nor a depiction of a realistic one, as these aspects can vary from case to case. Instead, this figure should be viewed as a framework for implementation.

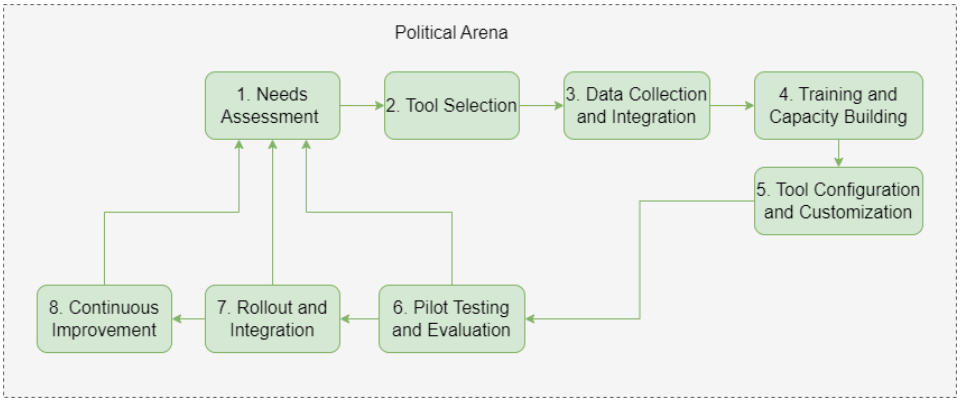

Figure 3.2: Implementation Process

3.3.1. Needs Assessment

Literature

The needs assessment stage in the implementation process of AI tools for the government involves an analysis to identify and understand the specific needs, challenges, and opportunities within the organisation or government agency. It serves as the foundational step, defining clear objectives and outcomes aligned with the broader goals and strategies of the organisation (Allen Jr et al., 2019). The assessment includes gathering requirements through interviews, surveys, and workshops with stakeholders, as well as evaluating the existing data infrastructure, systems, and technologies (Wiljer et al., 2021). Additionally, it assesses the capacity and skills of the government agency's workforce to identify any training or capacity-building needs required for successful AI adoption. Moreover, the needs assessment identifies areas where AI can be most impactful and beneficial, exploring opportunities for process automation, predictive analytics, data-driven decision-making, and citizen services enhancement (Unesco, 2023). Ethical and legal considerations related to AI adoption are also addressed to assess potential risks and implications, such as data privacy, security, fairness, and bias. Based on the findings, a detailed implementation plan is developed, ensuring subsequent steps in the process are aligned with specific needs and objectives. Throughout the needs assessment, key stakeholders within the government agency, including policymakers, managers, and frontline staff, are actively engaged to ensure their perspectives and needs are considered. This systematic approach sets the stage for a successful and effective integration of AI tools in the government's operations, leading to improved efficiency, decision-making, and service delivery.

Interview Insights and Use-Case

The needs assessment was mentioned frequently by our experts during our interviews, emphasising its importance within the implementation. *"[Interviewee 7:] What exactly should it comply with, and what problem do you actually want to solve with it? Which part of the process will it specifically replace, or will it replace something, or is it meant as support? So, really determining how you use it and for what exactly."* The needs assessment for Wmo involves identifying the core problems and challenges faced by the organisation. This assessment goes beyond merely observing the symptoms and delves into finding the root causes of inefficiencies. In the case of Wmo, the problem identified is an overwhelming workload due to too few employees handling a large number of cases. This crucial information obtained through the needs assessment will serve as a foundation for guiding the selection and implementation of appropriate AI tools to address the specific challenges and improve the decision-making process within the organisation. The municipality of The Hague acknowledges the complexity and variability of their processes, making it difficult to capture them in decision rules or automate them fully. Therefore, the integration of AI tools, like the one being proposed in this research, could potentially offer valuable support and assistance in streamlining the decision-making process, enhancing efficiency, and ensuring a consistent approach to allocating provisions.

3.3.2. Tool Selection

Literature

The tool selection stage in the adoption of AI tools for the government is an important phase where decision-makers and stakeholders evaluate various AI solutions based on functionality, accuracy, data requirements, integration, ease of use, costs, ethical considerations, and scalability (Tran et al., 2008). It involves collaboration between IT professionals, domain experts, policymakers, and end-users to identify the AI tool that aligns with the organisation's goals, addresses specific challenges, and offers the highest potential for positive impact. Pilot tests and proof-of-concept projects are often conducted to assess the AI tools' performance and feasibility in real-world scenarios. The selected AI tool should be compatible with existing systems, promote data privacy and transparency, and be user-friendly to ensure seamless adoption by employees and stakeholders (Xia et al., 2017). Ultimately, the goal is to find an AI solution that enhances efficiency, accuracy, and decision-making within the government agency.

Interview Insights and Use-Case

The second step within our implementation framework was also confirmed by our experts. *"[Interviewee 9:] Of course, you could start with a market exploration, for example, to see what solutions are available and in which direction we should think to further specify the request, so that you can make the right*

inquiry." They expressed their challenges in matching the right tool with the right identified problem. In the context of our Wmo use case, the tool selection stage plays a crucial role in adopting AI tools for government. Councyl software emerges as a promising candidate, as it utilises advanced technology to analyse the implicit considerations made by experts during decision-making. The software constructs a decision model that explicitly captures the weightage of different decision factors. Additionally, it facilitates the monitoring of the decision-making process, allowing for the measurement of efficiency and consistency in choices. With insights gained from Councyl, opportunities to enhance efficiency are identified, while also ensuring improvements in decision quality. As a result of careful consideration and evaluation, BAIT emerged as the selected tool best suited for addressing the specific challenges and requirements of the Wmo use case.

3.3.3. Data Collection and Integration

Literature

The data collection and integration stage in the adoption of AI tools for the government is a crucial step that involves gathering, organising, and preparing relevant data from various sources, such as government databases and public records. This data is essential for AI models to learn, identify patterns, and make informed decisions. Ensuring data quality, accuracy, and relevance is vital to prevent biases and inaccuracies from influencing the AI model's outcomes (T. Harrison et al., 2019). Data privacy and security are also significant considerations to protect sensitive government information (Ladley, 2019). Once collected and integrated, the data undergoes preprocessing and cleaning to remove noise and inconsistencies, laying the foundation for an effective AI system to provide valuable insights and improve decision-making processes in the government.

Interview Insights and Use-Case

"[Interviewee 5:] So, if you want to get correct results, you need to pay close attention to what you put in." It's a well-established principle that the quality of your input directly influences your output, regardless of the tool used. According to our experts, data collection has emerged as a crucial step in this process. In the data selection and implementation phase, BAIT distinguishes itself by not relying on big data. Instead, it acquires data directly from domain experts themselves. This approach eliminates the need for historical data. Councyl, the software utilised in this process, seeks input from experts by presenting them with a series of fictitious yet realistic decision scenarios. With 30 choices from 10-15 experts, Councyl is able to gather sufficient information for an accurate analysis, sidestepping the complexities associated with historical data. Moreover, decision models generated by Councyl are fully transparent, explainable, and adaptable, ensuring there are no "black boxes." The software provides explicit insight into the considerations made by the experts, presented through intuitive graphs. When employing Councyl decision models for interactive decision support, users can precisely track the path that led to a specific prediction, enabling a highly transparent and comprehensible decision-making process.

3.3.4. Training and Capacity Building

Literature

In the Training and Capacity Building stage of the adoption of AI tools for the government, the focus is on preparing the relevant personnel and stakeholders to effectively utilise the AI technology. This stage involves providing training and educational programs to ensure that individuals have the necessary skills and knowledge to operate the AI tools and make informed decisions based on the insights generated by the technology (Shneiderman, 2020). Training sessions may cover various aspects, including understanding the capabilities and limitations of the AI tools, interpreting the outputs and results, and integrating AI-generated insights into decision-making processes. Additionally, this stage involves identifying potential gaps in expertise and ensuring that the necessary resources and support are provided to bridge those gaps. Familiarity or experience with AI applications also increased readiness to support the use of AI in governance (Ahn & Chen, 2022). Overall, the Training and Capacity Building stage is critical for maximising the benefits of AI adoption in the government sector, as it empowers individuals to leverage AI tools effectively, encourages data-driven decision-making, and facilitates a smooth integration of AI technology into existing workflows.

Interview Insights and Use-Case

The need for familiarization with the tool was frequently emphasized. It appears that employees in the Wmo sector, often being older, require additional training and acclimatization to technology. *"[Interviewee 3:] Allowing employees to practice early on, so creating a kind of test environment where they can just see what happens. I make a report myself, what does the customer experience then? What happens to my inventory, what does it look like?"* During the Training and Capacity Building stage for Wmo employees in the adoption of AI tools, the software BAIT, developed by Councyl, proves to be user-friendly and requires minimal training. It offers an intuitive interface, making it easy for government personnel to navigate and utilise effectively. Additionally, Councyl provides specific, step-by-step overviews of the software, tailored to the needs of Wmo employees. Furthermore, presentations and kick-off sessions are offered to explain the functionalities of the software in detail, empowering Wmo staff to confidently integrate AI tools into their decision-making processes. While in-depth technical knowledge may not be necessary, these training initiatives play a crucial role in building capacity and enabling Wmo employees to fully harness the potential of AI tools to enhance their decision-making capabilities.

3.3.5. Tool Configuration and Customisation

Literature

In the Tool Configuration and Customisation stage of the adoption of AI tools for the government, the focus is on tailoring the AI technology to meet the specific needs and requirements of the government organisation. This stage involves configuring the AI tools to align with the unique processes, workflows, and data structures of the government agency (Cox et al., 2012). It may also involve customising the algorithms and models used by the AI tools to ensure they are optimised for the specific tasks and challenges faced by the government. This customisation process may require collaboration between AI experts, data scientists, and domain experts within the government to fine-tune the AI tools and ensure they deliver accurate and relevant insights. Additionally, in this stage, the AI tools may be integrated with existing systems and databases within the government organisation to enable seamless data flow and real-time data processing. The configuration and customisation process should also consider factors such as data security, privacy, and compliance with relevant regulations and policies.

Interview Insights and Use-Case

Customization was highly valued by our experts, and thus confirmed as an important implementation step. *"[Interviewee 5:] Then, of course, it is important that it is in accordance with our working method, our standard."* During the Tool Configuration and Customisation stage, Councyl utilises the decision model created from the collected data and makes it accessible to the Municipality of The Hague through their software, with export capabilities. The decision model includes the determined weights for each decision criterion and interactive software that facilitates predictions of employees' decisions based on input cases. Additionally, with a substantial number of participants, it becomes feasible to customise the decision model by segmenting it according to predefined characteristics, such as department or seniority level. To ensure effective customisation, Councyl engages in discussions with the employees, seeking their input and insights on essential points, thereby tailoring the decision model to the specific needs and requirements of the organisation.

3.3.6. Pilot Testing and Evaluation

Literature

The Pilot Testing and Evaluation stage is a crucial step in the adoption of AI tools for the government. During this stage, the selected AI tool or system is tested and evaluated in a controlled and limited environment before full-scale implementation (Hassan et al., 2006). The purpose of pilot testing is to assess the tool's functionality, effectiveness, and suitability for the specific government context. In the context of AI tools, pilot testing involves deploying the tool in a real-world scenario with a limited number of users or within a specific department or area of the government. This allows for a thorough evaluation of the tool's performance and its impact on decision-making and processes. During the pilot phase, feedback from users and stakeholders is gathered to identify any issues, challenges, or areas for improvement. The evaluation process during the pilot phase involves measuring KPIs and comparing the results with predefined benchmarks or goals. This assessment helps determine whether the AI tool meets the desired objectives and whether it aligns with the government's overall goals and

strategies. Additionally, the pilot testing stage provides valuable insights into how the tool interacts with existing systems, processes, and workflows. Based on the findings from the pilot testing and evaluation, necessary adjustments, refinements, or enhancements to the AI tool may be made to optimise its performance and ensure its successful integration into the government's operations. Once the AI tool has undergone thorough testing, analysis, and improvements, it can move to the next stage of full-scale implementation across the government or relevant departments.

Interview Insights

Even though we could not observe how this step was conducted in our use case, we did conclude its importance in our interview results. *"[Interviewee 3:] If we have made the decision, this application will be it, well, then if I say, you know, we set up a test room on the first floor, just go and take a look, simply approachable, how does it work, what does it actually do?"* Pilot testing was seen as part of the implementation step that should be conducted before the final rollout and integration.

3.3.7. Rollout and Integration

The Rollout and Integration phase in the adoption of AI tools within government settings is a pivotal and comprehensive stage, marking the deployment and seamless integration of the chosen AI tool throughout the organization. This crucial step is undertaken only after the pilot testing phase has successfully demonstrated the tool's effectiveness. It encompasses a thorough and inclusive training program for all employees, ensuring that each individual is adept and comfortable in utilizing the new technology. Additionally, this phase focuses on the meticulous integration of the AI tool with existing systems, ensuring a harmonious and efficient amalgamation of new and old technologies. In essence, this stage represents the culmination of all preceding steps, bringing together the collective efforts and insights gained to finalize and solidify the adoption of a new system or tool.

3.3.8. Continuous Improvement

The Continuous Improvement stage in the adoption of AI tools for the government focuses on refining and enhancing the implementation process and the AI tool itself. It involves collecting feedback from users and stakeholders, analysing performance data, and identifying areas for improvement. Based on the insights gained, updates and adjustments are made to the AI tool and the implementation strategy to address any shortcomings or evolving needs. Continuous improvement ensures that the AI tool remains effective, relevant, and aligned with the organisation's goals and objectives over time. A statement that has been emphasised by our experts. *"[Interviewee 9:] There are also still periodic discussions about how the application functions in practice, so besides monitoring, it's also about whether it's still practically workable and necessary."* It also promotes a culture of learning and innovation, driving continuous advancements in the government's use of AI technology.

3.4. Conclusion

1. What are the distinct steps in implementing AI case routing tools in repetitive civil servant decision-making processes?

The current landscape of AI-based case sorting techniques implementation in government operations is marked by limited information on these processes. The existing literature suggests that the adoption of AI decision support systems is a complex and context-specific endeavor. There is no universal strategy that fits all scenarios, as each case comes with its unique set of challenges and requirements. Tailoring the implementation approach can help organizations maximize the advantages and minimize the challenges of integrating AI systems into their operations. The focus, therefore, shifts from merely charting a path to successful implementation to identifying and addressing the specific challenges that arise. Our framework, enhanced by the insights from our experts and use case, can thus particularly valuable for the niche area of repetitive decision-making among civil servants.

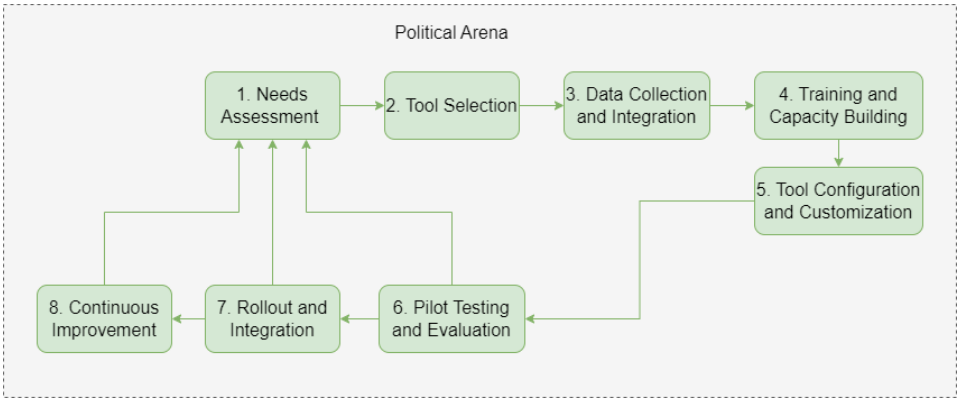

Figure 3.3: Implementation Process

Regarding Figure 8.1, it's essential to note that it does not represent an ideal or realistic implementation process, as these can vary significantly across different cases. Rather, the figure should be viewed as a conceptual framework, providing guidance for the implementation process. Asserting that merely checking off the steps outlined in the figure guarantees successful implementation would be naive. Implementation is not a linear, one-time process, but rather a circular and iterative one.

The success of an implementation hinges on meeting the desired outcomes established during the initial needs assessment phase. In our specific use case, this translates to enhancing efficiency and accuracy in the case routing process. Such improvements directly contribute to the broader objective of the municipality, which is to improve the allocation of welfare benefits system.

4

Impacts and Benefits

2. What impacts and benefits can be achieved by implementing AI case routing tools in municipal repetitive civil servant decision-making?

4.1. Impacts

In the upcoming chapter, we delve into the analysis of key players involved in the integration of AI case routing tools within local government decision-making. This investigation goes beyond just naming names; we're meticulously charting out the landscape of stakeholders who have a stake in this game such as decision-makers, tech experts, community representatives, and more. We're connecting the dots between the concrete impacts of their actions and the larger social fabric. By doing so, we aim to shed light on the ways these different players influence outcomes. Ultimately, our goal is to provide insights into the broad-ranging effects of employing AI tools in local government decisions. We will asses this on two levels, the general AI impacts on governments and citizens and the impact on the citizens of The Hague Municipality.

4.1.1. Stakeholders

Our fist step in the actor analysis is drawing on insights from Manzoni et al. (2022), we identify five distinct stakeholder groups that exert significant influence in the landscape of AI-powered case sorting within local government decision-making, they can bee seen in Figure 4.1. These groups play pivotal roles in shaping the trajectory of this domain, each bringing a unique perspective to the table. EU institutions and international authorities, as exemplified by initiatives like the AI Act, set the overarching regulatory framework. Central public authorities, such as the Dutch Ministry of Health in our specific case, hold the reins of decision-making at the national level. Further down the administrative hierarchy, decentralised public administrations, like the Municipality of The Hague, play a vital role in implementing and tailoring AI solutions to local contexts. While civil society intermediaries and user representatives advocate for community interests, research and development institutions, along with academia, contribute to the continuous advancement of AI technologies. Recognising and analysing the dynamics of these stakeholder groups enriches our understanding of the complex interactions that underlie the successful integration of AI case sorting tools in the realm of local governance.

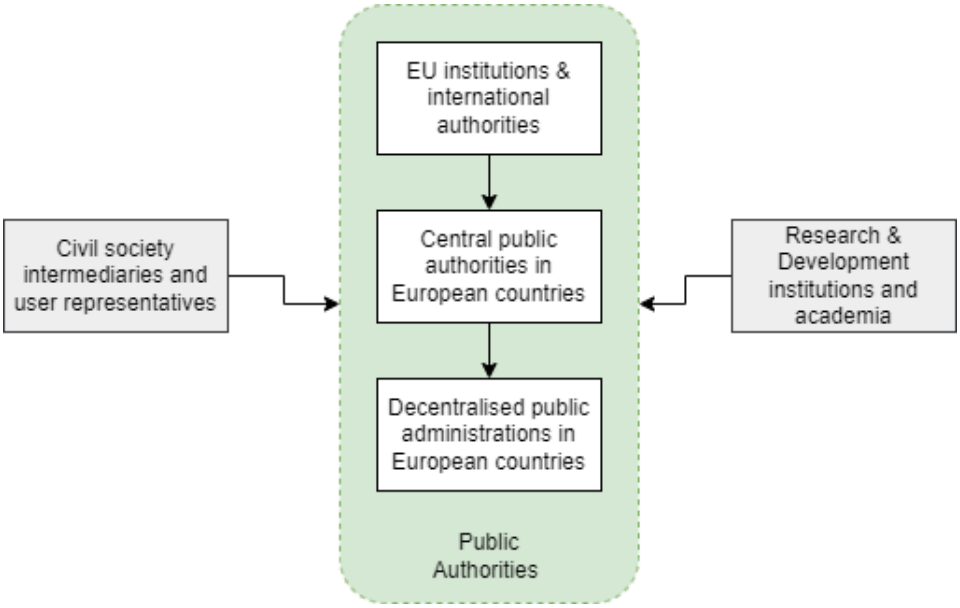

Figure 4.1: Stakeholder Groups

4.1.2. Affected Parties

Amidst the intricate landscape of stakeholders and interests that surround the implementation of AI case sorting tools in local government decision-making, an aspect that often goes unnoticed is the well-being of the individuals who directly bear the consequences of these technological advancements. While Figure 4.1 aptly highlights the stakeholders whose actions hold sway over the implementation process, it's equally imperative to look further then these prominent figures. Amidst the jargon and complexities, the real essence of this endeavor lies in its impact on the everyday lives of citizens, the affected parties. These are the individuals who navigate the outcomes of decisions made, policies formulated, and technologies employed. Their experiences, concerns, and aspirations warrant careful consideration as we assess the ramifications of integrating AI tools into governance. By redirecting our focus towards the citizens who stand to benefit or be disadvantaged by these innovations, we uphold the essence of participatory and responsible decision-making, ensuring that our exploration of AI case sorting transcends theoretical discourse to embrace the practical realities of those whose lives are most directly influenced. AZ (2023), Haag (2023), NVD (2021), and Zorgwijzer (2023) paint the picture on who the stakeholders in this case are.

4.1.3. Wmo Case Actors

The process of engaging with the Wet maatschappelijke ondersteuning (Wmo) application involves a multidimensional network of stakeholders operating within a structured framework to ensure the efficient allocation of resources and tailored support for individuals seeking to maintain their autonomy and societal participation. Here, we delve into the intricate dynamics of this process and the roles played by the various actors involved (AZ, 2023; Haag, 2023; NVD, 2021; Zorgwijzer, 2023). They relations with respect to each other are depicted in the formal chart of Figure 4.2.

Wmo Council (Wmo-raad)

The Wmo Council constitutes an advisory body composed of representatives from diverse sectors, including healthcare, social services, and advocacy groups. This assembly serves as a conduit for community perspectives, actively influencing policy formulation and strategic decision-making concerning Wmo implementation.

Municipality (Gemeente)

At the epicenter of the Wmo application process is the municipality, serving as the nucleus of administrative and service-related activities. Within this context, the Municipality of The Hague exemplifies the commitment to providing essential assistance to its constituents while fostering an environment conducive to autonomous living and societal engagement.

Alderman (Wethouder)
The alderman holds a pivotal role as a member of the municipal executive board. In the context of health and social care, they formulate strategies aligned with the municipality's overarching objectives, influencing policy enactments that underscore the holistic well-being of residents.

Municipal Council (Gemeenteraad)
As the legislative organ elected by the municipality's residents, the municipal council plays a critical role in shaping policy frameworks, budgetary allocations, and substantive decisions pertaining to public service provisions, including the Wmo's execution. This participatory engagement ensures that communal interests and exigencies are duly considered.

Wmo Desk (Wmo-loket)
The Wmo desk, also known as the Wmo-loket, constitutes the primary point of entry for individuals seeking support. Functioning as the interface between potential clients and the municipality, this entity serves as an information repository, processing applications, and facilitating consultations to initiate the provisioning of Wmo services.

Social District Teams (Sociale Wijkteams)
The social district teams embody a multifaceted collaborative structure comprising professionals from varied domains such as social work, healthcare, and psychological services. Operating within local communities, these teams execute comprehensive assessments, offer tailored interventions, and orchestrate context-specific solutions that cater to the unique needs of residents.

Caregivers and Support Staff (Hulpverleners/Verzorgenden)
The bedrock of the support mechanism consists of caregivers and support staff. Operating at the frontline, these professionals deliver direct care encompassing medical, emotional, and practical dimensions. Their expertise is instrumental in enabling individuals to sustain their independence and well-being.

Clients
Central to the entire endeavor are the clients, representing those actively seeking assistance. Their aspirations, requirements, and personal context serve as the focal point around which the entire Wmo process revolves, influencing the decisions and actions undertaken by the municipality and its diverse stakeholders. In order to apply for the Wmo the clients will have to this at the Wmo-loker

Healthcare Practitioners (Behandelaars)
Healthcare practitioners, comprising medical experts, therapists, and specialists, contribute their clinical acumen to the assessment process. Their insights provide a crucial medical foundation, ensuring the precision and appropriateness of the support services offered.

Independent Client Supporters (Onafhankelijke Cliëntondersteuners)
Independent client supporters serve as essential guides, offering impartial advice and assistance throughout the application process. Their role extends to clarifying available alternatives, accompanying clients during assessments, and safeguarding the integrity of their preferences and rights.

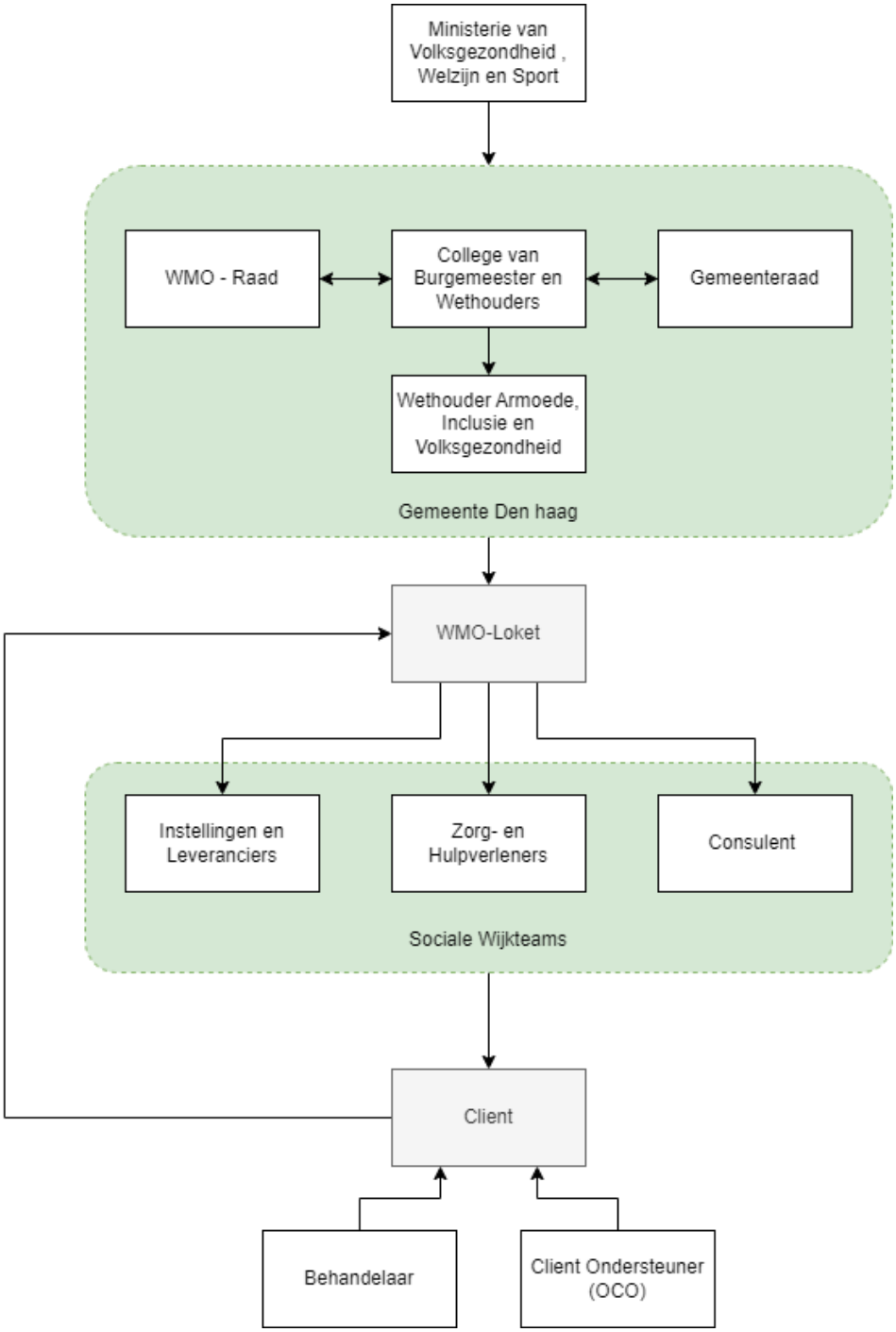

Figure 4.2: Stakeholder Relations

In this network of cooperation, the harmonious interaction between various participants forms a unified system. This system effectively pools together resources, expertise, and collective efforts, all aimed at enhancing the quality of life for individuals in their home settings. The intricate nature of these interactions highlights the blend of scientific approaches and social needs, leading to the development of sustainable and tailored support frameworks. This fusion ensures that the support provided is not only effective but also resonates with the personal circumstances of each individual.

4.1.4. Wmo Application Process

The procedure for obtaining support under the Wet maatschappelijke ondersteuning is a structured and detailed process, governed by specific procedural requirements. It begins with an initial contact with the Wmo office in the relevant municipality. From there, the process moves into a thorough assessment stage, where a detailed evaluation of the applicant's unique needs and situational factors is conducted. This assessment leads to a tailored consultation, which determines the exact type and level of support required by the applicant.

After this evaluation, a proposed assistance plan is presented to the applicant for their review and agreement. Once there is a mutual understanding, the municipality proceeds with the implementation of the agreed-upon services. These services are designed to be adaptable, allowing for adjustments as the applicant's needs change over time. The financial aspects for the applicant are also considered, and ongoing communication with the assigned caseworker is crucial to ensure that the support provided remains relevant and effective in response to changing needs. It's important to note that the specific details and steps of this process can vary based on regional differences and the unique situations of each individual.

4.1.5. AI Case Routing in Wmo

The municipality of The Hague is set to introduce an innovative case routing system, designed to streamline the process of handling applications. This new system will be activated after an application is received by the municipality, but before it is assigned to a specific caseworker. Currently, this allocation process is managed manually by the front office staff within the municipality. The introduction of case routing is expected to significantly reduce the workload associated with manual case allocation. Instead of the front office workers having to read through each application in detail and then deciding where to direct it, they will now simply input a set of predefined criteria into the system. Based on these criteria, the system will automatically determine the most appropriate destination for the application. This change is anticipated to make the process not only faster but also less burdensome for the employees. It removes the task of manual sorting and decision-making, thereby reducing the potential for stress and errors. This streamlined approach is expected to enhance efficiency and employee satisfaction. Importantly, citizens interacting with the municipality will not come into direct contact with the case routing tool. Their experience will remain with the human aspects of service delivery, with the technology operating seamlessly in the background.

4.2. Benefits

In the forthcoming section, we will undertake an exploration of the advantages inherent in the integration of AI within governmental frameworks. Our analysis will touch upon the overarching merits of AI in a governmental context and delve intimately into the application of these principles within our specific use case.

4.2.1. AI Benefits for Governments

When it comes to the identified advantages that AI might bring the list is long with efficiency (Khanzode & Sarode, 2020), transformative decision-making and resource optimisation (Young et al., 2019), improving organisational dynamics (Kar et al., 2021), pioneering innovations (Kaplan & Haenlein, 2020), transforming healthcare and enriching society (Nadimpalli, 2017), fostering societal interaction and environmental stewardship (Kaplan & Haenlein, 2020). As we transition from a broad perspective to a more specific focus, it becomes evident that governments might gain from AI's transformative potential.

Emerging digital technologies like data mining and machine learning, as Lindgren et al. (2019) points out, have the potential to enhance service provision and democratic goals, but also pose a challenge for authorities using them to monitor and control citizens. This complexity is echoed by Axelsson et al. (2013), who argues for recognizing the diversity within stakeholder groups beyond the simplistic view of just agencies and citizens.

Yigitcanlar et al. (2021) emphasizes the importance of efficiency, focusing on resident needs, eliminating biases, and making data-driven decisions. The financial benefits of AI in government, as Mehr et al. (2017) notes, could lead to substantial annual savings.

Valle-Cruz et al. (2019) and Veale and Brass (2019) discuss AI's role in digitizing and enhancing E-Government, streamlining processes, and innovating public service delivery. The foundational ele-

ments of AI, including natural language processing and machine learning, are enhancing public administration capabilities, as highlighted by Reis et al. (2019b). Battina (2017) also sees AI as a means to bridge the gap between citizens' expectations and digital government products, enhancing operational efficiency and public service delivery.

Valle-Cruz et al. (2022) also underscored AI's potential benefits in government, particularly in public budgeting and data analysis, for technical efficiency and effectiveness. The transformative potential of AI in government is further supported by Kaplan and Haenlein (2020), Khanzode and Sarode (2020), and Young et al. (2019), who point out its ability to revolutionize bureaucratic processes, optimize policy formulation, and address societal challenges, paving the way for a more efficient and citizen-centric public administration.

4.2.2. AI Benefits in Repetitive Civil Servant Decision Making

Having previously discussed the overarching advantages of AI for governments, it's imperative to delve deeper into the specifics of AI usage for civil servant decision-making. Through an extensive literature research, several key insights and examples have emerged that shed light on this intricate relationship.

AI stands out as a beacon of transformative potential, especially in the realm of civil servant decision-making. Building on the general advantages of AI, its application in the public sector promises a paradigm shift in administrative processes, emphasising efficiency, accuracy, and citizen-centricity.

The case study from Trelleborg, Sweden, serves as a testament to this transformation, where the integration of digitisation and automated decision-making has redefined social service delivery. The emphasis on values such as Professionalism, Efficiency, and Service underscores the alignment of AI with the ethos of keeping the citizen at the forefront, aiming to simplify and expedite processes for public benefit (Ranerup & Henriksen, 2019).

Further, AI's capabilities, ranging from sophisticated algorithms to machine learning techniques, present a golden opportunity to refine administrative processes. By mitigating human cognitive biases and enhancing accuracy, AI introduces new modes of deliberation and engagement, positioning itself as an indispensable tool in modern public administration. However, challenges such as the opacity of machine learning and automation bias necessitate a balanced approach to harness AI's full potential (Daly, 2019).

From a Finnish perspective, the exploration of AI's role in administrative due process raises pertinent questions about the rule of law versus the rule of algorithm. While the potential of AI, especially in the form of robotic process automation, is acknowledged, concerns about stronger AI forms based on machine learning emphasise the need for clear boundaries in its application within public administration (Suksi, 2021).

Delving deeper into the relationship between civil servants and AI, various tools and platforms empower civil servants to make informed decisions. Examples from Denmark, Sweden, and the U.S. highlight the synergy between AI-driven tools and civil servants. Whether it's child welfare in Denmark, student loans in Sweden, or disability benefits in the U.S., AI aids in data compilation, presentation, and decision suggestion. In contrast, civil servants leverage their expertise, especially in complex scenarios, ensuring that decisions are both efficient and aligned with the needs of the public (Juell-Skielse et al., 2022).

In essence, the integration of AI in civil servant decision-making is not just about technological advancement; it's about reshaping the very fabric of public administration, ensuring that decisions are timely, accurate, and, most importantly, in the best interest of the citizens they serve.

Local governments, too, are not far behind in recognising AI's potential(Yigitcanlar et al., 2021)

Turetsky (2000) noted that to better identify parents requiring specialised services within their caseloads, state child support programs must enhance their sorting techniques. This involves categorising parents into distinct groups and tailoring service strategies for each group. For fathers, these categories include those who (1) are willing to pay, (2) need more information, (3) cannot afford to pay, (4) are hesitant about payment, and (5) are deliberately avoiding payment. This strategic framework has garnered positive feedback from other states looking to refine their service needs.

4.2.3. Case Routing

Following the discussion on AI benefits in civil servant decision-making, it's pertinent to delve into the specific application of AI in the domain of case routing within public organisations. Traditional IT solutions, while foundational, have presented public organisations with a set of challenges. These

range from the allocation of significant resources to handle basic inquiries via telephone and email to the occasional inconsistencies in responses provided by different officers. Such challenges often translate to extended wait times for citizens and varied feedback experiences (Henkel et al., 2017). In this context, the intersection of AI and language technologies offers potential avenues for exploration. Tools such as text mining, information extraction, and advanced question-answering systems might provide alternative methods to manage interactions between public organisations and citizens.

The concept of ”Case Routing” emerges as a potential solution to address certain inefficiencies. In larger entities, manually determining the appropriate personnel for a specific case can be resource-intensive. The individual responsible for dispatching cases might inadvertently introduce delays in the process (Sneiders et al., 2017). AI-driven automated systems, grounded in flexible rules and enriched with text categorisation techniques, suggest a method where cases could be directed to the right staff members more efficiently. Such systems might be particularly useful when handling digital documents or messages that require domain-specific expertise. The application of AI-driven case routing could lead to changes in organisational efficiency. For instance, if up to 80% of incoming requests were to be automatically routed, it might lead to a different allocation of resources and potentially reduce the workload on specialised personnel (Henkel et al., 2015). A practical exploration of this is seen in the Swedish Transport Administration. With a significant volume of written requests monthly, the introduction of automatic case routing provided an alternative method to manage queries. Simpler queries could be addressed by customer service, while more intricate cases might be directed to specialised officers (Henkel et al., 2014).

Machine learning offers another dimension to the discussion on case routing. For instance, Juniper Networks' initiative to use a deep learning neural network, trained on past case data, aimed to predict the most suitable resolving group or engineer. Their ”Intelligent Case Router” system was developed as a potential solution to streamline the process, directing cases based on historical patterns and data (Ding, 2017). In reflecting on the broader theme of AI implications in civil servant decision-making, AI-driven case routing presents an interesting area of exploration, with potential impacts on efficiency, consistency, and resource allocation in public organisations.

4.2.4. Possible Case Routing Benefits in the Wmo case

The benefits of Case Routing for the municipality of The Hague, as outlined in the interviews, encompass several key areas. Firstly, it aims to enhance efficiency and fairness in decision-making processes that depend on internal expert judgment, which is crucial in high-impact and high-volume decisions such as social support, residence permits, and medical decisions. *”[Interviewee 7:] I believe that it leads to faster applications and that it also leads to better applications.”* The experts also mentioned that the approach tackles challenges like increasing work pressure, personnel shortages, and fixed decision deadlines, which can impede the effective functioning of municipal operations. *”[Interviewee 3:] Because we have placed it relatively high in the organization, the manual case routing is, I think, quite error-free. It's just a bit of an expensive solution now.”* Secondly, Case Routing involves the optimisation of processes through three components: documenting policies and protocols in transparent decision models, measuring the quality and efficiency of decision processes, and optimising efficiency while providing necessary guidance (Councyl, 2023). Finally, the method facilitates improved decision-making by creating models that provide insights into decision behaviors, particularly in areas like advising on services for guidance and day activities.

4.3. Conclusion

2. What impacts and benefits can be achieved by implementing AI case routing tools in municipal repetitive civil servant decision-making?

We recognize that incorporating AI into case sorting within local government decision-making is a complex and multifaceted process. This complexity arises from the interplay between regulatory frameworks established by entities such as the EU and the customized strategies employed by local governments, as illustrated by the Municipality of The Hague. At the core of this discourse is the impact on the daily lives of citizens, who directly experience the outcomes of AI-influenced decisions. This highlights the crucial role of street-level bureaucrats, who represent the human aspect in this technological evolution.

Chapter 5.2 delves into the advantages of AI in governmental contexts, particularly in the allocation of welfare benefits. AI's potential in enhancing efficiency and decision-making capabilities presents a opportunity for governments to modernize their operations, improve citizen engagement, and achieve financial efficiencies. The incorporation of AI in public sector activities promises to refine decision-making processes, streamline operations, and foster innovative methods in delivering public services. Specifically, in the context of AI-assisted case routing for welfare benefits, the key advantages include expedited processing times, reduced reliance on specialized expertise, and improved quality of decision-making.

5

Risks and Challenges

3. What are the potential risks and challenges associated with the implementation of AI case routing tools in municipal repetitive civil servant decision-making?

5.1. Risks

In this chapter, we venture into the potential hazards and uncertainties associated with the adoption of AI case routing tools in local government frameworks. Drawing inspiration from the teachings of system safety pioneers Nancy Leveson and Roel Dobbe, we'll be mapping out the landscape of these risks, understanding their origins, and gauging their potential impact on the broader societal structure. Our objective is twofold: to provide a comprehensive understanding of the inherent challenges of integrating AI into local governance and to specifically evaluate the risks faced within welfare benefits allocation. Through this lens, we aim to offer a holistic view of the potential repercussions of AI case routing in municipal decision-making. Including a system safety approach is crucial for the effective identification of complex safety hazards, especially those linked to AI systems. This approach is a key element in determining the critical success factors necessary for successful implementation.

5.1.1. System Safety Approach

The lessons encapsulated within this chapter are grounded in seven lessons aimed at preventing harm in AI systems (Dobbe, 2022a). They underscore the importance of moving beyond a narrow, component-based view of safety. Instead, they advocate for a comprehensive, end-to-end hazard analysis that takes into account the broader context of AI system use, the stakeholders involved, and the intricate institutional environment in which these systems operate. Safety, as we explored, is not a standalone attribute that can be bolted onto a system as an afterthought. It is a deeply socio-technical aspect that emerges from the interplay between technical design, social considerations, and institutional frameworks.

This chapter follows the work of system safety pioneers, Nancy Leveson and Roel Dobbe. By situating their core lessons within the context of our implementation challenge, this chapter offers practical tools and strategies for the effective safety management of AI case routing. We will discuss and analyse each of the seven lessons to assess their likeability on our case. An overview of these lessons and strategies can be seen in Figure 5.1. The concept of system safety offers a valuable perspective for addressing the issues we have identified. However, it's important to approach this with caution, understanding that it is not an infallible method. While it won't reveal all potential risks, it can provide significant insights and a solid foundation for identifying and mitigating many of the key challenges.

Lesson	Strategy
1: High reliability is neither necessary nor sufficient for safety.	Identify hazards at the systems rather then component level
2: Accidents are complex processes involving the entire socio-technical system. Traditional event-chain models cannot describe this process adequately.	Ensure safety through socio-technical constraints
3: Risk and safety may be best understood and communicated in ways other than probabilistic risk analysis.	Capture the safety conditions and assumptions in a process model
4: Operator error is a product of the environment in which it occurs. To reduce operator "error" we must change the environment in which the operator works.	Align mental models across design, operation and affected stakeholders
5: Highly reliable software is not necessarily safe. Increasing reliability or reducing implementation errors will have little impact on safety.	Include software and related organisational and infrastructural dependencies in system-theoretic hazard analysis.
6: Systems will tend to migrate toward states of higher risk. Such migration is predictable and can be prevented by appropriate system design or detected during operations using leading indicators of increasing risk.	Organise feedback mechanisms for operational safety.
7: Blame is the enemy of safety. Focus should be on understanding how the system behavior as a whole contributed to the loss and not on who or what to blame for it.	Balancing safety and accountability through a Just Culture.

Figure 5.1: Lessons and Strategies for AI System Safety

5.1.2. High reliability

Lesson 1: High reliability is neither necessary nor sufficient for safety.

Leveson's first lesson underscores that high reliability does not inherently guarantee safety. In the context of AI safety, the prevailing focus has been on the intricate technical components and foundational assumptions of the AI subsystem, encompassing elements like mathematical formulations, objective functions, and the specific model classes with their input parameters. However, AI systems are not standalone entities. They are deeply embedded within multifaceted contexts, constantly interacting with a diverse array of components, from human agents and societal organisations to other technical infrastructures. This interwoven nature results in an organised complexity, making these systems too nuanced to be understood or designed by just using a model or tool. This lesson entails that just because an AI system works reliably and doesn't break down often doesn't mean it's safe. Safety is about preventing harmful situations, not just about the system working without hiccups. So, when designing or evaluating AI systems, it's essential to look beyond just how often it works correctly and also consider the potential harm it could cause.

While the case routing software in our use-case operates smoothly, it's important to recognise that this does not inherently ensure its safety. There are significant risks associated with this system that could impact both the municipality and its residents. A primary concern is the handling of sensitive data in the event of a system failure. This includes not only personal information of citizens but potentially their medical data as well. Such information is highly sensitive and, if compromised, could leave citizens vulnerable to external threats. Additionally, there's a risk of misrouting within the system, even in the absence of external breaches. For instance, a Wmo application could be mistakenly sent to the wrong case worker. This error could lead to incorrect decisions being made regarding the assistance a person requires, either approving or denying help inappropriately. Both these issues highlight the need for stringent safety measures and contingency plans to protect against data breaches and operational errors.

Strategy: Identify hazards at the systems rather then component level

The case routing technology is just one cog in the system. It might work perfectly when it is tested on its own outside of the system, but when combined with other work systems of the Wmo it may not function as well. Instead of just looking at individual parts, like the case routing tools, of the system, it's essential to look at the entire system as a whole. This is because some hazards or issues might not be evident when examining components in isolation but become clear when you see how everything interacts together.

The strategy underscores the importance of grasping the overarching vision of the Wmo, rather than becoming overly engrossed in the granular details of the case routing model. This holistic view aids in pinpointing potential pitfalls that could otherwise go unnoticed, such as the impact on employee skills. A comprehensive mapping and brainstorming of the possible outcomes of specific case routing

can mitigate these concerns. Thoughtful criteria selection for case assignments, combined with a clear understanding of employee capabilities and needs, can stave off undesirable situations. However, solutions aren't solely technological.

Interview Insights

Experts have emphasised the importance of regular meetings among coworkers to discuss their cases and the challenges they encounter. *"[Interviewee 4] I find it very important within the Wmo that they have case discussions at regular intervals where."* These proactive discussions involving a variety of cases ensure that employees' knowledge is not only maintained but also continuously enriched and deepened. In this context, the issue of misrouting may not pose a significant safety risk. If a case is inadvertently assigned to the wrong employee, a brief review and subsequent discussion with colleagues can quickly identify the mistake. This collaborative approach facilitates the prompt rectification of such errors, ensuring that cases are handled correctly and efficiently.

In the event of a system failure that could compromise the security of personal data, more robust and comprehensive solutions are necessary. It is essential to establish detailed protocols for responding to such incidents. These protocols should include safety mechanisms and strategies to ensure the system remains confined within the municipality's secure environment according to an expert. This approach is crucial for safeguarding sensitive information and maintaining the integrity of the system against potential breaches.

5.1.3. Socio-Technical Systems

Lesson 2: Accidents are complex processes involving the entire socio-technical system. Traditional event-chain models cannot describe this process adequately.

Accidents have traditionally been analysed and explained in terms of "root causes", with many accident models focusing on identifying chains of causal events. However, Leveson contends that relying solely on causal event chains tends to narrowly pinpoint technical factors, engineering activities, and operator errors. This approach often overlooks the broader systemic factors that could provide insights into preventing future accidents. When something goes wrong in a complex system, like an Wmo procedure, it's often not just about one mistake or event. There's a whole chain of events and factors that come into play. Traditional methods might just look at one cause and effect, but that's not enough. We need to consider the entire system and all the interactions to truly understand and prevent future issues.

In the context of the Wmo, a misrouted case might initially appear to be a technical error of the tool. However, as discussed in Chapter 2, since the tool's functioning is based on the expertise and knowledge of professionals, it's possible that the issue could stem from gaps or oversights in their initial decision-making framework. This suggests that the root cause of misrouting may not solely be a technological flaw, but could also involve the foundational knowledge and criteria embedded within the system.

Relevant strategy: Ensure safety through socio-technical constraints

It's not enough to just have technical safeguards in place. We also need to consider how people interact with, use, and are affected by the AI systems. By integrating both social and technical constraints, we can create a more comprehensive safety net that ensures the system operates safely in real-world scenarios. It's not just about the technology itself. It's also about how people, organisations, and the tech interact.

In the context of our Wmo use-case, the importance of a comprehensive system mapping cannot be overstated. Gaining a thorough awareness and understanding of the entire system facilitates addressing not just the superficial symptoms, but the underlying causes of challenges. As highlighted in the aforementioned scenario, a case routing system in isolation cannot rectify the inadvertent issue of overwhelming a single employee with an excessive number of applications. There's an essential need for enhanced communication between employees and team leaders concerning workload and absences. It's a misstep to attribute the blame exclusively to the case routing system. Effective communication across all levels is paramount.

Interview Insights

One expert pointed out that due to the extensive waiting lists, there are instances where fines have to be paid as employees miss the deadlines for responding to Wmo applications. It might be tempting

to pin the blame squarely on the case routing system for not assigning properly. Because on paper, they appear to be at fault for overloading the employees, the reality is more nuanced. It could be that a particular employee might have been overloaded with more cases than they could feasibly handle due to their holiday or sickness. Or the cases that they got assigned are to complex for them to handle. *"[Interviewee 5] So, the tool must be well calibrated and also updated each time there is a change in the team."* Municipality of the Hague even noted a concerning trend where some citizens exploit this system, deliberately applying for Wmo and capitalising on the fines when the deadlines aren't met.

5.1.4. Communication and Understanding of Risk and Safety

Lesson 3: Risk and safety may be best understood and communicated in ways other than probabilistic risk analysis.

Shifting from a probabilistic to a system-theoretic safety perspective highlights the limitations of traditional probabilistic risk analysis in understanding AI system safety. While AI systems often optimise based on probability, this approach doesn't ensure absolute safety. Solely relying on probability doesn't capture the full essence of safety. Instead, there's a need for alternative strategies that combine learning techniques with control-theoretic guarantees and incorporate socio-technical fail-safe mechanisms. This comprehensive approach calls for a reevaluation of system design boundaries and emphasises the importance of embedding safety conditions within a structured process model. People often use probability to measure how risky or safe something is. For example, they might say there's a 1% chance something goes wrong. But just knowing that percentage doesn't tell you everything about how safe the system is. We should look at the entire system, understand its dynamics, and discuss how to make it safer.

This principle directly translates to case routing within the Wmo. Consider a scenario where research indicates that 0.5% of the time, a case is misrouted to the wrong employee. While this percentage might seem negligible, it doesn't provide insight into the potential repercussions of such an error. Even if the incidence is rare, unless that rate is reduced to zero, supplementary precautions must be implemented to prevent any mishaps.

Relevant strategy: Capture the safety conditions and assumptions in a process model

A process model is a detailed plan that outlines how the AI system should operate. It captures specific safety conditions, like what the AI should and shouldn't do, and assumptions, like expecting certain types of data inputs. By having this detailed plan, designers can ensure the AI system operates safely and as intended. It helps in understanding how the system works and what measures are in place to prevent accidents. This strategy emphasises the importance of having a clear and comprehensive plan for safety, rather than just hoping everything will work out.

For the municipality of The Hague, it's imperative to engage in a proper "what if" analysis. Given that no model is infallible, the probability of an error will always be greater than zero. The pertinent question becomes: What protocols are in place if a case is misrouted? Alongside acknowledging the potential for mistakes, it's crucial to have documented procedures detailing how to address and rectify them.

Interview Insights

Experts have observed that highly efficient models with minimal error margins can lead to a high level of trust among employees. *"[Interviewee 13] It does become an issue, if you only just say yes, you have it that people become so lazy that we just trust everything."* This trust can be so strong that it diminishes the perceived need for implementing robust safety protocols. Employees might question the necessity of such measures, considering the slim likelihood of errors occurring. This phenomenon was notably evident in the 'toeslagenaffaire', where people placed considerable trust in the system's low error rate. Consequently, this overreliance on the system's accuracy led to a failure in establishing and executing appropriate protocols, underscoring the importance of maintaining vigilance and safeguards regardless of a system's perceived reliability.

5.1.5. Operator Error

Lesson 4: Operator error is a product of the environment in which it occurs. To reduce operator "error" we must change the environment in which the operator works.

Operator error is often a product of the environment in which it occurs. Rather than being an isolated incident of negligence or oversight, these errors frequently arise from a complex interplay of factors within the operator's surroundings. To genuinely reduce the incidence of operator "error", it's imperative to examine and modify the environment in which the operator functions. Accident investigations typically delve into a myriad of contributing factors. These can range from equipment malfunctions, inadequate training, poor communication, environmental conditions, and even organisational culture. However, there's a pronounced tendency to zero in on the operator, especially when their actions deviate from established procedures. This inclination to pinpoint the operator as the primary culprit can overshadow broader systemic issues that might be at play. This phenomenon, where the blame is disproportionately placed on the operator, can be attributed to hindsight bias. Hindsight bias is the tendency to believe, after an event has occurred, that one would have predicted or expected the outcome. In the context of accident investigations, this means that once the outcome is known, it becomes easy to trace back and identify the operator's actions as the "obvious" cause, even if multiple factors contributed to the event.

This lesson is particularly relevant in the context of Wmo case routing, as seen in the BAIT case routing system. When an application is received, a front office employee conducts an initial review and records its characteristics. The system then routes the case based on these criteria. If a misrouting occurs, it often appears evident that the error stemmed from incorrect data entry by the front office employee. This situation tends to place the blame entirely on them, overlooking other potential factors in the routing process.

Relevant strategy: Align mental models across design, operation and affected stakeholders

To foster a safer and more effective working environment, it's crucial to adopt a holistic approach to accident investigations. This involves looking beyond the immediate actions of the operator and delving into the systemic issues, organisational culture, and environmental factors that might have played a role. By addressing these underlying causes, we can pave the way for more comprehensive solutions that reduce the likelihood of operator errors and create a safer environment for all. The "operator" , whether it's a person or a part of the system, can make mistakes based on the environment they're in. If the system or its settings make the operator's job confusing or difficult, errors are more likely to happen. Instead of just blaming the operator for the mistake, we should look at the bigger picture: the environment or conditions they're working under. By improving or changing that environment, we can reduce the chances of errors happening in the first place. It's about creating a setting where the operator can work most effectively and safely.

Interview Insights

Our experts also highlighted that errors in the case routing system can occur even when an operator accurately inputs information from an application. This is often due to citizens either incorrectly completing their forms or not fully understanding how to fill them out properly. For instance, in one notable case, a citizen simply wrote "help" in the section of the form meant for describing their problems and needs. This example underscores the challenges in ensuring the accuracy of the case routing process, as it extends beyond the control and precision of the operators to include the variability in how citizens complete their forms.

5.1.6. High Reliability

Lesson 5: Highly reliable software is not necessarily safe. Increasing reliability or reducing implementation errors will have little impact on safety.

This lesson dives deeper into the software aspect. It suggests that even if we perfect the software to reduce bugs or errors, making it highly reliable, it doesn't guarantee the software is safe. The lesson highlights the challenges of software's inherent flexibility and the potential pitfalls of designing based on incomplete or incorrect requirements. The focus here is more on the software development process and the potential disconnect between what the software is intended to do and how it's implemented. In essence, while both lessons emphasise the difference between reliability and safety, Lesson 1 is more general, discussing systems as a whole, whereas Lesson 5 specifically targets the nuances and challenges of software development and design.

In the context of case routing in Wmo, this emerges as follows. The case routing system might perform its task correctly a vast majority of the time, making it seem reliable. However, if there are instances where it makes a critical error, even if they're rare, it can lead to consequences. A misrouted case causes for double work and maybe incorrect decisions. So, it's essential to ensure that the system are not just reliable but also safe in every scenario they might encounter.

Relevant Strategy: Include software and related organisational and infrastructural dependencies in system-theoretic hazard analysis.
The AI system, while being the core component, doesn't just run on its own. It's deeply intertwined with various elements like the organisations implementing it, the underlying infrastructure, and the regulatory framework it operates within. Focusing solely on optimising the software without accounting for these interconnected aspects can lead to overlooking potential issues. So, the essence of this strategy is to adopt a holistic view. By evaluating the entire ecosystem around the AI, we can pinpoint potential vulnerabilities and bolster the system's safety.

Interview Insights
Several experts have raised concerns about the current situation, which they describe as a 'system jungle.' They have articulated the challenges they face with software, as well as the related organizational and infrastructural dependencies that come with it. These challenges highlight the complexity and interconnectivity of the systems they work with. In the interviews, there was a strong emphasis on the need for a holistic view to navigate this intricate landscape. *[Interviewee 3] "For example, there are two very important collaborating partners. Well, they have completely different systems, so they cannot work in our system."* This statement underscores the challenges posed by disparate systems and the importance of considering the broader ecosystem when implementing and managing technological solutions.

5.1.7. System Migration

Lesson 6: Systems will tend to migrate toward states of higher risk. Such migration is predictable and can be prevented by appropriate system design or detected during operations using leading indicators of increasing risk.
System design that prioritises safety can proactively address and neutralise many potential hazards. However, even with thorough designs, challenges can emerge during the operational phase. Rasmussen (1997) found through extensive research that systems have an inherent tendency to drift into riskier operational states over time. What's notable is that this progression isn't haphazard; it exhibits discernible patterns, making it both predictable and manageable. Rasmussen's insights highlighted a concerning observation: the safety measures integrated into systems can diminish, especially when the focus shifts towards optimising cost-effectiveness. This weakening of safeguards can set the stage for potential accidents, creating conditions where mishaps seem almost preordained—an effect often described retrospectively as an accident "waiting to happen". Given this natural inclination of systems to adapt and potentially compromise on safety, it's vital to have a robust oversight mechanism in place. This framework should clearly define responsibilities, ensuring dedicated oversight to continuously monitor the system's safety amidst its adaptive behaviors.

If the case routing system is used continuously without regular evaluations, it runs the risk of becoming increasingly hazardous over time. This is vividly demonstrated by the dynamic changes in the environment surrounding the Wmo. A prime example is the legislative shift in 2015. Had the systems not been updated to reflect these changes in the legal landscape, it could have posed a significant risk to the proper administration of Wmo procedures. This highlights the necessity of keeping such systems in sync with evolving legislative and environmental factors to ensure their ongoing safety and effectiveness.

Relevant System Safety Strategy: Organise feedback mechanisms for operational safety.
In complex systems, especially those involving AI or other advanced technologies, feedback mechanisms play a important role. They provide insights into how the system is performing in real-time. This could be in the form of alerts, logs, or other indicators that show if everything is running smoothly or if there are potential issues. "organising feedback mechanisms for operational safety" means setting up these systems in a way that they continuously monitor and report on the system's performance and

safety. This feedback is crucial because it allows operators or system managers to detect and address issues before they escalate into bigger problems. It's about being proactive, catching potential hazards early, and ensuring the system remains safe throughout its operation. In essence, this strategy emphasises the importance of always having a pulse on the system's safety and being ready to act based on the feedback received.

Interview Insights
The importance of recognising and adapting to evolving trends in Wmo applications cannot be overstated, especially in light of the risks associated with failing to do so. To effectively address these shifts, experts recommend the integration of feedback mechanisms within the system. *"[Interviewee 9] Well, yes, and you actually want to review that periodically, of course. So, after a period, say a year or maybe two years, you look at those agreements again and see if you still agree with each other and whether adjustments are needed in a changing world."* These mechanisms play a critical role in promptly identifying and responding to subtle environmental changes, a process that is essential in the implementation of any model, particularly those involving artificial intelligence. Continuous evaluation, as frequently emphasised by experts, is a key strategy in ensuring the relevance and accuracy of such systems.

In line with this, an interviewee pointed out that Wmo applications often display noticeable trends. *"[Interviewee 4] The numbers in reassessments can be anticipated at the front end."* To effectively capture these trends, it's crucial to have a dedicated individual or team thoroughly reviewing all applications. Relying solely on a model for assessment can lead to missed nuances in the Wmo landscape, as models may not detect subtle shifts without regular re-evaluation and human oversight. This approach underscores the necessity of blending automated systems with continuous human engagement to maintain the efficacy and safety of the case routing process.

5.1.8. Who to Blame

Lesson 7: Blame is the enemy of safety. Focus should be on understanding how the system behavior as a whole contributed to the loss and not on who or what to blame for it.
It's counterproductive to isolate blame to a single component or individual when things go awry. When things don't go as planned, the immediate reaction might be to find someone or something to blame. However, this approach can be counterproductive. Instead of getting to the root of the problem, the focus might shift to assigning blame, which doesn't necessarily lead to understanding or preventing future issues. The more constructive approach is to holistically assess how the collective system dynamics might have led to the problem. The literature highlights a prevalent tendency: in the aftermath of mishaps, there's a precipitous inclination to pinpoint a scapegoat. However, this myopic focus detracts from the more pressing objective, which is to discern the underlying causes and implement preventive measures. It's akin to being preoccupied with a surface-level symptom while neglecting the underlying ailment. By eschewing the blame-centric mindset and channeling efforts towards comprehensive understanding, we pave the way for more robust and resilient systems. The crux is to delve deep, comprehend the systemic intricacies, and ensure such oversights are not replicated.

Relevant Strategy: Balancing safety and accountability through a Just Culture.
Instead of pinpointing individual errors, the focus is on understanding the broader system dynamics that might have contributed to the issue. In a Just Culture environment, the goal is to foster open communication. When something goes wrong, the approach isn't to play the blame game but to have a constructive dialogue about the root causes and how to address them. This promotes a learning environment where mistakes are seen as opportunities to improve rather than just faults to be punished. A genuine safety culture should be transparent and take into account perspectives from all levels of an organisation. It's about collective decision-making, ensuring that safety measures and protocols resonate with everyone involved, rather than being top-down directives that might miss the mark.

Interview Insights
Concerning the mentioned issue, the Hague emphasised that individuals who deliberately apply for Wmo with the sole intention of capitalising on fines have now been prioritised on a list for immediate attention as a temporary solution. However, the municipality recognises that this isn't a comprehensive fix. Addressing the root of the deadline issues necessitates open and effective communication between

employees and team leaders. The blame is not only on the employees that don't make their marks. Solutions shouldn't merely hinge on top-down directives focused on set deadlines and quotas for case closures. Instead, a more collaborative approach that takes into account the nuances of each team or employee's situation is essential.

5.2. Challenges

5.2.1. AI Challenges in general

Artificial Intelligence has emerged as a transformative force across various sectors, promising unprecedented advancements and innovations. Yet, as with any revolutionary technology, AI brings with it a host of challenges that need careful navigation.

Ethical concerns are central in the AI discourse, with military use of AI applications raising debates about AI-driven warfare and potential misuse (Kaplan & Haenlein, 2020). Automation's efficiency benefits are counterbalanced by fears of job losses and the need for human workers to adapt or face unemployment, impacting not just the economy but societal well-being and identity (Nadimpalli, 2017). Kaplan and Haenlein (2020) states that the uneven distribution of AI's benefits could exacerbate wealth disparities, and its use in care giving might increase social isolation, particularly among the elderly. Challenges such as unauthorized data collection, privacy violations, and misuse of personal information, along with the potential for flawed or biased data leading to misleading AI decisions, are pressing issues according to Kaplan and Haenlein (2020) and Nadimpalli (2017). Legal and ethical dilemmas, including liability for AI-generated harm, regulation of AI technologies, and the opaque nature of some AI models, complicate transparency and accountability (Kaplan & Haenlein, 2020). Benbya et al. (2020) talks about implementation challenges that are multifaceted, requiring technological adaptability, significant hardware and software investments, effective data governance, and a skilled talent pool, with the rapid AI sector growth leading to high demand for professionals and clarity in AI roles. Additionally, managerial and public distrust in AI adds to these challenges, highlighting the need for a comprehensive approach to address these multifarious concerns(Ali et al., 2021).

In sum, while AI's potential is vast and its benefits manifold, the road to its full integration is laden with ethical and implementation challenges. Addressing these challenges requires a proactive, informed, and collaborative approach, ensuring that the promise of AI is realised without compromising ethical standards or societal well-being.

5.2.2. AI Challenges in Governments

The report titled "Government by Algorithm: Artificial Intelligence in Federal Administrative Agencies" from Engstrom et al. (2020) delves into the multifaceted challenges and risks tied to the integration of AI in governmental operations. A notable concern is the sophistication gap, with only a small fraction of AI techniques deployed by agencies being rated as highly sophisticated, potentially widening the public-private technology divide. This is compounded by significant accountability challenges, as many advanced AI tools lack inherent explainability, posing a dilemma for public officials who are legally mandated to elucidate their decisions. Furthermore, the potential for AI to be manipulated by resource-rich entities raises distributive concerns, which could lead to biases against smaller entities and erode public trust. The legal intricacies surrounding AI's adoption in government necessitate clarity and engagement with these challenges. Emphasising the need for interdisciplinary future research, the report underscores the importance of understanding the technical and operational nuances of the government's AI tools. The overarching theme is the pursuit of optimal AI regulation, requiring a deep understanding of agency actions and the formulation of concrete recommendations for all stakeholders.

Veale and Brass (2019) raises concerns about the skills, capacities, processes, and practices that governments currently employ. These concerns can have value-laden, political consequences. Macro Level Challenges: The creation of new cross-cutting individual rights and obligations is a significant challenge at the macro level. Governments need to balance the benefits of machine learning with its unintended consequences. Meso Level Challenges: At this level, the design, monitoring, and evaluation of algorithmic systems are crucial. The delivery of individual public functions and policies is actualised in part through these systems. Micro Level Challenges: This pertains to the implementation of machine learning in the daily practices of frontline public service providers. Political and Value-laden Concerns: The deployment of machine learning in the public sector challenges established institutions and administrative practices. The consequences of these challenges can be political and value-laden.

5.2.3. AI Challenges in Repetitive Civil Servant Decision Making

The research conducted by Larsson (2021) delves into the intricacies of the automated system for awarding child benefits in Norway. Interestingly, while a majority of recipients are seamlessly integrated into the automated process, receiving their benefits without any manual intervention, there remains a segment that has to navigate the traditional manual application route. By weaving together both contemporary and classical perspectives on citizen access to public services, the study unveils a concerning revelation: automated government systems, despite their efficiency, can inadvertently foster inequality in service delivery. This disparity is particularly pronounced among low-income citizens, who find themselves disproportionately burdened with manual applications. In following research on the Norwegian child benefits Haldar and Larsson (2021) posits that public administrators encounter a trilemma when crafting automated digital services. In an ideal scenario, proactive automation should: (1) ensure precision in its delivery, (2) encompass all citizens, and (3) uphold welfare-centric policies that aren't solely dictated by the digital system's constraints. Yet, the inherent challenges with each criterion mean that achieving all three simultaneously is unfeasible. Administrators are thus compelled to prioritise two, leaving one behind. As a result, the full potential and expectations of digital governance remain unmet.

Walsh (2023) dissertation delves deep into the intricacies of the U.S. social safety net, highlighting the administrative challenges stemming from means-tested requirements. The research underscores the pivotal role of administrative processes and documentation in determining access to pivotal programs such as the Temporary Assistance for Needy Families (TANF) and the Supplemental Nutrition Assistance Program (SNAP). Alarmingly, the study unveils that individuals grappling with the harsh realities of poverty and scarcity often find themselves overwhelmed by the cognitive demands of these application processes, inadvertently placing them at a further disadvantage.

5.2.4. Case Routing Challenges

Following the exploration of AI challenges in civil servant decision-making, the application of AI in case routing within public organisations emerges as a nuanced topic, presenting both potential advantages and inherent challenges. While the promise of AI in streamlining operations is undeniable, the complexities introduced by its integration, especially in case routing, warrant careful consideration.

The utilisation of case routing in organisations has the potential to significantly enhance the process of directing requests. By efficiently channeling these requests to the appropriate agent, organisations stand to optimise their operations.This not only conserves resources but also reduces the workload on specialised personnel. Such efficiency can lead to quicker responses for citizens, potentially elevating their overall experience with public organisations (Henkel et al., 2015).

However, the path to achieving this efficiency is fraught with challenges. A primary concern is the risk of misrouting. If the system lacks accurate calibration, it could inadvertently direct requests to the wrong agent, leading to potential delays in case management. Moreover, the system's effectiveness is closely tied to its ability to discern distinct, non-overlapping categories. A failure in this domain could result in only a fraction of requests being auto-routed, necessitating manual intervention. The challenges associated with automatic case routing are further emphasised when considering the potential pitfalls. Erroneous categorisations emerge as a significant concern. Without meticulous calibration, the system might misdirect requests, channeling them to inappropriate agents. Such misdirection not only delays the resolution of the case but also introduces inefficiencies in the system. Furthermore, the system's ability to discern distinct categories is pivotal for its efficiency. Struggles in this area could mean that a significant number of requests bypass the automated routing, leading to increased manual intervention and potential inefficiencies (Henkel et al., 2014).

In reflecting on the broader theme of AI challenges in civil servant decision-making, it becomes clear that while AI-driven case routing offers potential benefits, it also introduces complexities that organisations must carefully navigate. The intricate balance required to harness the full potential of automatic case routing underscores the need for precision, thoughtful category definition, and continuous calibration.

5.2.5. Possible AI issues in the Wmo case

In our interviews, it emerged that experts expressed concerns about the nature of case routing as a specific task. They highlighted that this focus might overlook potential changes and trends in the applications, suggesting a need for greater attention to evolving patterns and developments. *"[Interviewee*

3:] By manual case routing, I also see what happens and what comes in, and then there's a certain trend, right? There was a health fair, and suddenly there are all sorts of requests for help with household chores coming in. I notice that because I see them all."

Another concern highlighted by an interviewee who shared reservations about case routing in relation to employee skillsets. The concern is that if each case is precisely routed to its designated manager, these individuals will never engage with varied cases, potentially pigeonholing them into narrow specialisations. The interviewee emphasised that there's no standard or uniform request for assistance; each comes with its multifaceted aspects. They further noted a preference within the municipality for employees to have a broad knowledge base rather than hyper-specialised skills. Such a system, therefore, might inadvertently lead to less versatile employees.

5.3. Conclusion

3. What are the potential risks and challenges associated with the implementation of AI case routing tools in municipal repetitive civil servant decision-making?

AI systems, such as case routing, are deeply embedded within a complex ecosystem encompassing human agents, societal organizations, and other technical systems. Ensuring their safety extends beyond focusing on their technical components and requires a holistic view.

The exploration of challenges in Chapter 6.2 underscores the multifaceted nature of integrating AI into public sector operations. While AI holds transformative potential, its deployment is not without hurdles. From macro to micro-level challenges, governments must navigate a complex landscape of technical, political, and value-laden concerns. The integration of AI in specific areas like case routing further emphasises the need for a nuanced approach. As governments seek to harness AI's benefits, a proactive, informed, and collaborative approach is essential to address these challenges, ensuring that AI's promise is realised without compromising ethical standards or societal well-being.

We also delved into key findings from a system safety perspective for welfare benefits allocation. Through an examination of literature and insights from expert interviews, we explored the lessons and strategies from Dobbe (2022a) study on system safety. However, it's important to recognize that directly applying these strategies is not as straightforward as it might seem. Ensuring the safety of case routing systems is a complex endeavor. It goes beyond preventing mishaps; it involves a deep understanding of potential failure modes of these systems and implementing effective measures to manage and mitigate these risks.

To use AI case routing responsibly, it's important to define clear rules or constraints. These rules help in understanding when and how AI case routing should be used. By setting these boundaries, we can prevent harm that might come from using AI in situations where it's not suitable or safe. These safety strategies taught us a lot about when it's appropriate to use AI in the first place.

During our research, it became evident that current safety measures are insufficient to fully address the risks associated with AI case routing. While we could hypothesize potential solutions based on the strategies, making these ideas practical for future implementation remains a challenge; they are not yet viable. The majority of expert opinions underscored the presence of risks, yet there was limited discussion on effective strategies to address these concerns.

From a system safety perspective, integrating AI case routing into the allocation of welfare benefits should not proceed without first addressing these critical issues. This situation also brings to light the possibility that AI case routing might not be the most suitable approach for this system. If the process of operationalizing strategies to guarantee safety becomes overly challenging or begins to overshadow the benefits of implementation, the municipality needs to reassess the actual utility of this tool. Not every problem needs an AI solution, and sometimes it's better not to use AI to avoid potential risks.

6

Critical Success Factors

What are the relevant themes in repetitive civil servant decision-making in municipal repetitive civil servant decision-making?
What are the relevant themes of the implementation of AI case routing tools in municipal repetitive civil servant decision-making?
How can these themes be synthesised into critical success factors?

In the following chapter, we are excited to present the results derived from our extensive interviews. This chapter will not only detail the key findings but also provide insight into our methodology and the analytical process that led us to these conclusions. We will delve into the themes that are critical for the Wmo in general, as well as those specifically related to the implementation of new initiatives and technologies. Our discussion will encompass a comprehensive overview of the factors that contribute to the effectiveness and efficiency of the Wmo, drawing on the valuable perspectives and experiences of our interviewees. By exploring both the broader success factors of the Wmo and the more nuanced aspects of successful implementation, this chapter aims to offer a well-rounded understanding of what drives success in this vital area of public service.

6.1. Understanding Results: A Deeper Look into the Methodology

Before delving into the findings of our study, it's crucial to shed more light on the methodology that led us to these results. As outlined in the methods section of our report, the core of our data collection revolved around conducting expert interviews. These interviews were meticulously designed and executed to ensure a comprehensive understanding of the subject at hand.

6.1.1. Expert Interviews

We engaged with a total of 12 experts, each bringing a unique perspective from 11 different municipalities. This broad spectrum of insights is visually represented in Figure 6.1, which maps the geographical and organisational spread of our expert pool. This diversity was not just geographical but also functional, as demonstrated in Table 6.2, which details the 8 different Wmo related functions our experts held. The selection of experts with varied functions was a deliberate choice aimed at capturing the most extensive view of the Wmo-related process. By tapping into these diverse roles, we could gather a multifaceted understanding of the intricacies involved. This variety was crucial, as each role brought its unique lens to the Wmo process, thereby enriching our analysis with a wide array of perspectives. Moreover, an intriguing aspect of our expert selection was that some individuals held multiple or previous relevant functions within the Wmo framework. A notable example is that many Wmo team leaders, who provided strategic and operational insights, have had previous experience as case managers. This dual perspective was particularly valuable, as it offered both a ground-level view and a managerial perspective, enhancing the depth and breadth of our understanding.

Figure 6.1: Municipalities Included

Team Leader
Case-Manager
Citizen (Client)
Care Provider
Software Developer
Policy Advisor
AI Project Architect
Task Manager Technology

Figure 6.2: Expert Functions

Having established the diversity and depth of our expert panel, it's crucial to understand the nature of the questions posed to them, which were pivotal in shaping our research outcomes. The questionnaire was meticulously crafted in two distinct sets, each targeting a specific aspect of the Wmo process. The first set of questions was designed to delve into the core of what the Wmo process involves and to identify the key elements deemed most crucial by the experts. These questions were broad, aiming to encapsulate the entirety of the Wmo process from the perspective of those who navigate and manage it daily. The second set of questions shifted the focus towards the technological implementation aspect of our research. This was particularly relevant given the increasing role of technology in shaping and facilitating social support processes. These questions explored the integration, challenges, and impacts of technology within the Wmo framework. To leverage the unique expertise of each participant, we tailored the questions to align with their specific area of expertise. This customisation ensured that we could draw upon the depth of knowledge each expert held, allowing for more detailed and insightful responses. Importantly, all questions were open-ended. This approach was deliberate, as it provided the experts with the freedom to express their thoughts comprehensively and introduce new ideas. The open-ended nature of the questions also allowed us to probe deeper based on their initial responses, leading to more nuanced and detailed insights. To maintain a focus on the critical findings in the main body of our report, a the general questions posed to the experts has been included in the appendix.

6.1.2. Abductive Analysis and Coding

For our analysis, we employed abductive coding as explained by Thompson (2022), adopting his 8-step approach for conducting abductive thematic analysis in social sciences. Our process began with transcribing the data and familiarising ourselves with its contents. A key part of our coding entailed highlighting important statements from the interview transcripts, which allowed us to capture significant insights directly from participants. We developed a codebook, crucial for structuring the coding process, which included defining and labeling each code. This codebook can be found in the appendix for further reference.

Coding fundamentally involves dissecting interview transcripts into distinct conceptual elements known as codes. These codes are then systematically identified and clustered into interconnected sub-categories. The process progresses by continuously integrating these codes, leading to the formation of a few, yet intricate, categories from the initial array of codes (Gallicano, 2013). This bottom-up method discards initial biases and presumptions about the expected codes and the structure of the categories, allowing for an organic and unbiased formation of categories.

Simultaneously, we implemented a top-down approach by aligning these emergent themes with those previously defined in the literature. This dual method ensured a comprehensive understanding of the data, integrating novel insights with established theoretical frameworks. We also conducted a comparative analysis of different datasets to assess the presence and expression of themes across groups. For visual representation of these themes and their connections, we utilised data display techniques such as thematic network analysis. The final step involved writing up the findings, linking the themes to the wider dataset and relevant literature. This approach, guided by Thompson's methodology, ensured that our findings were both empirically grounded and aligned with theoretical robustness. Theses themes are our critical success factors.

6.1.3. Validation through Expert Evaluation

After conducting an abductive analysis of the data, we identified two distinct sets of success factors. To validate these findings, we engaged with experts who are experienced in decision-making fields. This step was crucial to test the validity and applicability of our results in real-world scenarios. We presented these experts with the identified success factors, intentionally including some fictitious factors. The experts were not included in the interviews that resulted in the CSF's. This approach was adopted to broaden the scope of the evaluation and to test whether the genuine success factors we identified would be ranked higher in comparison to the fabricated ones. The experts were asked to rank, select, and evaluate each factor based on their relevance and importance. The inclusion of fictitious success factors served a dual purpose. Firstly, it acted as a control mechanism to gauge the discernment and expertise of the participants. Secondly, it provided a more robust test of the validity of our actual results, ensuring that any high ranking of our identified factors was a result of their genuine relevance and not due to a limited choice set. Following the ranking and selection process, we engaged further with the experts by asking if they felt there were any missing factors. This inquiry was aimed at uncovering any potential gaps in our research and understanding why certain factors might have been overlooked or deemed less important. Their insights were invaluable in refining our understanding of the success factors and ensuring that our findings were comprehensive and aligned with expert opinions in the field.

6.2. Wmo Success Factors

In this chapter, we delve into the insightful outcomes derived from a series of meticulously conducted interviews, which formed a pivotal part of our research methodology. The process of gathering and analysing data was comprehensive, involving detailed interviews, meticulous coding, and a rigorous abductive analysis. This multifaceted approach has culminated in the identification of six distinct themes, which we have recognised as critical success factors pivotal to our study. We will first discuss the findings with regards to the general functioning of the Wmo. Each of these six themes represents a unique facet of our research findings and offers valuable insights into the subject matter. In the following sections, we will discuss each of these themes in detail. Our focus will be on elucidating the key points that emerged from the interviews, highlighting the most significant aspects that contribute to a deeper understanding of our research objectives. This discussion aims to provide a clear and concise interpretation of the data, ensuring that the core findings are effectively communicated. For those interested in a more granular view of our analytical process and the structure of our findings, we have included a comprehensive codebook in the appendix of this document. The codebook entails as a detailed guide, offering an in-depth look at the coding structure and themes identified. The CFS's, which can be seen in Figure: 6.3, will provide insight into the important factors that decide successfull Wmo.

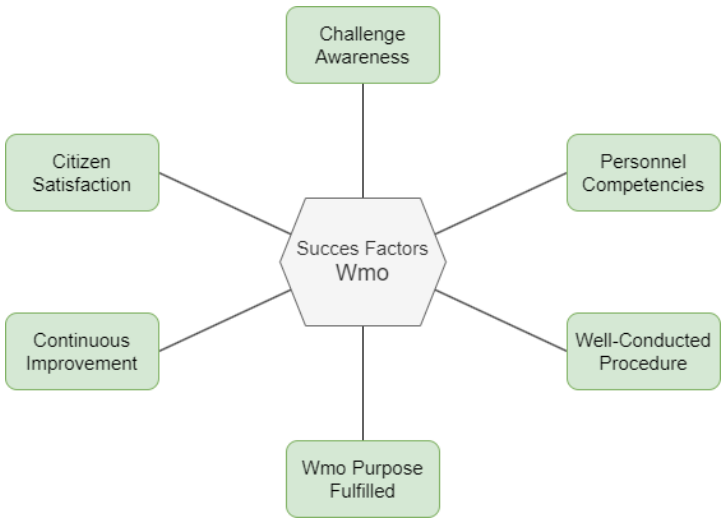

Figure 6.3: Wmo Success Factors

6.2.1. Challenge Awareness

The first Critical Success Factor (CSF) that we address in our study is 'Challenge Awareness', sie Figure: 6.4. This factor emerged as a significant theme from our interviews and reflects a crucial aspect of the current state of affairs in municipalities' Wmo operations. Throughout the interviews, a consistent trend became apparent, highlighting that many municipalities are currently facing significant challenges in their Wmo procedure. This situation is particularly evident in the manifestation of long waiting lists for citizens requiring services. Such delays not only impact the efficiency of service delivery but also significantly affect the quality of life for those awaiting assistance. The identification of 'Challenge Awareness' as a CSF stems from the recognition that understanding the root causes of these struggles is vital for effective Wmo functioning. It is not merely about acknowledging the existence of challenges but also about having a deep and nuanced understanding of what is driving these issues. This understanding is crucial for developing strategies to mitigate these challenges and improve service delivery.

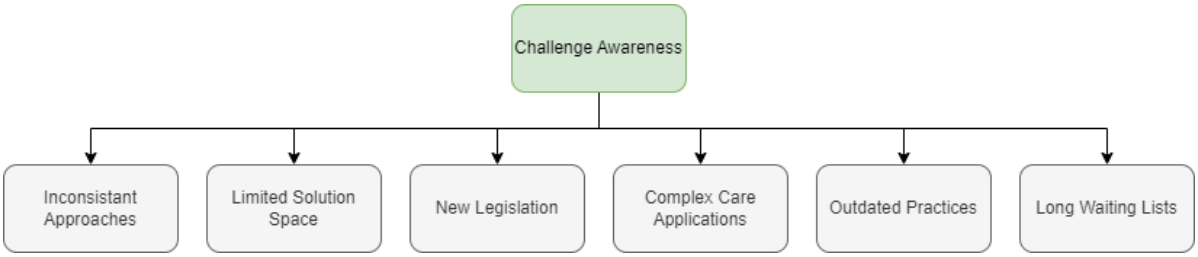

Figure 6.4: WMO Challenge Awareness Aspects

Complex Care Applications

In our exploration of the workings within the Wmo, a recurring and significant trend we identified is encapsulated in the Dutch term "maatwerk". This term translates to "tailored solution," and it aptly describes a fundamental approach within the Wmo framework. Within this success factor, this complexity was often mentioned. In the context of Wmo, every solution provided is distinctively tailored to meet the specific needs and circumstances of each individual case. This bespoke approach is central to the ethos of Wmo, emphasising the importance of personalised care and support. However, this commitment to "maatwerk" also introduces a layer of complexity in the processing and management of care applications. The challenge here is twofold. Firstly, there is the versatility and diversity of the applications themselves. The Wmo caters to a wide range of needs, from physical and mental health support to assistance with daily living and social integration. Each application thus presents its unique set of requirements and challenges. Secondly, and perhaps more critically, is the uniqueness of each application. No two cases are exactly alike; each individual's situation is influenced by a unique combination of factors, including personal health, family dynamics, socio-economic status, and more.

Inconsistent Approaches

Another significant challenge faced by the Wmo is the variability in approaches across different municipalities and even among individual employees within the same municipality. This challenge is, in part, a consequence of the 'maatwerk' or tailored solutions approach integral to the Wmo. While this approach is designed to cater to the unique needs of each individual, it also makes it difficult to establish a consistent standard of service. The absence of a uniform reference framework and the limited applicability of precedents in decision-making can lead to a degree of arbitrariness in the process. For instance, where one employee might grant assistance in a particular case, another might not, under seemingly similar circumstances. This inconsistency is not just an issue at the individual employee level but extends to the municipal level as well. Although there are overarching rules and guidelines concerning the process and outcomes of Wmo applications, these often encompass a significant amount of grey area. This ambiguity allows municipalities considerable discretion in how they interpret and implement these guidelines. As a result, what constitutes a valid application for aid can vary markedly from one municipality to another.

Limited Solution Space

In addition to the challenges of arbitrariness in the Wmo, another significant issue is the limited solution space available for implementing aid. Despite the Wmo being an open-ended regulation designed to be

flexible and responsive to individual needs, it operates within the constraints of finite resources. There is an inherent tension between the desire to provide comprehensive support and the reality of budgetary limitations. This leads to a principle of ”goedkoop adequaat,” or affordable adequacy, where the focus is on finding the most cost-effective solutions that still meet the required needs. This approach often means opting for the cheapest viable option rather than the ideal solution.

Another example of this limited solution space is evident in the current housing shortage affecting many areas. Ideally, for some individuals, particularly the elderly or those with mobility issues, relocating to single-floor housing would be the most suitable solution. However, due to the constraints in the housing market, such options are often not feasible. As a result, modifications like installing a bathroom on the ground floor or adding a stair-elevator in existing homes become the go-to solutions. While these adaptations can certainly help, they may not fully address the individual's needs or offer the same quality of life improvements that more suitable housing would provide. This situation highlights a critical gap in the Wmo's ability to deliver optimal solutions, constrained not only by financial considerations but also by external factors like housing availability.

Long Waiting Lists

As previously mentioned, one of the new and pressing challenges that the Wmo is currently facing is the issue of long waiting lines and lists. Multipe experts have mentioned this a problem within Wmo. This problem has been escalating due to several recent societal trends, notably the aging population and an increase in the number of individuals seeking care and support services. These factors have placed a significant strain on the Wmo system, leading to delays and extended waiting periods for those in need of assistance. Additionally affecting employees by the increased work pressure.

Another critical aspect contributing to these growing waiting lists is the labor market shortage, particularly in the availability of qualified case workers. Case workers play a vital role in the Wmo system, as they are responsible for assessing individual needs and coordinating the provision of services. However, finding and recruiting individuals with the necessary skills and qualifications has become increasingly challenging. Furthermore, training someone new to become a proficient case worker is neither an easy nor a quick feat. It requires a significant investment of time and resources to develop the necessary expertise, understanding, and skills. This lengthy training process, combined with the high demand for services and the limited number of available professionals, has led to a situation where the waiting lines for Wmo services are growing longer.

New Legislation

Since 2015, the Wmo has experienced significant legal changes, leading to an expansion of its responsibilities. This shift has required municipalities and service providers to adapt to new care and support requirements, impacting resource allocation and service delivery. A key change in the Wmo has been the introduction of the 'eigen bijdrage' or personal contribution, which requires individuals to financially contribute towards their care. However, this policy is set to be reversed in 2024, reflecting the need to balance the Wmo's effectiveness with the financial impact on service users.

Outdated Practices

A critical challenge facing the Wmo is the prevalence of outdated practices within its operational framework. These issues, ranging from convoluted administrative processes to the use of antiquated or neglected systems, significantly impede the efficiency and effectiveness of service delivery. One particularly stark example of these systemic inefficiencies was highlighted in a distressing incident where a citizen, tragically passed away before the assistance could be provided. This incident was further compounded by the fact that the system was unaware of the individual's death, leading to a continuation of the care allocation process. This not only points to severe inefficiencies and communication breakdowns within the system but also underscores a profound failure in providing timely and responsive care. Moreover, another challenge that emerged from our interviews is the technological stagnation within the Wmo and the municipalities at large. This lag in embracing and integrating technological innovations hampers the Wmo's ability to streamline processes, improve service accuracy, and adapt to evolving needs. The slow pace of technological advancement means that the Wmo is not fully capitalising on available tools that could enhance service delivery and overall operational efficiency.

6.2.2. Citizen Satisfaction

The second Critical Success Factor identified in our study is 'Citizen Satisfaction.' This factor is particularly crucial in the context of the Wmo, as it directly pertains to the experiences and perceptions of the citizens who are the recipients of these services. Citizen Satisfaction as a CSF underscores the importance of the user experience in the evaluation and success of the Wmo services. Given that the Wmo is fundamentally a service-oriented program designed to support and assist citizens, the satisfaction of these individuals is a paramount indicator of the program's effectiveness and efficiency. It reflects not just the quality of the services provided but also the extent to which these services meet the needs and expectations of the citizens. All three aspects, as displayed in Figure: 6.5 that we are about to discuss were regarded as equally important by the interviewees.

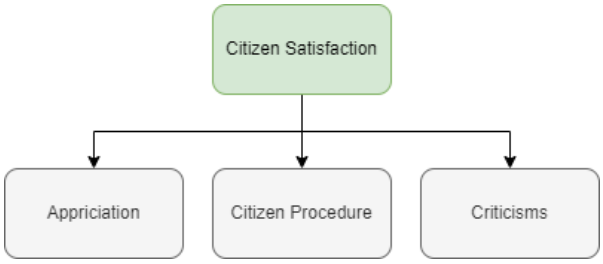

Figure 6.5: Citizen Satisfaction Aspects

Procedure

In addressing the aspect of Citizen Satisfaction, the first part we would like to focus on is the procedural steps that citizens have to go through in their interactions with the service. A clear and correctly outlined procedure plays a crucial role in shaping the satisfaction of the citizens. This is largely because a well-defined procedure aids in managing expectations and fosters a sense of fairness and transparency in the process. From the perspective of the citizens, the process involves seven distinct steps, as depicted in Figure 6.6. These steps are designed to guide the citizens through the service from start to finish, ensuring that they are well-informed and aware of what to expect at each stage. The clarity and correctness of these procedural steps are not just about logistical efficiency; they are integral to building trust and confidence in the service, thereby directly impacting the overall satisfaction of the citizens.

Figure 6.6: Citizen Procedure

Criticisms

Another crucial aspect of citizen satisfaction within the Wmo framework is the feedback and criticisms provided by its users. Interviews conducted with Wmo users have revealed that a primary concern currently affecting their satisfaction is the issue of long waiting times. Many users expressed frustration over having to wait for care that they need immediately, not in several weeks or months. Compounding this issue of long waiting times is the problem of unclear communication throughout the process. Many citizens reported feeling left in the dark about the status of their applications and the progression of their cases. This lack of transparent and consistent communication leads to uncertainty and anxiety, further diminishing their satisfaction with the service. Furthermore, the interviews highlighted a significant emphasis on the need for personal contact in the service delivery process. Users of the Wmo services expressed a desire for more direct and personal interaction with case workers and officials. In some instances, there is a perceived lack of this personal touch, which is crucial for building trust and ensuring that the services are not only efficient but also empathetic and responsive to individual needs.

Appreciations

In any service-oriented framework like the Wmo, while acknowledging criticism is essential, it is equally important to recognise and understand the positive experiences of citizens. These positive experiences

not only highlight what is working well but also guide where continued investment and reinforcement are beneficial. Our research has shown that the aspects of the Wmo that citizens appreciate are not limited to the receipt of specific amenities or services they requested. Equally valued is the thoughtfulness and consideration evident in the responses they receive, even if the answer is a 'no'. This finding underscores the importance of the manner in which services and decisions are communicated. A respectful and empathetic approach, even in the face of denial, can significantly impact the overall satisfaction of the citizens. Moreover, citizens have pointed out that a thorough investigation of their cases and their involvement in the process are positive aspects of the current Wmo procedure. These elements demonstrate a commitment to understanding each individual's unique situation and ensuring that their voices are heard and considered in the decision-making process.

6.2.3. Continuous Improvement

Introducing the third Critical Success Factor for the Wmo, we focus on "Continuous Improvement", see Figure: 6.7 This factor centers on the persistent drive and commitment to enhance and refine the procedures and practices within the Wmo framework. The importance of this CSF is underscored by the frequent expressions of a desire for development and betterment that emerged from our interviews with stakeholders. The interviewees consistently highlighted the necessity of a proactive approach towards identifying and addressing areas of improvement within the Wmo. This drive for continuous development is not just about rectifying existing issues but also about anticipating future challenges and opportunities for enhancement. The willingness to engage in this ongoing process of improvement is a crucial component of success for any service-oriented system.

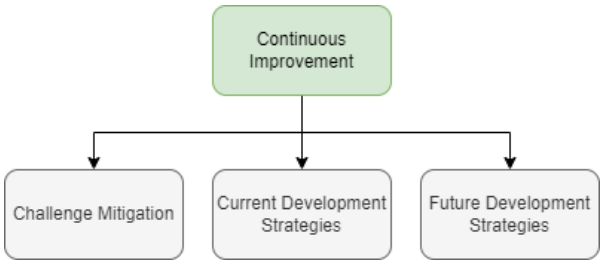

Figure 6.7: Continuous Improvement Aspects

Challenge Mitigation

The first aspect of Continuous Improvement within the Wmo that we aim to address is what we have termed Challenge Mitigation. This involves activities that are impacting the efficiency and effectiveness of the Wmo services. A key strategy in this regard is to increase the number of cases that staff can successfully close each week, which is a direct approach to reducing the backlog and thereby shortening the waiting lists. This not only improves the timeliness of the service but also enhances overall user satisfaction. In addition to managing case volumes more effectively, Challenge Mitigation also encompasses the implementation of sustainable solutions for citizens. The goal here is to provide support that effectively addresses the root of the issue for each individual, thereby reducing the likelihood of them needing to return with a new application in the near future. This approach not only benefits the citizens by providing more lasting and impactful assistance but also helps in managing the overall demand on the Wmo services more efficiently. Furthermore, in the context of Challenge Mitigation, it is important to revisit the concept of 'affordable adequacy.' This principle serves as a counterbalance to the earlier mentioned issue of limited resources. It emphasises the need to find solutions that are both economically viable and adequately meet the needs of the citizens. By focusing on affordable adequacy, the Wmo can ensure that it is using its resources in the most effective manner possible, providing the best possible service within the constraints of its budget.

Current Development Strategies

In addition to addressing everyday operational challenges, our research has also uncovered that the Wmo is actively engaged in developing strategies to enhance systems that are already functioning effectively. A key area of focus in these development strategies is the adoption and integration of technology, which has been identified as the number one development strategy currently being applied

within the Wmo, according to our experts. The technological advancements being adopted range from improvements in case routing systems to equipping employees with smartphones and utilising platforms like Microsoft Teams for communication. These technological integrations are aimed at streamlining processes, improving communication channels, and enhancing overall efficiency. By adopting these technologies, the Wmo is not only keeping pace with modern work practices but also leveraging these tools to improve service delivery and internal coordination. Another interesting development strategy that has been highlighted in our research is the improvement of user manuals within the Wmo. This strategy focuses on making these manuals more comprehensive, user-friendly, and accessible. By enhancing the quality of user manuals, the Wmo aims to provide clearer guidance to both staff and service users, thereby improving understanding and compliance with procedures and policies.

Future Development Strategies

The final aspect of the Critical Success Factor 'Continuous Improvement' within the Wmo framework focuses on future development strategies. These strategies, as mentioned by various municipalities, outline the roadmap for advancements they aim to implement in the coming years. A significant portion of these projected plans revolves around technological advancements, highlighting a clear trend towards digital transformation in the Wmo services. The bulk of these future-oriented projects emphasise the importance of technological development, particularly in areas such as automation and the enhancement of information systems. The move towards automation is seen as a key strategy to increase efficiency, reduce manual workload, and streamline processes, thereby allowing for quicker and more accurate service delivery. Improved information systems, on the other hand, are expected to facilitate better data management, enhance communication channels, and provide more robust support for decision-making processes. Future strategies, while not mentioned as frequently as the other two aspects, were still considered relevant by the interviewees.

6.2.4. Personnel Competencies

Introducing the next CSF for the Wmo, we turn our focus to 'Personnel Competencies.' As previously discussed, the Wmo serves as a quintessential example of street-level bureaucracy, embodying the principle of a service provided by people for people. This human-centric approach places a significant emphasis on the individuals who operate at the front lines of service delivery – the street-level bureaucrats. The importance of these individuals cannot be overstated, as they are the primary interface between the Wmo and the citizens it serves. Their skills, attitudes, and competencies directly influence the quality of service delivery and, consequently, the satisfaction and outcomes for the service users. Recognising the critical role played by these personnel, our research has identified their competencies as a key success factor in the effective functioning of the Wmo.This focus on personnel competencies was further reinforced through our interview process. The insights gathered from these interviews confirmed the pivotal role that street-level bureaucrats play in the Wmo. Their ability to navigate complex situations, empathise with citizens, and apply their knowledge effectively is crucial for the successful implementation of Wmo policies and services. The overview can be seen in Figure: 6.8.

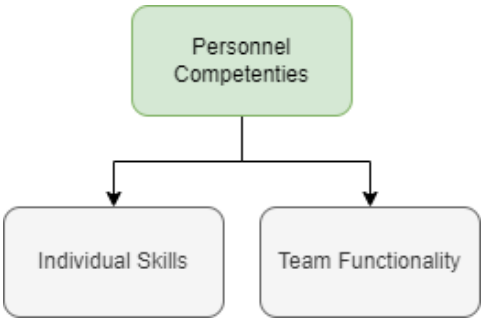

Figure 6.8: Personnel Competencies Aspects

Individual Skills

Personnel competencies within the Wmo framework are fundamentally about the skills and abilities of the employees, encompassing both team leaders and case managers. These competencies are critical in ensuring that the services provided are effective, empathetic, and responsive to the needs of

the citizens. Case managers, in particular, are often praised and valued for their soft skills, especially in the realms of communication and assessing citizens' stories. An essential aspect of their role is not just to evaluate the information provided by the citizen during a house visit but to consider the individual's situation holistically. This approach requires a keen sense of observation and empathy, allowing case managers to understand the broader context of each case, beyond just the immediate details presented. Out of the various personnel competencies, the individual skills of the case managers were valued most. On the other hand, the competencies of team leaders are centered around their pursuit of continuous improvement in the process and their ability to support and guide their team of case workers. Effective team leaders are those who not only strive to enhance the operational aspects of the Wmo services but also provide the necessary support and resources for their teams. This includes fostering a positive work environment, offering guidance and mentorship, and ensuring that case workers have the tools and knowledge needed to perform their roles effectively.

Team Functionality

In the context of the Wmo, the importance of individual skills is undeniable, but the effective functioning of the team as a whole is equally critical. Team functionality plays a significant role in the success and efficiency of the Wmo services. This emphasis on team functionality is evident in the way collaboration and collegial consultation are valued and practiced within the team. According to the insights gathered from our interviews, regular team meetings, especially those centered around case discussions, are considered a vital component of the Wmo process. These meetings serve as a crucial forum for team members to exchange ideas, discuss various challenges they face, and collectively develop solutions. This collaborative approach not only enhances the decision-making process but also ensures a more rounded and informed approach to each case. Furthermore, the interviewees highlighted the importance of having a supportive work environment where colleagues are always ready to assist each other. When a team member faces a challenge, it's essential that they feel comfortable and encouraged to seek help from their colleagues.

6.2.5. Well-Conducted Procedure

In the context of administrative processes, particularly in the context of municipal operations, the efficacy and success of procedures are often determined by how well they are conducted. This principle forms the next critical success factor in our discussion: the well-conducted procedure. As we delve into this factor, it's important to recognise the inherent complexities and ambiguities that often characterise these procedures. As mentioned before, there is a significant amount of grey space in the entire process. This grey space can stem from various sources, such as the subjective nature of certain decisions, the variability in individual cases, or the evolving regulatory landscapes. Therefore, it becomes imperative to adhere strictly to established steps. This adherence is not just about following a set of instructions; it's about ensuring procedural consistency, which is the backbone of any reliable administrative process.

We will now walk you through this process as depicted in Figure: 6.9:

- Start of the Procedure: The first step begins when the application reaches the municipality. This marks the initiation of the process.
- Procedure Conducted by Front Office or Senior Employee: This step is immediately followed by an assessment conducted by either the front office or a senior employee. Here, the application is first received and then evaluated to determine if it is a Wmo application. If it is not, it is referred to the appropriate service desk. If it is a Wmo application, the process continues to determine if it's a special application which requires high priority, if so it will immediately be taken on. If not, it goes to a waitlist. An employee will then apply manual case routing to allocate the applications to the case-workers.
- Application Reaches Case-Worker: Once past the initial assessment, the application reaches a case-worker. This stage involves preliminary research conducted by a case-manager, who reads the application and checks if the client is already known. For each client, additional research into their case is conducted. The next step entails the planning of a home visit.
- Identifying the Help Needed: The case-manager then identifies the specific help needed by the client by conducting a home visit. Here all contextual information will be assessed questions can be asked with regards to personal situation. This also involves checking for other available

means and determining what remains for Wmo support. Advice is then started, including collegial consultation, drafting a report, and sending it to the client.

- Decision on the Report: The final stage involves the client's response to the report. If the client agrees to the report, they need to sign it. Based on the report a the care allocation is done, and the application procedure concludes. If there is disagreement, the report can be revised.

This flowchart, while providing a clear overview, represents just the tip of the iceberg in terms of the detailed and varied procedures different municipalities may employ. It serves as a foundational guide to understanding the general flow of such applications.

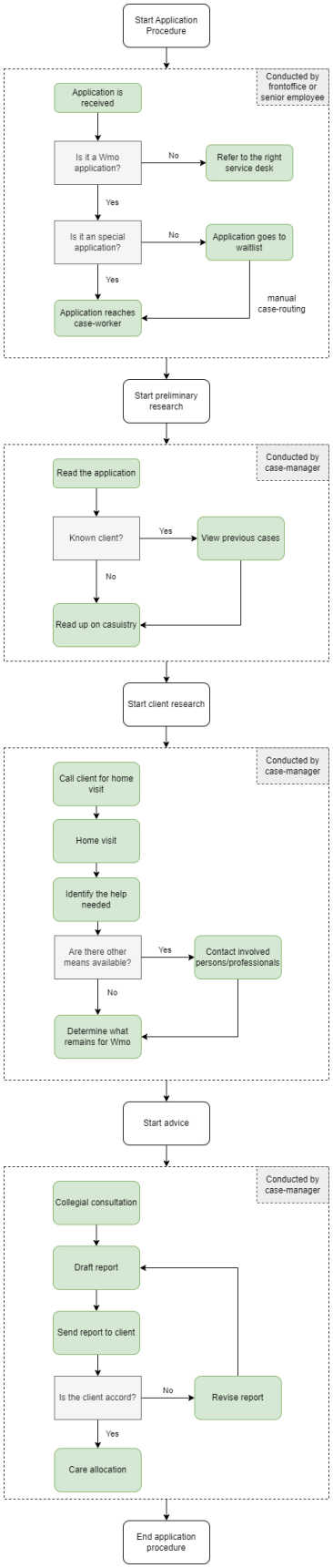

Figure 6.9: Wmo Application Steps

6.2.6. Wmo Purpose Fulfilled

The final critical success factor that has been identified in our analysis is ”Wmo purpose fulfilled”, see Figure: 6.10. Plainly said, this pertains to whether or not the goals of the Wmo are achieved. Even though the fulfilled purpose was not mentioned as often as the other success factors, we still find it important to highlight it. This factor is crucial as it directly reflects the effectiveness and impact of the Wmo initiatives. The fulfillment of the Wmo's purpose is not just about meeting statutory requirements or administrative benchmarks; it's fundamentally about the tangible improvement in the quality of life for those who rely on these services. Therefore, assessing whether the Wmo goals have been successfully achieved is essential in evaluating the overall success and sustainability of this program.

The Wmo is guided by two fundamental purposes: ”zelfredzaamheid” (self-reliance) and ”maatschappelijke participatie” (social participation). These goals are central to the Wmo's mission, focusing on empowering citizens to manage their own lives and actively participate in society. To accomplish this, the Wmo provides support designed to help individuals achieve these objectives either independently or with some level of government assistance. A key aspect of this approach is the emphasis on enabling people to live in their own homes for as long as possible. By offering tailored support and resources, the Wmo strives to ensure that individuals can maintain their independence and continue to be active, contributing members of their communities, while living comfortably and safely in familiar surroundings.

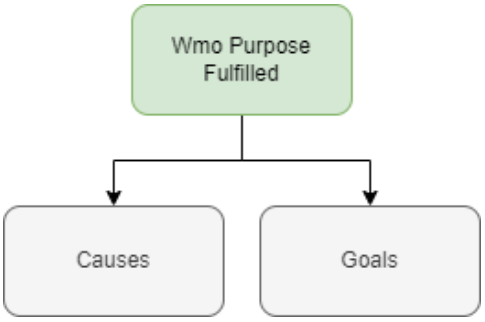

Figure 6.10: Wmo Purpose Fulfilled Aspects

6.3. Artificial Intelligence Implementation Success Factors

As we transition from our comprehensive overview of the Wmo and its operational mechanisms, our focus now shifts to a critical aspect of this case study: the implementation of Artificial Intelligence. Having delved into the workings of the Wmo, it's imperative to understand how AI can be effectively integrated within this framework. In this section, we will report the findings pertaining to the key elements crucial for the successful implementation of AI within the Wmo context. Our investigation has culminated in the identification of a set of five success factors, which can be seen in Figure 6.11. These factors are not only instrumental in guiding the integration of AI but also in ensuring that its deployment aligns with the objectives and operational ethos of the Wmo.

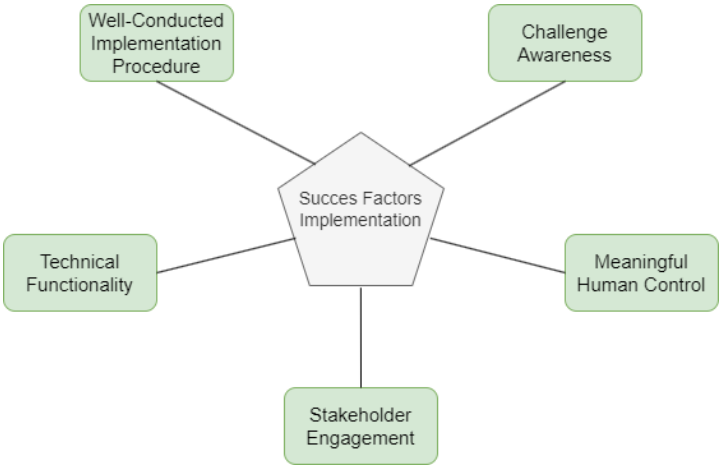

Figure 6.11: Implementation Success Factors

6.3.1. Challenge Awareness

The first success factor we would like to highlight in the context of Artificial Intelligence implementation within the Wmo is ”challenge awareness”, see Figure 6.12 Awareness of challenges emerged as a particularly important factor in comparison to the others. This factor, akin to a critical success factor identified for the Wmo itself, emerged prominently from our research. Throughout the interviews conducted with various stakeholders, a consistent trend was observed, underscoring the significant challenges many municipalities face in their technology implementation processes. Acknowledgment and awareness of these challenges were not only prevalent but also ranked highly in the considerations of our experts. This factor goes beyond merely recognising the existence of obstacles; it involves a deep understanding and frequent discussion of what these challenges entail. The emphasis on challenge awareness underscores the importance of not just identifying problems but also actively engaging with them, which is crucial for the successful integration and utilisation of AI in the Wmo framework.

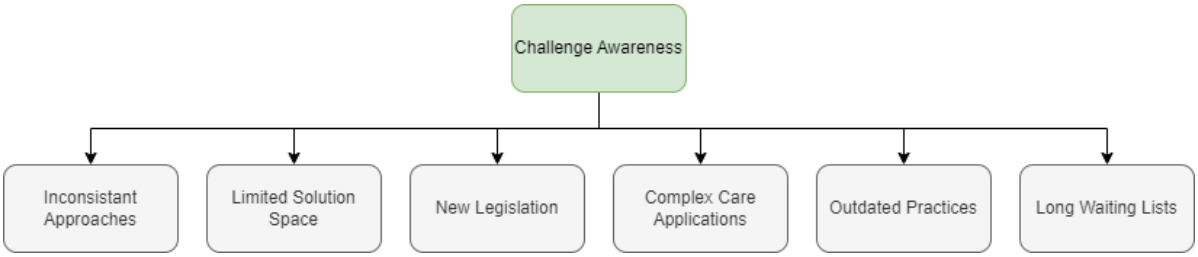

Figure 6.12: Challenge Awareness Aspects

Limited Knowledge

One of the most critical aspects that surfaced during our interviews is the limited knowledge of technology, which encompasses the digital proficiency of both employees and citizens. This finding is significant as it highlights a key barrier to the successful implementation of new technologies within the framework of the Wmo. The digital skill level of employees directly affects their ability to effectively utilise and manage technological tools, while the digital literacy of citizens impacts their capacity to engage with and benefit from these implemented technologies. Therefore, if any technological solution, particularly those involving advanced systems like Artificial Intelligence, were to be implemented successfully, it would necessitate a concerted effort in informing and training both employees and citizens. This approach ensures not only the smooth integration of technology but also its effective and efficient use, thereby maximising the benefits for all stakeholders involved in the Wmo.

Technology

Integrating technology within the Wmo framework presents several challenges with regards to the technology itself, including concerns about privacy, bias, loss of control, and data input. Privacy is a major

concern, as the handling of sensitive data by technological systems must comply with strict data protection and confidentiality standards. Bias in technology, particularly in AI, can lead to unfair outcomes, making it crucial to ensure these systems are equitable and impartial. The potential loss of control is another issue, as increased automation might reduce human oversight, leading to over-reliance on technology. Finally, the effectiveness of these systems heavily depends on the quality and relevance of the data input. Finding accurate and comprehensive data to feed into these models is essential, yet challenging, requiring a balanced approach to maintain ethical and controlled service delivery.

Stakeholder Resistance

Closely tied to the issue of limited knowledge is the phenomenon of stakeholder resistance, which is evident among both citizens and civil servants. For employees, the main concern revolves around skepticism regarding the functionality and reliability of new technologies. There is a prevalent apprehension about whether these technological solutions can adequately meet the complex needs of their work. Additionally, a significant aspect of their resistance is the fear of job loss, fueled by the concern that technology might render certain roles redundant. On the other hand, citizens' resistance primarily stems from concerns about data security, particularly the fear of data leaks, and the opaque nature of advanced technologies, often referred to as the ”black box” issue. Furthermore, there is a notable apprehension among citizens about the potential loss of personal touch in services. This concern highlights the fear that technology, while efficient, may lead to a more impersonal and less empathetic approach to service delivery, which is crucial in the context of social support services like the Wmo. Within the context of challenge awareness, stakeholder resistance was identified by most interviewees as the primary challenge to overcome.

System Safety

System Safety emerges as a significant challenge in the implementation of Artificial Intelligence within municipalities. In this context, where AI is used to enhance services like the Wmo, the complexity of these systems can significantly increase. The risk of human error in interacting with or managing these AI systems is a real concern. Additionally, there's the challenge of overreliance on AI solutions, which can lead to a false sense of security or a decrease in human oversight. Municipalities must navigate these challenges carefully, ensuring that the implementation of AI does not compromise the safety and reliability of the services they provide. This requires a balanced approach that respects the intricate relationship between the technical capabilities of AI and the human elements of municipal services.

Available Resources

Another recurring challenge highlighted in the interviews is the availability of resources, a critical factor in the implementation of new technologies within municipalities, especially in the context of the Wmo. It is clear that municipalities do not have unlimited financial funds or other resources at their disposal. This limitation plays a significant role in decision-making processes, particularly when it comes to investing in technological advancements like Artificial Intelligence. The reality is that if money is allocated to one area within a municipality, it inevitably has to be redirected from another.

Lack of Execution

The final, and frequently mentioned, challenge identified in the interviews is a lack of execution. Many interviewees expressed their frustration with this issue, highlighting a significant gap between planning and action within municipal operations. There is no shortage of ideas, both from bottom-up initiatives and top-down directives, suggesting a vibrant environment for innovation and problem-solving. However, the challenge arises in reaching a consensus on which ideas to implement and then moving forward with execution. This stagnation in decision-making and action is not a novel issue within government structures. It reflects a broader systemic challenge where the abundance of input and the complexity of bureaucratic processes can often lead to paralysis in execution.

6.3.2. Meaningful Human Control

The second success factor identified in our study is ”Meaningful Human Control.” A recurring theme throughout the interviews was the emphasis on the ”people working with people” ethos that is central to the Wmo, see Figure 6.13. This human-centric approach is a cornerstone of the Wmo, reflecting its commitment to personal and empathetic service delivery. However, this raises pertinent questions

when it comes to the implementation of technology, particularly AI, which might threaten to diminish this human element. The concern is that an overreliance on technology could erode the personal touch that is so valued in the Wmo's services. Therefore, clearly defining the extent and nature of human involvement in these technologically enhanced processes has emerged as a crucial consideration. Meaningful human control wasn't immediately evident in the initial round of coding, as it wasn't explicitly mentioned. However, upon a more thorough review, it emerged as a recurring theme within various other statements. Consequently, it was subsequently included in the list of factors.

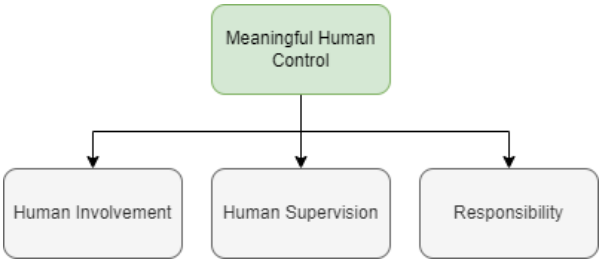

Figure 6.13: Meaningful Human Control Aspects

Human Involvement

The first aspect of human control, as identified by the experts, is the level of human involvement in the process. A consistent viewpoint among many experts is the necessity of maintaining a certain human touch within the operational framework. This human element is not only crucial in terms of the process itself but also in terms of its visibility and perception by all stakeholders involved. For instance, it was emphasised that in services like those provided under the Wmo, citizens should always have the opportunity to interact with humans rather than solely with automated programs or systems. This approach underscores the importance of personal interaction and the human connection in service delivery. Interestingly, none of the experts advocated for fully automated processes; instead, there was a unanimous agreement that humans should always be an integral part of the process.

Human Supervision

When discussing human supervision throughout the process, a clear consensus emerged among the experts: it is essential that individuals overseeing the process have the ability to override the technology when necessary. This capability ensures that human judgment remains paramount, especially in situations where the technology may not align with the nuanced needs of a particular case or scenario. Furthermore, the implementation of end-stage quality checks was highlighted as a critical measure. These checks are designed to catch any mistakes or oversights that might occur during the automated parts of the process.

Responsibility

The final aspect of meaningful human control that we would like to emphasise is responsibility. According to the experts, it is paramount that humans retain full responsibility and have the final say in every decision made within the Wmo framework at all times. This principle ensures that while technology can be leveraged for its efficiency and capabilities, it remains fundamentally a support function. The responsibility for decisions, particularly those impacting the lives and well-being of citizens, should always rest with human professionals.

6.3.3. Stakeholder Engagement

The third Success Factor identified from our interviews is "Stakeholder Engagement." While we briefly touched upon this in the context of the challenge of lack of decision-making, it encompasses much more as can seen in Figure: 6.14. In governmental processes, especially in initiatives like the Wmo, operations do not exist in isolation; they require a comprehensive approach involving cooperation and support from all sides. Effective stakeholder engagement is crucial in ensuring that the diverse needs and perspectives of all parties involved are considered and addressed. This includes not just the immediate users and providers of the service but also other entities within the government, external partners, and the community at large.

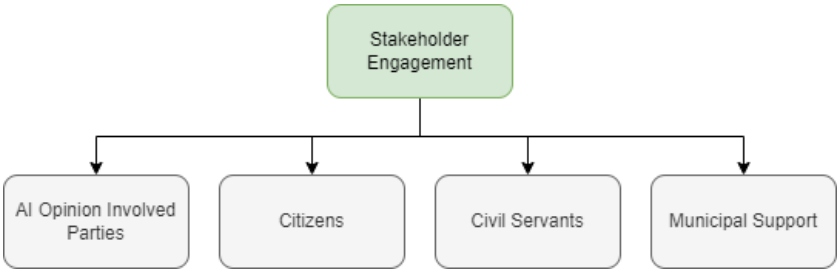

Figure 6.14: Stakeholder Engagement Aspects

Citizens

The first group of stakeholders we need to discuss in the context of ”Stakeholder Engagement” within the Wmo are the citizens themselves. Their perspectives and opinions are of paramount importance, primarily because they are the ones who experience the direct consequences of any changes or implementations within the Wmo. Experts have pointed out that involving citizens in the implementation process is not just beneficial but essential. Typically, citizens may not be deeply involved in the nuances of such processes unless they are directly and negatively affected. In scenarios where their lives are impacted, they often desire to know every little detail and have a say in the matter. This tendency underscores the need for proactive engagement with citizens, not only as a reactive measure to dissent or concerns but as an integral part of the implementation process.

Civil Servants

The second crucial group of stakeholders in the context of the Wmo are the civil servants. Their willingness to adapt and engage with new technologies plays a pivotal role in the successful implementation of these systems. As previously mentioned, one of the significant challenges is the limited technological knowledge among civil servants, which necessitates extensive training. Beyond training, however, there is a fundamental need for these individuals to trust the technology they are using. Trust is a critical component; without it, even the most sophisticated systems can fail to deliver their intended benefits.

An illustrative example shared by one of the interviewees highlights this issue. In a particular municipality, a program was implemented to scan documents to verify if they were signed. Despite its potential to streamline processes, the employees did not trust the program’s accuracy and began to double-check every document manually. This lack of trust not only negated the efficiency gains the technology was supposed to provide but also led to increased workload for the staff. Ultimately, this mistrust and the resultant inefficiency contributed to the discontinuation of the technology. This example underscores the importance of not just equipping civil servants with the necessary tools and training but also fostering a culture of trust and confidence in the technology they are expected to use.

Municipal Support

The final aspect of stakeholder engagement that warrants attention is the support from the municipal authorities. Undoubtedly, municipal support emerged as the most critical aspect of stakeholder engagement. Their role is vital in the decision-making processes that govern the implementation of initiatives like the Wmo. As highlighted by the experts, successful implementation requires a harmonious blend of both bottom-up and top-down initiatives. This means that while grassroots input and innovation are crucial, they need to be effectively aligned with the broader strategic objectives and directives from the top levels of municipal governance.

Another important aspect is government coercion. Programs like the Wmo rarely operate in isolation; they are often interlinked with various other branches and functions of the municipality. Therefore, it’s essential that these other branches are not only aware of but also supportive of the Wmo’s objectives and the technological implementations it undertakes. This interdepartmental support and collaboration are key to ensuring that the initiatives are not only well-conceived and planned but also effectively integrated into the broader municipal ecosystem.

6.3.4. Technical Functionality

The next Success Factor we wish to address is the Technical Functionality of the specific technology or system that is being considered for implementation within the Wmo framework. Up to this point,

our discussion has largely revolved around external aspects of implementation, such as stakeholder engagement, human control, and resource availability. However, the intrinsic functionality of the technology itself is equally crucial. It's imperative that any technological solution introduced into the Wmo not only aligns with the program's objectives but also operates effectively and reliably within its intended environment. A clear overview is displayed in Figure: 6.15.

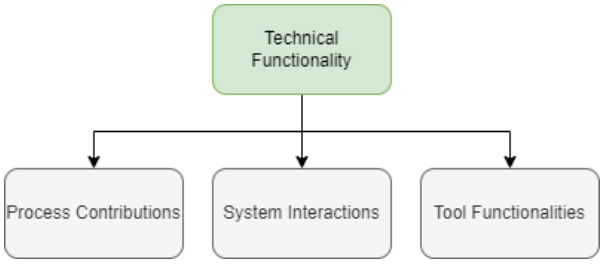

Figure 6.15: Technology Functionality Aspects

Process Contributions

One critical aspect of the technical functionality of any technology implemented within the Wmo is its contribution to the overall process, particularly in terms of enhancing efficiency and speed. Experts have set a clear bottom line regarding these contributions: the technology must not only expedite processes but also do so with a higher degree of accuracy than human operators. The rationale is straightforward—if a technological solution cannot outperform human efforts in terms of speed and error margin, its implementation is called into question. Why integrate a new system if it doesn't bring tangible improvements in efficiency or accuracy? Another vital point raised by the experts is the impact of technology on employee workload. A key expectation from any technological implementation is the reduction of the workload on staff. Meaning that they would have more time for the so called "maatwerk" that is paramount to the Wmo. Interviewees emphatically stated that the contributions to the process are a crucial element within the technical functionality of the tool.

System Interactions

The next critical point in assessing the technical functionality of technology implementations within the Wmo is System Interactions. As previously discussed, system safety plays a crucial role here, particularly in identifying and addressing emergent problems that arise from the interaction of new technologies with existing systems. A frequently emphasised 'must-have' for any new system is a high level of compatibility with the current systems already in use within the municipality. This compatibility is essential to ensure smooth integration and to avoid disruptions in existing workflows. Additionally, this point ties in closely with the challenge of navigating the 'system jungle' – a term used to describe the complex landscape of numerous different systems currently operational within many municipalities. Therefore, a key aspect of technical functionality is not just how well a new system operates in isolation, but how effectively it can be integrated into the existing technological ecosystem, enhancing overall efficiency without adding to the complexity or reducing the navigability of the system landscape.

Tool Functionalities

The final aspect of technical functionalities that we need to consider pertains to the functionalities of the tool itself, as highlighted in our interviews. A broad range of functionalities was mentioned, but we will focus on the key ones that stand out as particularly critical. First and foremost is Data Protection. Given the sensitive nature of the information handled by the Wmo, any technological tool must have robust data protection capabilities to ensure the security and confidentiality of personal data. Transparency is another essential functionality. The tools used should be transparent in their operations, allowing for easy understanding and trust among both the employees and the citizens they serve. Lastly, the importance of frequent updates cannot be overstated. Technology evolves rapidly, and the tools used by the Wmo must be regularly updated to stay effective, secure, and compatible with other systems.

6.3.5. Well-Conducted Implementation Procedure

The final success factor we wish to discuss, see Figure: 6.16 is the importance of a "well-conducted Implementation procedure" in the context of integrating new technologies within the Wmo framework.

Throughout our interviews, it became increasingly clear that for a successful implementation, municipalities must adhere to a specific set of steps. These steps are not just about the technical aspects of implementation but also encompass strategic planning, stakeholder engagement, training, and continuous evaluation. Moreover, beyond the procedural steps, there is a crucial need for a certain mindset. This mindset involves iterative approach and good awareness of the outcome. It's about understanding that implementation is not a one-off event but an ongoing process that requires attention, flexibility, and resilience.

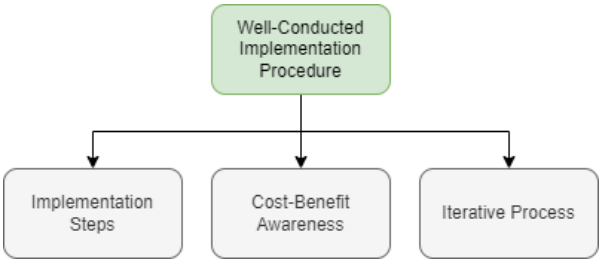

Figure 6.16: Well-Conducted Implementation Procedure Aspects

Implementation Steps

As we delve into the most frequently mentioned steps in the implementation process, it's clear that certain stages are pivotal for success. A critical step that was often highlighted is the 'needs assessment.' This step involves thoroughly understanding and defining the problem at hand. As many experts pointed out, knowing precisely what your problem is constitutes half of the solution. This clarity guides the entire implementation process, ensuring that solutions are tailored to address specific needs effectively.

Another key step is 'tool selection.' Once the needs are clearly defined, choosing the right technological tool or system becomes crucial. This selection must align with the identified needs and integrate seamlessly with existing systems and processes.

'Data collection' was also emphasised as a vital step. The quality and relevance of the data collected significantly influence the effectiveness of the technology being implemented. Accurate and comprehensive data is foundational for any successful technological solution.

Lastly, the 'training of employees' is indispensable. The introduction of new technology requires that employees are not only familiar with how to use the new tools but also understand their purpose and potential impact. Effective training ensures that employees are competent and confident in using the technology, which is essential for the smooth operation and acceptance of new systems.

Cost-Benefit Awareness

Another integral part of the implementation steps, which emerged as a crucial consideration, is 'cost-benefit awareness.' This step is conducted before delving into the actual implementation procedure and involves a thorough analysis of the expected benefits in relation to the costs involved. Given that resources are limited, this step is not just a formality but a necessity, as emphasised by multiple experts. It's essential for municipalities to have a clear understanding of the financial, time, and resource investments required for the implementation of new technology and to weigh these against the anticipated benefits. This analysis ensures that the value of the changes or improvements brought about by the technology justifies the expenditure and effort involved. In essence, the benefits of the proposed change must significantly outweigh the costs.

Iterative Process

The iterative nature of our processes emerged as a key theme, highlighted by the necessity to continually revisit and refine steps. This approach, emphasized by experts, is not just beneficial but essential for adapting to change and enhancing effectiveness. Iteration allows for a more fluid progression, integrating feedback and learning continuously, which contrasts with rigid, linear methods. Embracing this cyclical process of revisiting and revising is crucial for maintaining dynamism and responsiveness in complex environments.

7

Comparative Analysis and Evaluation

In this chapter, we look at the integration of our new findings from the previous chapter with the insights gleaned from our review of existing literature. The quotes we use to underline the insights are translations from the original statements. This synthesis is crucial, as it enables us to form a more comprehensive and nuanced understanding of our topic. By combining the practical insights obtained from our interviews with the theoretical knowledge derived from the literature, we aim to present a well-rounded perspective of our research area.

Additionally, we will conclude our DSR method with the evaluation of our artifact, the defined success factors. This synthesis is aimed at drawing informed conclusions about the critical success factors. Through this synthesis, we seek to deepen our understanding of the subject matter and make a meaningful contribution to the ongoing discourse regarding the efficacy of such social support systems.

7.1. Wmo Success Factors

We are now set to definitively outline the first set of success factors, focusing specifically on those derived from the Wmo procedure.

7.1.1. Comparative Analysis

For each success factor identified through our abductive coding analysis, we will undertake a thorough assessment to establish additional grounding within the existing literature. This process will not only reinforce the validity of each success factor but also ensure a comprehensive understanding of their roles and implications. Furthermore, we will critically examine and discuss any discrepancies or gaps that may exist between our analysis and the literature, exploring the reasons behind these differences.

Challenge Awareness

Within the scope of challenge awareness, the primary aspects identified were the complexity of care applications, long waiting times, and the limited space for solutions. These issues have already been acknowledged as known problems in multiple interviews. *"[Interviewee 3]: That is indeed a national problem, but it's no different with us, so people have to wait a long time, sometimes ending up on a waiting list."*section 2.4 of our literature study. Furthermore, Sobrino-García (2021) revealed a general trend of governments lagging due to lack of synergy and strategy in technological development, a finding that was corroborated by our interviewees. *[Interviewee 2]: "The municipality is somewhat behind when it comes to digitalisation and such, compared to the business sector."*Interestingly, one challenge that emerged from the interviews but was not highlighted in the literature review was the potential inconsistencies among employees, which could adversely affect citizens. *[Interviewee 4]: "So it can still be quite different in terms of what a resident receives with the consultant who is assigned to it."* Alkhatib and Bernstein (2019) mentioned that street level street-level bureaucrats possess the ability to reflexively modify their approach, but did not touch upon the possible different outcomes this may cause. Given its relevance, we have decided to include this in our final list of challenges.

On the other hand, a challenge frequently mentioned trough out our case study, but less so in the interviews relates to the immense pressure on municipal employees, who are often operating under

resource constraints. Despite this discrepancy, challenge awareness has consistently been recognised as an important success factor in both our literature review and interview analysis. This underscores its significance in understanding and addressing the hurdles faced in the implementation and operation of municipal services.

Citizen Satisfaction

Citizen satisfaction has emerged as a significant theme both in our literature research and the interviews, albeit with nuanced differences in perspective. In government publications from Ministerie van Volksgezondheid (2023), citizen satisfaction is closely tied to the core objectives of the Wmo. It underscores the real essence of the Wmo's endeavors, which is the impact on the everyday lives of citizens—the individuals who experience the direct outcomes of decisions made. They portrays citizen satisfaction as an integral aspect of achieving the Wmo's goals, which include promoting social participation, self-reliance, and well-being among citizens.

However, the interviews provided a slightly different angle, shifting the focus from the municipal perspective to that of the citizens themselves. This shift revealed the citizens' own perceptions, including their appreciations and criticisms of the Wmo, as discussed in the previous chapter. It highlighted their views on and interactions with the Wmo's procedures, offering a more personal and direct insight into their experiences. *"[Interviewee 3]: Oh, well, in any case, that's not what they are after. What they found very important was that they received clarity in a timely manner and very clearly."*

Initially, based on the literature alone, citizen satisfaction could be considered a part of the success factor "Wmo purpose fulfilled." Yet, with the insights gained from the interviews, it might be wise to treat them as distinct factors. This decision stems from the realisation that the Wmo's purpose, from a citizen's viewpoint, transcends merely receiving the requested help. Their primary concern is about being heard and supported, a critical aspect that surfaced predominantly in the interviews. This distinction is important as it emphasises that while fulfilling the Wmo's objectives is important, understanding and addressing the individual needs and perceptions of citizens is equally crucial.

Continuous Improvement

Throughout our literature research, the theme of wanting to improve various processes within the Wmo framework was consistently evident. In fact, in Chapter 2, we explicitly stated that the desire to enhance processes, such as the decision-making of civil servants, is a driving force behind this thesis. However, an interesting discrepancy we observed is the relative absence of discussion around the day-to-day operational aspects that require improvement in the existing literature on the Wmo. The legislation and available operation from BZK (2019) only provides a high level description. These operational details, while not prominently featured in the literature, did surface in the interviews we conducted. *"[Interviewee 7] We have just recently decided that we are all going to make calls using Microsoft Teams, so we no longer have phones."* This highlights a gap between the theoretical discourse and the practical realities faced on the ground. Despite this, the concept of Continuous Improvement has firmly established itself as a crucial success factor in our analysis. This factor underscores the need for ongoing refinement and enhancement of processes, not just at a strategic or policy level, but also in the everyday operational activities that directly impact the effectiveness of the Wmo.

Personnel Competencies

Personnel Competencies are encapsulated in the concept of 'street-level bureaucracy', as highlighted by Buffat (2015) and Lipsky (2010). Street-level bureaucrats are defined as public service workers who frequently engage in direct interactions with residents. They possess a significant degree of discretion in their roles, particularly in how they assess individuals and make decisions. This description aligns closely with the operational dynamics of the Wmo, where such face-to-face interactions and discretionary decision-making are commonplace.

In our interviews, these additional soft skills, crucial for effective street-level bureaucracy, were also emphasised, underlining their importance in ensuring a successful procedure within the Wmo framework. *[Interviewee 4]: "Of course, it's possible that a resident comes in with one question, but when you visit their home, you see, smell, and hear a tremendous amount."*

Interestingly, an aspect that was not explicitly covered by Buffat (2015) and Lipsky (2010) on civil servant decision-making is the collaboration between coworkers. While one might argue that effective

collaboration is an inherent expectation and thus not always explicitly mentioned, our interviews revealed that it is, in fact, a critical component. The importance of collaboration among colleagues was consistently highlighted by interviewees as a key factor in the smooth functioning of the Wmo.

Therefore, Personal Competencies, encompassing both individual skills and collaborative efforts, remain a vital success factor. They not only contribute to the efficiency and effectiveness of the Wmo's processes but also significantly impact the quality of service delivery and the satisfaction of the citizens served.

Well-Conducted Procedure

Fixsen (2005) and Meyers et al. (2012) discuss a understanding of the critical steps of the implementation process on a relatively high level. The procedure within the Wmo framework has been extensively described by paper such as H. Harrison et al. (2017), Shneiderman (2020), Wiljer et al. (2021), and Xia et al. (2017) and throughout our interview process. The primary distinction between these two sources lies in the level of detail provided. In Chapter 5.1, we offer an overview of the procedure as outlined by our research based on Fixsen (2005) and Meyers et al. (2012), presenting a foundational understanding of its structure and components. This is further expanded in Chapter 7, where we delve into a more detailed and nuanced depiction based on insights gathered from our interviews.

Although it is not always explicitly stated that a well-conducted procedure is crucial, the frequency with which the procedure is referenced implicitly underscores its importance. *"[Interviewee 3] We have worked out the standard times, like, this is approximately how long a home visit takes. This is how long it takes to complete an investigation report."* The repeated mention of various procedural aspects suggests that a well-structured and effectively executed procedure is a key underpinning of success in the Wmo context.

Nevertheless, one expert mentioned that the outcome of the procedure outweighs the importance of the correctness. Stating that it is of higher importance that citizens get the support they need then it is to meticulously follow the rules. *"[Interviewee 5] A client who is satisfied with what comes out of the conversation is our goal, yes. So, it's not about the fact that a provision is being made, but rather that they are satisfied with the support we provide in response to their support request."*

Wmo purpose fulfilled

We've already touched upon the concept of 'Wmo purpose fulfilled' in our discussion of the success factor of citizen satisfaction, where we decided to treat them as distinct elements. BZK (2019) emphasises that the Wmo's key objectives are to foster social participation, self-reliance, and well-being among citizens. It aims to empower people to maintain their independence and lead meaningful lives by providing a range of support and services.

This fundamental purpose of the Wmo was also reflected in the interviews. *"[Interviewee 3] The main goal of the Wmo is self-reliance and social participation. Those are the two main pillars of the Act."* The practical application of the Wmo, as discussed by interviewees, closely aligns with its stated goals. The focus on enabling citizens to live independently and engage actively in their communities was consistently highlighted. This congruence between the Wmo's theoretical objectives and the practical experiences shared in the interviews underscores the importance of achieving these goals, not just in theory but in the real-world impact on citizens' lives.

7.1.2. Expert evaluation Results

Having meticulously compared and contrasted the insights from our interviews with the findings from the literature review, we now approach the final and crucial phase of our analysis: the expert evaluation. As detailed in Section 7.1.3, this stage involves presenting our results to a new panel of two experts, each carefully chosen for their specific expertise and roles within the decision-making process as teamleader and decision analyst. These experts, with their deep understanding and extensive experience in the field, are uniquely positioned to provide valuable perspectives and nuanced assessments of our findings. This evaluation serves as a final step in ensuring a comprehensive and well-rounded conclusion to our analytical journey.

Ranking Success Factors

Figure 7.1 in our report presents a curated set of success factors that were showcased to the experts. Notably, 'Technology Investment' and 'Affordable Adequacy' were introduced as hypothetical factors,

crafted based on their perceived relevance during the interview process. These factors, although not originally part of the set, were integrated under the broader categories of 'challenge awareness' and 'continuous improvement' as explained in section 7.2.

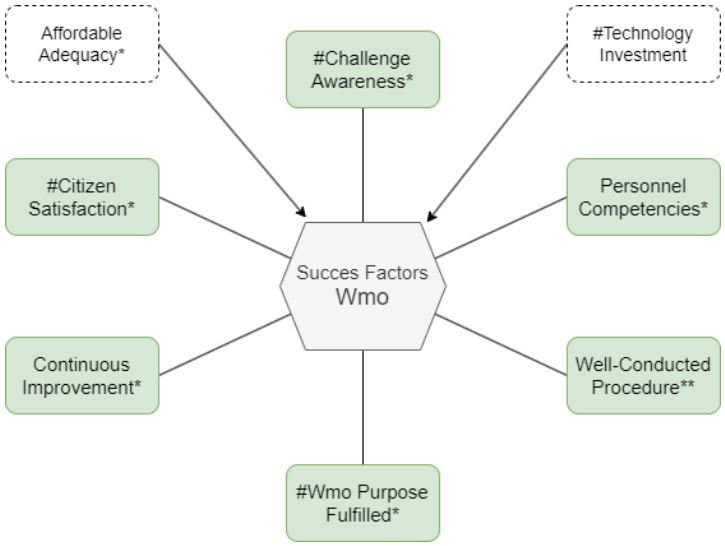

Figure 7.1: Wmo Evaluation Success Factors

The first query directed at the experts pertained to the success factors they routinely utilise in their professional activities. The factors identified as integral to their daily work are marked with an asterisk (*) in the figure. Two asterisks entails multiple mentions by the expert, this only occurred with the 'well-conducted procedure' factor. This exercise validated all our key factors as critical for success. 'Affordable Adequacy' was also mentioned by one of the experts as a factor that they dealt with on a daily basis. Nevertheless, the lack of overlap between the experts suggests that there is no consensus on what a decision maker should prioritise.

Subsequently, the experts were requested to identify two success factors that they considered less critical, in the hypothetical scenario where some factors had to be omitted. The factors selected for potential exclusion are indicated with a hashtag (#) in the accompanying figure. This aspect of the study yielded particularly fascinating insights, as there was no consensus among the experts regarding which factors were less essential. Remarkably, they each identified the routinely used success factors used by their peers as the least relevant.

A notable instance of this divergence in opinions was observed in the case of 'challenge awareness'. One expert expressed the view that this factor is inherently a component of a well-executed procedure, thereby diminishing its significance as a standalone success factor. In contrast, they emphasised the importance of a 'well-conducted procedure' as a critical success factor (CSF). Similarly, 'Citizen satisfaction' and 'Wmo purpose fulfilled' were both highlighted and dismissed by different experts. This dichotomy might stem from our previous debate on whether these should be considered distinct CSFs. The experts' choices to include and exclude one or the other suggest a belief that these factors are interrelated and perhaps should not be treated as separate entities. Therefor we decided to combine these into one overarching CSF: 'Citizen-Centric Outcome'

Missing Factors

In the final part of our inquiry, we aimed to identify any critical factors that might have been overlooked in our initial list. The experts pointed out two significant factors that frequently arise in their professional activities: 'availability of personnel' and the need to 'ensure consistency'.

The issue of personnel availability had also surfaced in our interviews. Initially, we had categorised it under the broader umbrella of 'challenge awareness'. The feedback from the experts not only reinforces the relevance of 'challenge awareness' as a critical success factor but also enriches our understanding of the practical challenges encountered in the implementation of the Wmo. Similarly, the aspect of ensuring consistency was identified. This element is encompassed within our defined critical success factor 'challenge awareness'.

Consequently, both of these identified factors were already integrated. They were recognised as integral parts of the already defined success factors, thereby enhancing the comprehensiveness and applicability of our research findings.

7.2. Artificial Implementation Success Factors

We are now set to definitively outline the first set of success factors, focusing specifically on those derived from the implementation procedure.

7.2.1. Comparative Analysis

For each success factor identified through our abductive coding analysis, we will undertake a thorough assessment to establish additional grounding within the existing literature. This process will not only reinforce the validity of each success factor but also ensure a comprehensive understanding of their roles and implications. Furthermore, we will critically examine and discuss any discrepancies or gaps that may exist between our analysis and the literature, exploring the reasons behind these differences.

Challenge Awareness

The overarching theme in the research by Engstrom et al. (2020) and Veale and Brass (2019) was the challenge of implementing AI within government settings. This theme was echoed in our interviews, where 'challenge awareness' emerged as a frequently mentioned factor, particularly in the context of AI implementation. This consistent emphasis across both literature and interviews firmly establishes 'challenge awareness' as a critical success factor.

In the interviews, stakeholder resistance was identified as the most significant challenge, a finding that aligns with the literature. *"[Interviewee 12] Experience teaches us that they are often skeptical in such areas."* However, Kaplan and Haenlein (2020) also highlighted ethical concerns related to bias and the handling of personal data as primary challenges, which differed from the interview responses. This variance in perceived importance could be attributed to our specific use case of AI in case routing. In this context, ethical implications are less pronounced because AI's role is limited to routing rather than making substantial decisions. Furthermore, issues like misrouting are not typically viewed as ethical challenges. *"[Interviewee 7] And then there is no problem at all to pass that request on to the right person, it just happens naturally.*

Another notable difference is the limited mention of 'System Safety' by the experts. System Safety is concerned with emergent risks in the context of sociotechnical dynamics by Dobbe (2022a) and Leveson (2016). While experts acknowledged both social and technical challenges separately, there was no unified perspective on this aspect. Despite these differences, 'challenge awareness' consistently emerged in various forms, reinforcing its value as a significant success factor.

Meaningful Human Control

As we previously noted, 'Meaningful Human Control' did not initially stand out in our coding process, as it wasn't directly mentioned. However, a more in-depth analysis revealed its presence as a recurring theme interwoven within various other statements. *"[Interviewee 2] Yes, we work with People for People."* This led to its inclusion in our list of success factors.

In our risk analysis from section 6.1, we touched upon 'Meaningful Human Control' in different contexts. One such context involved the discussion of operator error as a potential risk. More prominently, however, the concept was explored in relation to responsibility. *[Interviewee 8] So in the end, I think who's accountable, accountable for decisions is always a human and not a model."* The need for clear delineation of responsibility emerged as a recurring theme with Kaplan and Haenlein (2020).

This emphasis on responsibility, coupled with the indirect references found in the interviews, underscores the importance of 'Meaningful Human Control' as a success factor. It highlights the necessity of not only having human oversight in AI systems but also ensuring that this oversight is clearly defined and responsibly executed. The convergence of insights from both the literature and the interviews solidifies the significance of this factor, affirming its critical role in the successful implementation and operation of AI systems within organisational contexts.

Stakeholder Engagement

In our initial literature review, the concept of 'Municipal Support' was identified under the broader term of 'governmental support'. Scholars, such as Veale and Brass (2019) consistently recognise the im-

portance of public authority backing for successful implementation across various departments. This support is not just about endorsement but also encompasses the essence of participatory and responsible decision-making, which is crucial for the legitimacy and effectiveness of any implementation.

This theme was also mirrored in our interviews. *"[Interviewee 9] And that it is also difficult to really get those people involved and of course, you need them too."* The reflections and insights from these discussions reinforced the notion that municipal support is not merely a facilitator but a fundamental requirement for successful implementation. The interviews highlighted that for any new policy, program, or technology to be effectively integrated and accepted within a municipal framework, there must be a solid foundation of support from the governing bodies.

The alignment between the literature and the interview findings on this point underscores the critical role of municipal support. It's clear that without the backing and active involvement of public authorities, efforts to implement new initiatives, especially those involving complex changes or new technologies, are likely to face significant challenges. *"[Interviewee 3]: You keep encountering the situation where there's a 'top dog' who needs to make a decisive move or call the shots."* This consensus across both academic research and practical insights solidifies 'Municipal Support' as a key success factor in the realm of public sector implementation.

Technical Functionality

In our literature review, we delved deeply into the potential benefits of case routing, highlighting its capacity to transform administrative processes. The key advantages identified by Henkel et al. (2015) were enhanced efficiency, accuracy, and a stronger focus on citizen-centricity. Additionally, Henkel et al. (2014) emphasised the importance of refining administrative processes, aligning with the goal of making them more effective and responsive to citizen needs.

These benefits directly correspond to the 'Technical Functionality' aspects discussed in the interviews, which included process contributions, system interactions, and the specific functionalities of the tools used. A significant advantage of leveraging technical functionality in case routing is the reduction of the administrative workload. This, in turn, allows civil servants to allocate more time to direct interactions with citizens, thereby enhancing the quality of service and support provided. *"[Interviewee 3] Well, what I think will be a huge added value is that it actually relieves the seniors so that they can focus on the development of quality standards in the department."*

The convergence of insights from both the literature and the expert interviews firmly establishes 'Technical Functionality' as a crucial success factor. By facilitating a part of the routing workload through technical means, not only are administrative processes optimised, but the overall citizen experience is also significantly improved. This dual benefit, as confirmed by both academic research and practical experiences, underscores the importance of tpechnical functionality in the successful implementation and operation of case routing systems. It highlights how the right technological tools can lead to more efficient processes and, crucially, a more citizen-focused approach in public administration.

Well-Conducted Implementation Procedure

In section 4.4 of our study, we meticulously outlined a step-by-step implementation process, drawing from Fixsen (2005) and Meyers et al. (2012), to construct a comprehensive framework. This framework was subsequently validated, to an extent, by our interview findings. Each step of the process we identified was referenced at least once in the interviews, affirming their relevance and applicability. However, it's noteworthy that steps 5 and 7 received relatively less emphasis compared to the others.

A notable divergence between the literature and the interview insights was the emergence of an additional step: cost-benefit awareness. While this aspect was acknowledged in the literature, it wasn't explicitly framed as a distinct step in the implementation process earlier defined. In contrast, the interviews highlighted cost-benefit awareness as a critical consideration, suggesting its importance in the practical application of the implementation process. *"[Interviewee 4] Well, there are always shortages, especially in recent times, so to make those kinds of efficiency improvements a very good cost-benefit analysis must be conducted."*

Despite these variations in the scope and emphasis of the implementation steps between the literature and the interviews, the overall relevance of these steps remains undisputed. The alignment on most steps and the additional insights from the interviews enrich our understanding of the implementation process. They underscore the complexity and multifaceted nature of implementing new initiatives,

particularly in the context of public administration. This comprehensive view, blending theoretical frameworks with practical experiences, reinforces the importance of a well-structured and thoughtfully considered approach to implementation, one that is adaptable and responsive to the nuances of real-world scenarios.

7.2.2. Expert Evaluation Results

Building upon the methodology we employed for the Wmo Critical Success Factors, this section will delve into our expert evaluation process for the AI Implementation CSFs. As outlined in Section 7.1.3, this phase of our research involves presenting the collated results from our initial analysis to a newly assembled panel of three experts. Each member of this panel has been meticulously selected based on their specific expertise and influential roles within the decision-making hierarchy in the realm of AI implementation.

Ranking Success Factors

Figure 7.2 in our report presents a curated set of success factors that were showcased to the experts. Notably, 'Public Education' and 'System Safety' were introduced as hypothetical factors, crafted based on their perceived relevance during the interview process and our literature results. These factors, although not originally part of the set, were integrated under the broader categories of 'challenge awareness' and 'stakeholder engagement'.

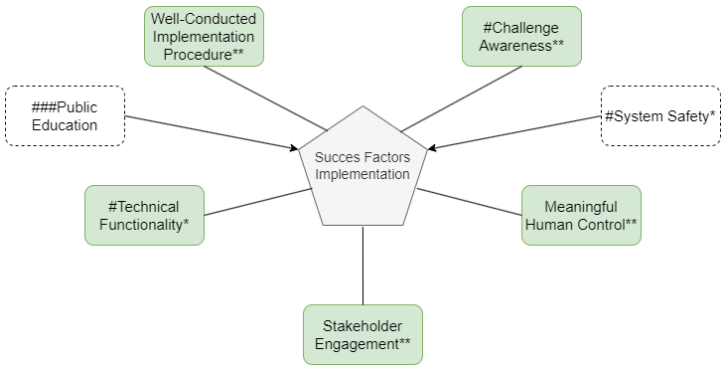

Figure 7.2: Evaluation Implementation Success Factors

In our initial query to the experts, we focused on identifying the success factors they regularly employ in their professional roles. The factors deemed essential for daily operations were marked with an asterisk (*) in the accompanying Figure 7.2. A double asterisk (**) indicates factors that were mentioned multiple times by the experts, a trend observed with nearly all the initially identified CSFs. The notable exception was 'technical functionality', which only received a single mention as an important daily factor. This could be attributed to the trend in municipalities to outsource tool development, thereby making its functionality less of a municipal responsibility and a less frequent concern in their daily activities.

Following this, the experts were asked to pinpoint two success factors they deemed less critical, assuming some had to be omitted. The factors considered for exclusion are marked with a hashtag (#) in the figure. Interestingly, all three experts agreed on 'public education' as a non-critical factor, aligning with our previous findings about its relative unimportance. The other factors identified as less critical varied more, with each expert considering the daily success factors relied upon by their peers as the least relevant.

A particularly intriguing case is 'technical functionality', which was marked as both critical and non-critical. This aligns with our earlier observation about the plausibility of its reduced importance due to the outsourcing of tool development by municipalities. It's important to note that this doesn't diminish its overall importance, but rather indicates a shift in responsibility away from the municipality.

'Challenge awareness' was another factor viewed differently by the experts. One interviewee suggested it was optional, echoing our earlier discussion that it is more a component of a well-executed procedure than a standalone success factor.

Lastly, there was a divergence of opinion regarding 'system safety', which falls under 'challenge awareness' in our CSF framework. One expert deemed it unnecessary, while another highlighted its

importance, especially in addressing the socio-technical challenges that emerge with technology implementation. This difference in viewpoints underscores the complexity and subjectivity involved in determining the criticality of various success factors.

Missing Factors

In the concluding phase of our inquiry, our objective was to uncover any potentially overlooked critical factors in our initial compilation. The experts brought to light additional significant factors that they regularly encounter in their work: 'cost-benefit analysis', 'user acceptance', and 'actor alignment'.

Interestingly, each of these newly identified factors was already encompassed within our existing Critical Success Factors. Specifically, 'cost-benefit analysis' falls under the broader category of 'well-conducted implementation procedure'. Similarly, both 'user acceptance' and 'actor alignment' are components of 'stakeholder engagement'. This revelation highlighted a gap in our initial presentation of the CSFs, indicating that we hadn't sufficiently clarified the origins and dimensions of the CSFs to prevent these redundant mentions.

As a result, we took steps to more explicitly integrate these factors into our framework. By doing so, we ensured that these elements were clearly recognised as fundamental parts of the pre-established success factors. This refinement not only enhanced the thoroughness of our research but also improved the practical relevance and clarity of our findings, ensuring a more comprehensive understanding of the CSFs in our study.

8

Conclusion & Discussion

What are the critical success factors that can be used to evaluate the implementation of AI case routing tools in a repetitive civil servant decision-making process such as welfare benefits allocation?

In the final chapter of our thesis, we will bring together our research efforts, concluding with a presentation of our findings and the definitive set of Critical Success Factors we have identified. This chapter is not only a summary of our work but also the point where we try to synthesise our insights into a coherent and actionable framework specifically tailored to AI case routing in a welfare benefits allocation context.

Our research offers added value to the domain in several ways. Firstly, we employed design science research methodology, ensuring a systematic and rigorous approach to our study. Additionally, our research was enriched by expert knowledge, complementing the insights gained from existing literature, including grey literature. This methodology was specifically tailored to focus on AI case routing for welfare benefits allocation, addressing a critical need in public sector efficiency. By integrating these diverse sources of knowledge, our framework holds value for this specific niche and has the potential to serve as a foundational starting point for similar applications in other cases.

8.1. Dynamics of AI Deployment in Local Governance

The integration of AI decision support systems in local government is a complex and context-sensitive endeavor, requiring bespoke strategies for each unique scenario. Our research and expert insights have led to the development of a specialized framework, particularly effective in addressing the repetitive decision-making challenges faced by civil servants.

The implementation process, as depicted in Figure 8.1, should be interpreted as a flexible guide rather than a rigid blueprint. AI implementation is inherently variable and dynamic, emphasizing an iterative approach over a linear one. Success in this context is measured by the ability to meet specific objectives identified in the initial assessment phase, such as enhancing efficiency and accuracy in case routing for welfare benefits.

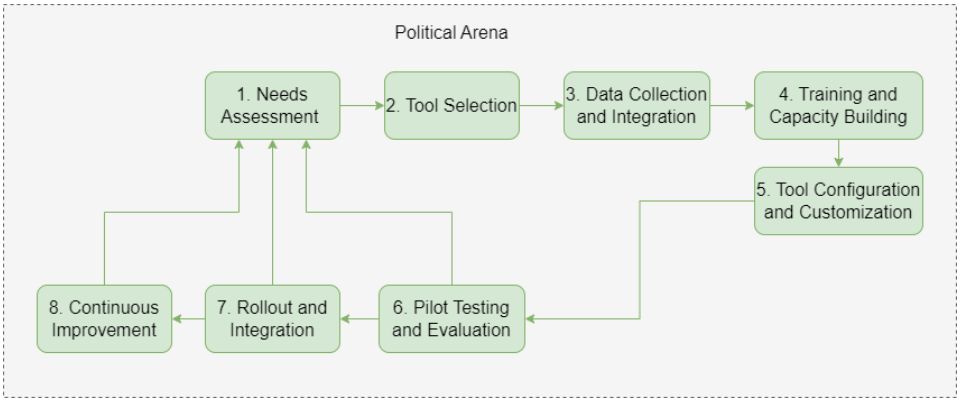

Figure 8.1: Implementation Process

The complexity of integrating AI into case sorting within local government decision-making stems from the interplay between various regulatory frameworks, like those of the EU, and the individualized strategies of local administrations, exemplified by the Municipality of The Hague. This integration has significant implications for citizens, who are the end recipients of these AI-driven decisions, highlighting the vital role of street-level bureaucrats in bridging the gap between technology and humanity.

We explored the potential benefits of AI in governmental operations, particularly in the allocation of welfare benefits. AI promises to revolutionize government operations by enhancing efficiency, decision-making capabilities, and financial management. However, the deployment of AI in public sector tasks must be carefully managed to ensure streamlined operations and the development of innovative approaches to public service delivery.

Our research also points to a critical gap in current safety measures for AI case routing. The challenge lies in transforming theoretical strategies into practical, implementable solutions. If the process of ensuring safety becomes excessively complex or diminishes the benefits of AI, it may prompt municipalities to reconsider its application. It's crucial to recognize that not every problem necessitates an AI solution, especially if it introduces disproportionate risks.

8.2. Final Selection Critical Success Factors

In our research, we sought to identify the Critical Success Factors (CFS)that are essential for evaluating the implementation of AI case routing in repetitive civil servant decision-making processes. Our novel study has led to the development of two distinct sets of CSFs. The first set is tailored specifically to the Wmo, focusing on the allocation of welfare benefits. The second set concentrates on the broader aspects of implementing artificial intelligence systems in civil servant decision making processes.

Both sets of CSFs are important to understanding the overall outcome of the implementation process of AI case routing. Focusing solely on the successful implementation of AI case routing would overlook the impact on welfare benefits allocation, while concentrating exclusively on the WBA success factors would provide limited insight into the implementation process of the AI system. Therefore, our approach integrates these two perspectives to offer a comprehensive evaluation of both the implementation process and its outcomes in the context of civil servant decision-making.

In Figure 8.2, we have presented the two sets of Critical Success Factors in a Venn diagram to facilitate their interpretation. During our analysis, we observed that 'well-conducted procedure' and 'challenge awareness' were recurring themes in both sets. To maintain clarity and avoid redundancy in our presentation, these factors have been consolidated in the diagram. However, it's important to note that each of these factors should be considered and evaluated from both the perspective of the Wmo-specific context and the broader AI implementation process. This approach ensures a comprehensive understanding of their impact in the merged CSF framework.

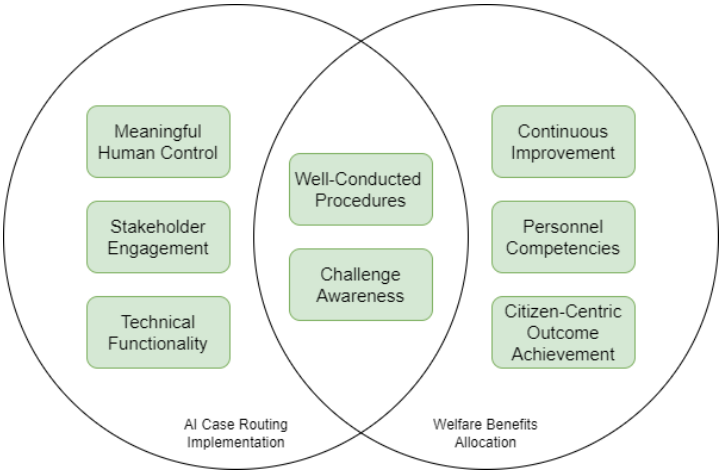

Figure 8.2: Critical Success Factors

We would also like to address the role of continuous improvement within our Critical Success Factors. While it might appear that continuous improvement is also universally applicable, its integration within our CSF framework varies. In the context of AI implementation, continuous improvement is an intrinsic element of a 'well-conducted implementation procedure.' This integration reflects the dynamic nature of AI projects, where iterative refinement is a key part of the process. Conversely, in the context of Welfare Benefits Allocation, continuous improvement is not inherently part of the procedural framework. Therefore, it warrants distinct recognition as a separate factor.

The significance of 'stakeholder engagement' presents a similar scenario. While one could argue its relevance in the context of Welfare Benefits Allocation, its criticality varies depending on the function within the municipality. In our case, for instance, the Wmo operates as a relatively autonomous entity within the municipal structure. Therefore, while stakeholder engagement is undoubtedly important in the broader context, it is not a critical element for the day-to-day functioning of the WBA segment. In contrast, for the implementation of AI systems, 'stakeholder engagement' is essential. It plays a pivotal role in ensuring successful adoption and integration of AI technologies, making it a critical factor for implementation.

8.3. Decision Maker Framework

Our findings could then be integrated into a decision-maker framework. This framework was designed to guide decision-makers on effectively utilising the information and insights derived from our research. It can serve as a strategic tool, aiding them in making informed decisions that align with the identified CSFs, thereby enhancing the likelihood of successful outcomes in their respective domains. We do not claim to hold the answers to these dilemma's.

8.3.1. Dilemma's and Operationalisation

This examination is important, as it offers a grounded perspective on the complexities and subtleties inherent in applying these factors in practical settings. In the public sector, resources are invariably limited and diverse opinions are a common occurrence. *"[interviewee 3] We of course have a financial framework from the Council where we do think, yes, it's nice that the resident doesn't find that so important. But still, we have a scarcity to distribute among each other."* Our goal is to illuminate the potential conflicts and compromises that decision-makers might encounter, thereby providing a nuanced understanding of the realities of implementing these success factors. We will mainly focus on the dilemmas that are not necessarily caused by scarcity in resources, for this is a universal and widely known dilemma.

A key aspect of this complexity is the relationship between CSFs and the decision-makers accountable for them. This adds a layer of intricacy to our framework, as there is often no single function or role responsible for each CSF. In our case study, it became evident that different civil servants were responsible for different sets of CSFs. For instance, the day-to-day and successful operation of the Wmo falls under the purview of team leaders. However, when it comes to the implementation of technology,

these team leaders play a advisory role rather than a decision-making one, leaving the latter to the task managers within the municipality. This division of responsibilities can lead to a unique set of challenges, particularly if each decision-maker has distinct priorities and agendas, potentially leading to a lack of support or collaboration. *"[Interviewee 9] And that it's also difficult to really get those people involved, and you need them of course, because they know what's actually going on."* To mitigate these issues, open and transparent communication is essential. It is imperative that both sets of decision-makers are fully aware of each other's CSFs to avoid unnecessary obstacles and ensure a harmonious and effective working relationship.

Another dilemma lies just beneath the surface of the deployment of these critical success factors. There are contradictions to be found within the CSFs, for example between 'well-conducted procedures' and 'continuous improvement'. The drive to improve can be seen as the drive to change. This drive to change comes in conflict with strong procedures which, by nature, attempt to insert consistency, repeatability and procedural transparency. Continuous improvement has significant potential to disrupt the efficacy of these procedures. It is up to decision-makers to prioritise one or the other, or to find a right balance between the two.

In addition to the above, a notable dilemma within our identified success factors arises between 'citizen-centric outcomes' and 'stakeholder engagement'. While 'citizen-centric outcomes' prioritise the needs and interests of citizens, 'stakeholder engagement' underscores the importance of considering all stakeholders. Balancing these factors is crucial, especially in civil servant decision-making contexts. *"[Interviewee 13] You find yourself right in the middle of the chaos. We have to look up at the processes. We need to look down at the technology. On my left, there's a security man beside me, on my right, there's a privacy woman beside me. They all have their interests, and everything needs to be tied together, which makes it extremely complex and difficult."* While prioritising citizens is paramount, it's equally important to acknowledge and address the concerns and inputs of all other stakeholders involved. This balance ensures that decisions are both community-focused and holistically informed.

The final dilemma we wish to touch upon concerns the technical functionality of the tools being implemented and their impact on the roles of civil servants. Automating tasks inevitably leads to a reduction in manual workload. This raises a critical question: to what extent should technology replace the functions traditionally performed by civil servants? The introduction of artificial intelligence often sparks real concerns among employees about job security. Moreover, in areas of civil service, the human element plays a crucial role. The concept of street-level bureaucracy, which relies on discretion and personal judgment, could lose some of its essential value if significant portions of the work are automated. *"[Interviewee 4] I think AI cannot completely replace the human process, but it can help in support. It can explain why you come to certain choices."* Balancing the efficiency gains from technology with the value of human interaction and discretion in public service is a delicate and essential consideration.

We acknowledge that providing definitive solutions to these dilemmas is beyond the scope of our research, if not impossible. It's important to recognise that such challenges are best addressed within the unique context of each organisation. Understanding the nature of each specific dilemma is a critical part of the resolution process. Our research aims to foster awareness and facilitate a deeper understanding of these issues, empowering to find tailored solutions that align with your organisation's specific needs and circumstances.

8.4. Discussion

Finally, in the discussion we can now touch upon the limitations and less robust aspects of our research. Acknowledging these areas is crucial for maintaining the integrity of our work and setting the stage for future research. We will outline recommendations for subsequent studies, suggesting avenues for further exploration and investigation. This section aims to contribute to the ongoing discourse in the field, paving the way for more in-depth and comprehensive research in the future.

8.4.1. Relevance Cycle

Our research initially aimed to uncover the key elements crucial for implementing artificial intelligence in the public sector. However, under the guidance of Councyl, our focus shifted towards exploring the application of AI in the realm of social welfare benefits within a municipal context. This redirection not only aligned with our original objectives but also infused a business perspective into our study. We

were determined to achieve results that could be operationalised, making this our primary starting point. This approach ensured that our research was not only academically sound but also practically relevant, particularly in enhancing the efficiency and effectiveness of public sector services through AI.

Before delving into the specifics of our research, it was crucial to establish the context. Our initial step, which also formed our first sub-research question, was to understand the nature of an implementation process. Contrary to our initial assumption, defining this process proved to be a complex task. The primary insight we gained was that implementation is an extremely iterative process, which is challenging to characterise into distinct sections. The answers we developed were a general and high-level approach to implementation, where the steps often overlap, are conducted simultaneously, or may even occur in a different order than anticipated. Although we did not find the clear-cut steps we initially sought in our research question, we did identify some steps that generally apply to these types of implementations. This understanding, while not as specific as we hoped, provided a foundational understanding of the fluid and dynamic nature of implementation processes.

After establishing the boundaries of our research, our focus shifted to answering the 'who' question: who are involved and who are impacted within this framework. We conducted an in-depth analysis of the stakeholders to identify and map out the parties involved. Additionally, we took a high-level view of the process and found it to be very citizen-centric. This perspective, however, led us to a realisation: there was limited information on who actually conducts the implementation. In exploring the benefits, particularly in the context of case routing within welfare benefits allocation, we encountered a lack of detailed information. To address this, we attempted to generalise AI benefits from other scenarios or AI applications within the government, such as case routing used in different contexts.

Our plan was to enrich these findings with our own through a case study. However, this took an unexpected turn when the municipality of The Hague decided not to implement case routing for their Wmo application process at the time. Their decision was influenced by their initial investments in the process, having already invested significantly in manual case routing. Despite the potential for improvement through the implementation of BAIT, they chose to wait on a finished model, citing the sunk costs in previous improvement attempts. This decision led to our sub-research question not being completely answered in the way we initially envisioned, highlighting the complexities and real-world challenges in the implementation of AI in public sector processes.

In the third and final sub-research question of our environment phase and relevance cycle, we focused on identifying the risks and challenges associated with the topic. To achieve this, we conducted a system safety analysis. This analysis was systematic, drawing central insights from the field of system safety, with a particular emphasis on the requirements for safeguarding systems that rely on software-based automation. However, it's important to acknowledge that the strategies we identified cannot be straightforwardly applied, as noted by Dobbe (2022a) in their system safety study. The necessary safety measures would need to be designed and tailored to the specific situation. Furthermore, our analysis did not reveal all potential risks. Instead, its primary purpose was to offer a valuable perspective for addressing the issues we had identified. This approach allowed us to gain a deeper understanding of the complexities and potential pitfalls in implementing software-based systems, particularly in the context of our research.

When exploring the challenges associated with our research, we found them to be numerous and varied. Adopting a similar approach to how we handled the benefits, we started with a broad perspective before narrowing down to our specific use case. Unfortunately, this approach led to a similar outcome as before: due to the discontinuation of our case study, we were unable to specifically identify and describe the challenges involved. However, one overarching conclusion we can draw is that the overall challenge of implementation proved too daunting for the municipality of The Hague. This outcome underscores the complexity and potential hurdles that can arise in the practical application of theoretical research, particularly in the context of public sector AI implementation. We don't view this as a hindrance to our research, but rather as an insightful learning experience. It highlights a crucial aspect: despite the promising potential of AI implementation, a municipality may choose to discontinue its use. This decision often stems from the belief that human capabilities are sufficient for tasks such as case routing, underscoring the importance of considering human roles and competencies in the integration of AI solutions.

8.4.2. Rigor Cycle

The next phase of our research involved incorporating expert knowledge through interviews. Our goal was not only to gather their knowledge and expertise but also to frame and structure it into useful success factors. Conducting interviews, however, always brings its own set of challenges and points for discussion according to (May, 1991), of which we will highlight the most interesting ones.

Firstly, there was the issue of selecting our experts. In addition to the contacts we had through Councyl at the municipality, we had to independently reach out to others. This approach inadvertently introduced a bias: those who were willing to participate in our research were already intrinsically motivated to think and talk about the implementation of artificial intelligence. This could potentially affect the answers they provided and might not accurately represent the views of all Wmo civil servants. Another limitation we faced was the limited number of decision-makers we were able to interview. Unfortunately, we did not manage to speak with an alderwoman or someone from the municipal council. This was a significant drawback, as the recommendations in our decision-maker framework were particularly relevant to them.

In reflecting on the actual interviews and their conduct, there are several aspects we wish to address. One of the challenges we encountered was guiding the conversation to cover the topics we intended to discuss, without excessively influencing the participants. At times, we had to provide examples to clarify our questions, which occasionally led to respondents agreeing with our suggestions rather than offering their own insights.

Another significant issue we faced was the lack of familiarity about artificial intelligence among the interviewed Wmo civil servants. This gap in understanding made it difficult for them to engage meaningfully in discussions about AI implementation. Consequently, the information we gathered on integration and its nuances was heavily dependent on a select group of experts who possessed both insight and experience with Wmo. This reliance on a small, specialised group for information highlights the challenges in gathering diverse perspectives, especially when dealing with complex and technical subjects like AI in a public sector context.

It's also important to acknowledge the impact of our chosen questions on the research. While it may seem obvious, the nature of the questions we posed significantly shaped the information we received. The way questions are framed and presented can guide, limit, or expand the scope of the responses, thereby influencing the overall direction and depth of the insights gathered.

The final aspect of our rigor cycle is the abductive analysis, which played a crucial role in identifying the overarching themes that emerged from our research. This process is integral to the goal of constructing theories through qualitative research. Such an endeavor necessitates a sophisticated research design, one that conceptually bridges a substantive topic with various theoretical frameworks. The specific theories we initially brought to the analysis significantly influenced the nuances of this research design, as highlighted by Timmermans and Tavory (2012). It's important to acknowledge that these emergent themes are, to some extent, shaped by our own perspectives and mindsets at the time of the research. This subjective lens inevitably colors the interpretation of data, including how we understood and coded the statements made by our interviewees. Our interpretative process, therefore, is not just about the data itself but also about how we, as researchers, interact with this data. Furthermore, the role of our interpretation in the coding process cannot be overstated. How we decipher and make sense of the interviewee statements is a critical component of the analysis, adding another layer of complexity to our research. While Thompson (2022) offers a step-by-step guide to abductive analysis, it's important to recognize that this approach is not without its ambiguities. There are many grey areas in abductive analysis, which require careful navigation to ensure the integrity and validity of the research. These complexities underscore the need for a reflective and critical approach to qualitative research, particularly in the context of theory construction.

8.4.3. Design Cycle

In our study, the evaluation of results was a multifaceted process, where we initially compared our findings to existing literature. However, due to the nature of abductive analysis, our results were also influenced by this literature. This interplay between our findings and the literature means that they cannot be viewed as entirely separate entities. Consequently, the strength of our evaluation based on literature alone is somewhat diminished, as it doesn't provide a completely independent benchmark.

To further assess our results, we presented them to a new set of experts, specifically those who were decision-makers in the process under study. This step was crucial for gaining practical insights

and validation from those directly involved in the field. However, due to time constraints, our evaluation was limited to a small number of these experts. This limitation is significant because it meant that not all decision-makers pertinent to the process were included in our evaluation. The restricted scope of expert feedback, therefore, potentially weakens the robustness of our evaluation.

This situation leaves us acknowledging that while our evaluation methods were comprehensive in theory, in practice, they were constrained. These constraints mean that our evaluation, though thorough, may not fully capture the breadth and depth of the decision-making process we aimed to understand. This recognition is crucial for interpreting our findings and understanding the scope of their applicability.

In the end, our research led us to identify a set of critical success factors for implementing AI tools like case routing effectively. Through our investigation, we found a way to discern under what conditions such systems can be successfully implemented. Equally important to the outcome of our research was the procedure we developed and refined throughout the study. This methodological approach, exploring and defining the parameters for effective implementation, holds equal value to the conclusion itself. It offers a structured pathway for future endeavors in similar contexts, ensuring that the journey of discovery is as significant as the destination.

8.4.4. Techno-Optimism

Reflecting on our research journey, it became evident that we had inadvertently embraced a techno-optimistic viewpoint. This perspective led us to presume that municipalities would inherently benefit from adopting AI technologies. This initial inclination towards a technology-centric view was further amplified by our methodological approach. We specifically chose AI case routing as the preeminent solution for welfare benefits allocation, rather than considering a broader range of alternatives. This selection bias, in hindsight, may have narrowed our scope and influenced the direction and conclusions of our research.

However, the narrative around AI is often misleadingly positive, as highlighted by Raji et al. (2022). This overly optimistic view of technology in service contexts is challenged by recent literature. For instance, Hottat et al. (2023) cautioned against hastily automating services without considering the value co-creation or co-destruction potential from a customer's perspective. They also emphasized that in certain service contexts, human employees are still preferred, a finding that aligns with the customer preferences for the human touch we identified in our own research. Moreover, Wieringa Wieringa (2000) argued that increasing automation beyond a certain point does not proportionally enhance system performance. This insight resonated with our interview findings, where technology was not necessarily seen as the sole or even primary solution within Wmo. Our case study also ended prematurely as it became clear that the initial techno-optimistic approach did not fully align with the realities and preferences uncovered by the municipality. This shift in understanding underscores the importance of maintaining a balanced perspective on the role and impact of technology in complex service environments.

Another approach would be to consider a more holistic perspective, adopting a neutral stance rather than an overly optimistic one. This means exploring a wider range of solutions beyond the allure of AI, allowing for a more critical examination of its potential and limitations. In the context of our research, this translates into a thorough investigation of current case routing systems and non-AI possibilities. By balancing a technical-neutral approach with a critical analysis of existing methods, we can create more realistic expectations about the role of AI case routing in welfare benefits allocation, ensuring that we don't overlook viable alternatives in favor of advanced technology.

8.5. Future Recommendations

The findings from our research are specifically linked to the implementation of case routing in the welfare benefits allocation within municipalities. To extend these results to other AI technologies in the context of welfare benefits allocation, a broader range of tools needs to be evaluated. This necessity for a wider evaluation also applies to other governmental structures and processes. If one were to adapt our findings for another municipal function, it would be possible to replace the WBA factors with those pertinent to the new function. However, it's important to note that these factors are not static; they evolve in response to changes in the business environment, market demands, and organizational goals.

In reflecting on our research approach, we are now considering an alternative perspective that devi-

ates from our initial inclination towards technological solutions. This introspection leads us to question whether, if we hadn't viewed the problem through a technologically favoring lens, case routing would still have emerged as a viable solution. This line of thought opens up new avenues for exploration, suggesting that the framing of a problem significantly influences the solutions that are considered and ultimately chosen. This realization highlights the importance of critically examining the lenses through which we view problems, especially in the context of technological implementation in public services.

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A

Interview Questions

A.1. Interview Questions Civil Servants

Introductie

Wat is uw huidige functie en welke vorige relevante functies heeft u gehad? Kunt u kort uw ervaring met AI-tools beschrijven, vooral in de context van gemeentelijke besluitvorming?

Wmo Algemeen

Hoe zit de Wmo aanvraag procedure er uit voor een client? Hoe komt deze aanvraag bij de consulent terecht? Hoe zit de Wmo aanvraag procedure er uit voor een consulent? Hoe worden consulenten opgeleid? Hoe ziet de kwaliteitscontrole er uit?

Succesvolle Wmo

Als we kijken naar een Wmo aanvraag, wanneer is deze succesvol behandeld? (denk aan passend besluit/optijd/geen bezwaar etc) Als we kijken naar de volledige Wmo afdeling in de gemeente, wanneer loopt deze succesvol? (geen wachtrij/goedkoop adequaat/geen bezwaren) Wanneer ben je een goede Wmo consulent? Perspectief van de burger?

Uitdagingen in Wmo

Binnen de stappen die de aanvraag doorloopt, waar zit volgens u de bottle neck? (juiste gevallen door de juiste mensen/zit dit in allocatie?) Wat kan er beter? Welke verbeteringen zijn hiervoor al toegepast? Wat zou in uw optiek nog meer kunnen helpen?

Technolgie binnen Wmo

Welke rol speelt technologie of digitalisering binnen Wmo? Wat zijn de uitdagingen binnen deze digitalisering? Hoe heeft deze digitalisering bijgedragen aan het aanvraag process? Zijn al deze systemen nodig? Hoe heeft dit doorwerkt in de Wmo in het algemeen? Wat zijn de belangrijkste doelstellingen achter de implementatie van nieuwe technologie?

Besluitvorming

Hoe ziet zo'n besluitvormings process er uit? Hoe ziet een implementatie gesprek er uit? Zijn er externen betrokken?

Case Routing binnen Wmo

Zijn er andere overwegingen als deze tool gebruik maakt van kunstmatige intelligentie, en wat zijn deze overwegingen? vanuit consulent vanuit client Wat zou case routing kunnen bijdragen binnen Wmo? Welke nieuwe uitdagingen brengt het met zich mee om case routing te gebruiken? (gebruiken/implementere/afhankelijk) Waarom zou het niet bijdragen binnen Wmo? Kan het in de huidige systemen geintegreed worden? Naast systeem compatibility, zullen we werknemers ingewerkt moeten worden? Wat zou je missen als je het niet doet?

A.2. Interview Questions Citizens

Introductie
Kunt u kort uw ervaring met AI-tools beschrijven?

Wmo Algemeen
Hoe zit de Wmo aanvraag procedure er uit voor u? Hoe bent u bij de Wmo terecht gekomen?

Succesvolle Wmo
Als we kijken naar een Wmo aanvraag, wanneer is deze succesvol behandeld? (denk aan passend besluit/optijd/geen bezwaar etc)

Uitdagingen in Wmo
Wat kan er beter in de Wmo? Wat zou in uw optiek nog meer kunnen helpen?

Technolgie binnen Wmo
Welke rol speelt technologie of digitalisering binnen Wmo? Wat zijn de uitdagingen binnen deze digitalisering? Hoe heeft deze digitalisering bijgedragen aan het aanvraag process? Zijn al deze systemen nodig? Wat zijn de belangrijkste doelstellingen achter de implementatie van nieuwe technologie?

Case Routing binnen Wmo
Zijn er andere overwegingen als deze tool gebruik maakt van kunstmatige intelligentie, en wat zijn deze overwegingen? Wat zou case routing kunnen bijdragen binnen Wmo? Wat zou je missen als je het niet doet?

A.3. Evaluation Questions

Als u kijkt naar de volgende geidentificeerde factoren kunt u mij vertellen

- Met welke u zich dagelijk bezig houdt?
- Welke van deze u zou laten vallen als het moet?
- Op welke volgorde van belang zou u ze zetten?
- Welke factoren er volgens u missen?

B

Abductive Analysis Results

RQ	Code Level 1 (CSF)	Code Level 2	Code Level 3	Code Level 4	Text Example
	Challenge Awareness	Complex Care Applications	Complex Care Requests		[interviewee 4] Dat is heel ingewikkeld, want je hebt een wat enkelvoudige aanvragen, maar je hebt Natuurlijk ook de meervoudige of de complexe woon aanpassingen.
			Each Case is Unique		[interviewee 2] Hoeveel aanvragen behandel je? Dat is ook wel moeilijk te meten in zoverre dat elke casus is de casuïstiek of elke casus weer eentje op op zich.
			Late Applications		[interviewee 7] Ja, Mensen vragen ook soms wel te laat aan. Dat gebeurt Natuurlijk ook wel.
			Personal Data		[interviewee 7] He, je moet toch hou en de nog een heel groot struikelblok is de privacy vaak, hè? Dus dat je toch dingen wil achterhalen die je dan Misschien niet mag vragen, maar waar je wel op een of andere manier achter moet zien te komen. Dat is 1 grote hindernis
			Unwarrented Applications		[interviewee 7] Als je erachter komt dat iemand zeg ik even nu onterecht een aanvraag heeft gedaan, dan moet je hem ook op goede gronden kunnen afwijzen.
		New Legislation			[interviewee 7] Wel naar de GGZ verpleging of weet je, Er zijn allemaal dat zijn veel veel ingewikkelder trajecten. Daar hadden we als gemeente ook helemaal geen ervaring mee, dus dat hebben we ook echt in moeten in moeten kopen en Dat is gewoon uitbreiding van het taakveld. En daar ontstaan Natuurlijk linksom of rechtsom ook wachtlijsten door.
		Outdated Practices	Complex Administration		[interviewee 2] Er zit heel veel klinkwerk en rapporteert werk in.
			Lag in Technology		[interviewee 6] papiertjes per maand, die die de deur uitgaan, dus Dat is ook nog wel ja, ik zie al een beetje lachen. Dat is Natuurlijk een beetje ouderwets is dat voor voor deze tijd, dus ja, daar moeten wij ook wel weer verdere stap in ons maken in maken, ja.
			Limited Reachability		[interviewee 6] Soms hebben we wel wachtrijen van Misschien 7 8 cliënten, ja, dan hang je lang aan de telefoon hè dan dan helpt dat zeker niet. En het feit dat je 's avonds kan bellen of In het weekend kan bellen,
			Neglected Systems		[interviewee 7] Een heel enkel geval is het zelfs zo dat de klant daar vragen alweer overleden is voordat de voorziening is toegekend. Dus Dat is ja, dat gebeurt.
			Outdated Systems		[interviewee 2] Gelukkig direct In het systeem, ook wel gemeente loopt wel wat achter Als het gaat om. Digitalisering en dergelijke ten opzichte van het bedrijfsleven
			Affordable Adequacy		[interviewee 3] En daarnaast hebben we Natuurlijk gewoon een financieel kader vanuit de Raad waarbij wij wel denken, ja, Het is fijn dat die inwoner dat niet zo belangrijk vindt. Maar ja, toch hebben we een schaarste te verdelen met elkaar, dus dus nou ja, daar, daar hebben we Natuurlijk nog steeds beleidsmatig wel gewoon dingen in te doen en daarop te sturen.
			Complex Authorization Stucture		[interviewee 7] En het vergunningen circuit, Dat is nog vele malen erger dan het WMO circuit, dan ben je echt ja voor een schuurtje ben je soms wel maanden onderweg

		Solution Space	Complex Healthcare System	[interviewee 7] Wel naar de GGZ verpleging of weet je, Er zijn allemaal dat zijn veel veel ingewikkelder trajecten. Daar hadden we als gemeente ook helemaal geen ervaring mee, dus dat hebben we ook echt in moeten in moeten kopen en Dat is gewoon uitbreiding van het taakveld. En daar ontstaan
			Housing Shortage	[interviewee 3] En daarnaast zien we dat de krapte In de woningen dat dat wel een enorme doorstroom ook nou ja problematiseert dus dus. Nou ja, oudere Mensen die die met woningen met een trap wonen nog die de trap niet meer op kunnen. Nou ja, waardoor je dus woningaanpassingen in moet gaan zetten Omdat er geen gelijkvloerse woning op dat moment
			Limited Resources	[interviewee 5] De problemen zitten hem in beschikbaarheid van oplossingen.
		Varying Approaches	Differences Case-Managers	[interviewee 4] Ik denk Als ik daar vanaf een afstandje naar kijk en even met mijn eigen interesse bril denk ik dat het een vooral een grotere kwaliteitsslag kan gaan maken, dus het kan nu best nog wel wat verschillend zijn in wat een inwoner krijgt met de consulent die daaraan verbonden is. Dat wil je liever niet, want uiteindelijk zal iedere inwoner met een vraag, zou het niet uit moeten maken welke consulent je krijgt? Maar die zou hetzelfde moeten krijgen
			Municipal Differences	[interviewee 4] Veel gemeenten kom ik ook al op. Ik hou me even wat ik probeer. Eventjes zijn wel een klein beetje te helpen Omdat iedere gemeente het weer anders heeft en ik nu wel meerdere gemeenten heb gezien die die het op een andere manier
		Waiting Lists	Increased Care Seeking	[interviewee 3] Is dat het nog steeds een heel claim gerichte maatschappij is, dus Mensen hebben nog steeds wel het gevoel dat ze gewoon recht hebben op een voorziening, terwijl als jij gewoon in staat bent zelf je problemen op te lossen
			Labor Market Shortage	de In de uitvoerings momenteel de enorme krapte op de arbeidsmarkt waar je gewoon ziet dat er wachtlijsten ontstaan bij aanbieders voor huishoudelijke ondersteuning bijvoorbeeld. Nou, Dat is best een een landelijk probleem, Maar dat is bij ons niet anders, dus Mensen moeten lang wachten, komen soms op een wachtlijst.
			Lodging Appeal	[interviewee 2] Er kan iemand nog in bezwaar gaan
			Societal Aging	[interviewee 2] Ja ze ze noemen het ook wel eens dubbele vergrijzing hè, dus Er zijn gewoon veel ouderen Natuurlijk dus.
		Work Pressure		[interviewee 2] We merkten je wel dat dat door de drukte ook Mensen meer onder onder druk kwamen te staan

	Citizen Satisfaction	Appriciation	Effective Communication	Clear Communication	[interviewee 3] Dat hè is mijn stress nu verminderd, heb ik een goed antwoord op mijn vraag gekregen is mij Helder wat mij nu te doen staat, ben ik snel geholpen, dus eigenlijk dat soort. Nou ja, neven factoren vonden eigenlijk de inwoners veel belangrijker dan ja, dan eigenlijk waar de WMO nou ooit voor bedoeld was, dus dat Dat was ook nog wel interessant meteen
				Personal Contact	[interviewee 2] De inwoner moet blij zijn met hetgeen met het gesprek. Die moet ook het idee hebben. Dat is heel belangrijk, al dat het ook dat dat zelf nog regie heeft over het geheel en dus dus het Samen doet Samen. Kijk naar oplossingen
				Timely Communication	[interviewee 3] Dachten, Oh, nou ja, daar is hun ieder geval niet om te doen wat zij wel heel belangrijk vonden, was dat ze tijdig duidelijkheid kregen en heel Helder kregen.
				User-Friendly Report	[interviewee 2] Het gespreksverslag moet Natuurlijk Helder zijn en ik begrijpelijke taal.
			Involved in Process		[interviewee 2] De inwoner moet blij zijn met hetgeen met het gesprek. Die moet ook het idee hebben. Dat is heel belangrijk, al dat het ook dat dat zelf nog regie heeft over het geheel en dus dus het Samen doet Samen. Kijk naar oplossingen
			Qualitative Investigation		[interviewee 10] Ja dat dat vind ik wel. Er wordt ook echt gekeken naar alle facetten. En ja, of het of Het is,
			Support Received		[interviewee 10] En als er iets aan is, dan kan ik een reparatie dienst bellen en die staan meestal met een week staan ze voor de deur
			Thoughtful Answer		[interviewee 10] Dat is pijn en zit zo'n behandeling dan bijvoorbeeld in een kwalitatief keukentafelgesprek of 10 een goed onderbouwd besluit krijgt van zo speelt dat ook weer.
		Citizen Procedure	1. Contact Municipality		[interviewee 5] Ja cliënt of Mensen in hun naaste omgeving melden zich bij ons loket onze front offers en dat kan telefonisch of fysiek bij het binnenlopen. En dan doen de cliënt een melding en in die melding beschrijven ze hun situatie en hun ondersteuningsvraag
			2. Phone call		[interviewee 3] Nou dan is er eerst telefonisch contact en vervolgens wordt er een brief gestuurd met de bevestiging van joh. Je kunt ook iemand erbij vragen vanuit de onafhankelijke cliënt ondersteuner of een wijkteam of
			3. Home Visit		[interviewee 3] Dan maakt hij een afspraak om op huisbezoek te gaan. In principe worden allereerste meldingen sowieso met een huisbezoek afgehandeld, dus dan gaat hij bij de cliënt thuis kijken bij de inwoner en eventuele heronderzoeken Laten we afhangen van Van joh. Wat is de vraag precies bij het heronderzoek? Maar alle nieuwe meldingen die komen sowieso
			4. Receive Research Report		[interviewee 3] Dat is het onderzoeksverslag, dus dat wordt dan opgestuurd naar de naar de inwoner en op moment dat die daadwerkelijk een een aanvraag wil doen

			5. Official Application	[interviewee 2] En die komt terug en aan de hand daarvan, die komt ondertekend terug. Kan iemand ook nog iets op aanvullen? Of ja, als ze niet niet ondertekenen, dan heb je eigenlijk ook niet echt meteen een aanvraag. Je moet wel echt een ondertekening hebben dan.
			6. Ruling	[interviewee 10] Een besluit krijg ik dan thuis? Hoe of het wel of niet toegekend wordt? Nou ja, tot nog toe is dat altijd nog gebeurd. Ja, dat duurt toch wel een een maand denk ik ongeveer ongeveer
			7. Care Allocation	[interviewee 10] Een besluit krijg ik dan thuis? Hoe of het wel of niet toegekend wordt? Nou ja, tot nog toe is dat altijd nog gebeurd. Ja, dat duurt toch wel een een maand denk ik ongeveer ongeveer
		Criticisms	Complex Regulations	[interviewee 7] Een heel enkel geval is het zelfs zo dat de klant daar vragen alweer overleden is voordat de voorziening is toegekend. Dus Dat is ja, dat gebeurt. En het vergunningen circuit, Dat is nog vele malen erger dan het WMO circuit, dan ben je echt ja voor een schuurtje ben je soms wel maanden onderweg.
			Impersonal Treatment	[interviewee 11] Krijg ik iedere keer, ofwel iemand anders aan de telefoon, of wel iemand anders.
			Long Waiting Times	[interviewee 7] Een heel enkel geval is het zelfs zo dat de klant daar vragen alweer overleden is voordat de voorziening is toegekend. Dus Dat is ja, dat gebeurt.
			Subscription Costs	[interviewee 2] De grondslag nou ja, het abonnementstarief heeft is echt wel een doorn In het oog van Iedereen die In de WMO werkzaam is.
			Unaivalability of Care	[interviewee 2] Ja en dan, dan heeft de de klant moet dan weer soms wachten. De inwoners wachten op de voorziening en de ene keer is dat snel geregeld en een andere keer duurt dat heel erg lang, bijvoorbeeld naar hulp bij de huishouding duurt dat heel erg lang, Maar dat is je vast bekend.
			Unclear Communication	[interviewee 11]Die zou op mij bellen, dus die sociaal werkster van dat zorgteam zou mij ook bellen. Die zou afgelopen week gebeld hebben. Die heeft dus ook niet gebeld om een afspraak te maken om mij duidelijk te maken wat er allemaal aan mogelijkheden waren voor zorg in mijn geval of in ons geval.
			Affordable Adequacy (2)	[interviewee 4] Daarvan is het belangrijk dat we naar de dat de inwoner gecompenseerd wordt op de goedkoopste adequaat mogelijkerwijze.
			Cases per Week	[interviewee 2] Nou ja, de resultaatgericht werk is belangrijk, dus hoeveel handel je nou af hè? Als als medewerker? Hoeveel aanvragen behandel je? Dat is ook wel moeilijk te meten in zoverre dat elke casus is de casuïstiek of elke casus weer eentje op op zich.
			Citizen Satisfaction Survey	[interviewee 5] Een cliënt die tevreden is met met wat er uit het gesprek komt is is ons doel, ja.

	Continuous Improvement	Challenge Mitigation	Clear Communication (2)		je vraag dat het dat aan verwachtingsmanagement wordt gedaan, dus dat iemand stelt een vraag, maar je weet niet wat zo NWMO hier kan bieden. Wat de consequenties daar eventueel van zijn of je een bijdrage moet gaan betalen of niet. Wanneer je een voorziening geleverd krijgt hè? Hoe lang dat gaat duren, hoe het natraject eruit ziet en dat kan Natuurlijk met een voorziening te maken, Maar het kan ook een verbouwing zijn of of een vervoersvoorziening.
			Reduce Waiting TImes		[interviewee 3] En daarnaast wat wij consulenten wel meegeven is ook om de achterstanden die je op veel plekken wel ziet gewoon beperkt te houden
			Sustainable Solutions		[interviewee 2] Ja de ondersteuning krijgt die die persoon nodig heeft en het liefst niet zo snel terugkomt met een andere hulpvraag In het kader van de WMO. Want Het is zonde voor de inwoners zelf, maar ook voor het ambtelijke apparaat om alle werkzaamheden te doen.
			Timely Procedure		[interviewee 6] En Natuurlijk moet dat binnen die 8 weken gebeuren. Dat is ook zeker van belang.
		Current Development Strategies	Technology	Case Routing	[Interviewee 8] And to be more precise in terms of routing cases, than you label cases, whether it's it can be many things, whether it's easy or hard, whether there can be disagreements among experts on certain cases
				Comminucation Platforms	[interviewee 7] Nou hebben we dat toevallig vrij recent besloten, want We gaan allemaal bellen met Microsoft Microsoft Teams, dus We hebben geen telefoons meer
				Dashboard	[interviewee 3] We hebben Natuurlijk wel data dashboards en zo
				Data Management Systems	[interviewee 2] Het is nog wel ja, vrij ouderwets en We hebben een zaaksysteem en in dat zaaksysteem wordt alles gearchiveerd
				Equipment	[interviewee 6] Ja en verder waarmee we nog meer werken. We werken heel veel met mobiele telefoons en dergelijke als mes op huisbezoek gaan, dan maken ze filmpjes of foto's, dat soort Zaken en die verwerkers dan vervolgens door het dossier
				Online Application Form	[interviewee 3] Nog best wat te doen zou moeten zijn wat wij sowieso hebben, is een digitaal aanvraagformulier en Ik weet niet of het formulier In het programma waarin wij dat nu hebben gemaakt, of dat dat zou matchen met zo een zo een applicatie. Maar ja, een vorm van digitaal formulier is denk ik wel heel, heel belangrijk
				Online Waitlist	[interviewee 4] Die komt dan op een fictieve wachtlijst te staan of digitale wachtlijst te staan.
				Portals	[interviewee 5] Systemen om onze aanmelding bij de leveranciers naar binnen te krijgen. Een portal.
				Search Enignes	[interviewee 5]En we gebruiken Google
				Website	[interviewee 11] Of dat ze een website hebben. Ja, Ik weet dat ik alle dingen via de computer moet aanvragen
			Trend Prediction		[interviewee 4] De aantallen in herindicaties dat daar veel beter voorkant al geanticipeerd kan worden.

Q5. Succes Factors WMO			Better Collaboration		[interviewee 2] Ja wat We kunnen verbeteren. Ik denk dat we nog een hele slag kunnen slaan In het In het samenwerken.
			Improve Manuals		[interviewee 2] De werkafspraken strak houden en dat je op een eenduidige manier werkt en dat het dus ook makkelijker wordt om zaken over te nemen als iemand weer weggaat en kennis te delen.
			Planning		[interviewee 4] Oud hulpverleners en die zijn over het algemeen niet al te best in plannen.
		uture Development Strategie	Adequate Information Systems		[interviewee 4] Dit klinkt ook een beetje als mijn stokpaardje, maar Als je weet wat de volgende data kun je vrij veel naar voren toe halen. Nou dat de gemeente vinden dat vrij ingewikkeld om dus wat je ziet is dat dat er snel overvallen wordt, terwijl het eigenlijk logisch is. Want ieder jaar in september en ieder jaar in december zien we gewoon dat een hele hoop indicaties aflopen en dat er een soort van hosé de deur overheen gaat. Nou, Ik denk dat dat dat met name de. De aantallen in herindicaties dat daar veel beter voorkant al
			Automization		[interviewee 3] Daar zijn ze bij ons bijvoorbeeld naar aan het kijken, kun je kun je inderdaad dit soort processen niet soms wat meer robotiseren en de goede dingen er alvast uithalen zodat het dat minder mensenwerk is?
			Change Perception		[interviewee 3] Dus en dat soort soort principes merk je dat dat heel hardnekkig is In de In de samenleving en en de beeldvorming. En Dat is ook wel nou ja, we spreken ook wel af en toe met het ministerie en zo. En Dat is ook wel wat wij meegeven van joh. Als je nou als overheid landelijk iets wil doen, dan zou je daar eigenlijk ook eens een soort campagne op op moeten starten van joh, nou ja, wat u zelf kunt moet u vooral
			Citizen Satisfaction Research		[interviewee 6] En Ik denk dat het ook belangrijk is dat dat we nadien ook nog eens evalueren, dus dat we terughoren van de cliënt. Heeft die dat advies of die voorziening die is ingezet heeft dat nou het gewenste resultaat gehad voor u, zodat wij ook dat daar ook een soort lerend effect in ontstaat?
			Streamline Documentation		[interviewee 6] Alleen maar om je administratieve rompslomp hè? Dus al het verslag verslagen wat Je moet maken, je ICD 10 lijst die Je moet invullen, je je rapporten die Je moet schrijven, het versturen van de verslagen et cetera et cetera om dat wat te vergemakkelijken, zodat je eigenlijk Misschien juist nog wel
			Technology Investment		[interviewee 6] Een van de ontwikkelingen waar ik me mee bezighoud met ICT is DigiD, dus om een digitaal platform te ontwikkelen waarmee Mensen zeg maar met een handtekening en aanvraag kunnen ondertekenen, maar ook dat ze In het platform kunnen zien van waar is mijn aanvraag? Is dat al bedeeld aan een consulent of zit het nog bij het adviesteam? Is er al een rapport geschreven, is er al een opdracht verstuurd?

	Personnel Competencies	Individual Skills	Case-Managers	Creativity	[interviewee 5] De echt de juiste oplossing vinden die er vaak wel is, maar die moet gecreëerd worden Als ik het Als ik het zo goed begrijp, Maar dat het niet echt werk voor consulenten, dus dat maakt het dan weer lastig
				Productivity	[interviewee 2] Nou ja, de resultaatgericht werk is belangrijk, dus hoeveel handel je nou af hè? Als als medewerker? Hoeveel aanvragen behandel je? Dat is ook wel moeilijk te meten in zoverre dat elke casus is de casuïstiek of elke casus weer eentje op op zich
				Soft Skills	[interviewee 4] Locadia scherp op houden, want het kan Natuurlijk zijn dat een inwoner voor een ene vraag binnenkomt, maar je komt daar thuis en dan zie je en ruik je en hoor je ontzettend veel. En Het is ook voor een WMO consulent. Ook al heeft iemand een vraag voor een traplift, maar je ziet zo een stapel met post liggen, dan is het Misschien ook handig om daar eens over na te vragen om te kijken of ze daar Misschien nog
				Solution Oriented	[interviewee 5] Het het voor het hert hervormen van de vraag In het in woorden van zelfredzaamheid, wat wat wil je bereiken?
				Specialisation	[interviewee 3] We hebben wel een aantal Mensen met specialismen echt op die nieuwe WMO voorzieningen. Dat is begeleiding en dagbesteding onder andere en beschermd wonen en echt die oude voorzieningen zoals rolstoelen, woningaanpassingen, huishouden, ondersteuning, ja, dat
				Technological Competence	[interviewee 6] Dus ja, Dat is wel wel de uitdaging en ook wel überhaupt de digitalisering en de digitale vaardigheden van onze medewerkers. Dat, Dat is wel iets wat ja, waar we continu mee bezig zijn. Onze tijdje geleden hadden we een leuke enquête en onze gemiddelde leeftijd van Van de medewerkers is is 50 jaar,
				Thorough Research	[interviewee 7] Eigenlijk probeert om om achter de achtergrond te komen van Waarom? Waarom gaat deze persoon nou een aanvraag doen? En ondertussen kijk je rond In het In het In het Huis en dan zie je dan zie je al allerlei problemen en dat maakt dat je ervaring krijgt in In het In het zien van Van problematieken, Maar dat je ook veel meer ziet. Welke oplossing
				Thoughtful Research Report	[interviewee 5] De uitdaging zit hem In het goed beschrijven van wat er besproken is in In het gesprek, maar dan vanuit een Vanuit zelfredzaamheid gezien en niet vanuit problemen en ziekte
				Wide Expertise	[interviewee 2] Maar dat ligt echt aan wat voor een aanvraag soort Het is en We hebben het ook wel weer een beetje gesplitst, dus je hebt begeleidings aanvragen, is een andere tak van sport dan de fysieke WMO zeg maar dus ook een ander soort mens. En ja, sommigen kunnen het allebei. Dat is helemaal mooi

			Team-Leaders	Assure Well-Being Employees	[interviewee 2] En ja, die geven dan bij mij aan. Als het bij iemand niet goed gaat of dat er meer aandacht nodig is.
				Inform Case Workers on Updates	[interviewee 5] Ja en dat dat dat de consulent het gevoel hebben dat ze voldoende oplossingsrichtingen beschikbaar hebben om de cliënten te ondersteunen.
				Initiate Improvements	[interviewee 5] En als, als wij zien dat er iets mist In de wijk, is dat een mooie voorzet om aan de collega's wel zijn door te geven van Misschien een goed idee om dat te organiseren en te regelen.
				Keep up with Developments	[interviewee 5] Ja en dat dat dat de consulent het gevoel hebben dat ze voldoende oplossingsrichtingen beschikbaar hebben om de cliënten te ondersteunen.
				Maintain Focus	[interviewee 4] is het gewoon belangrijk dat men elkaar daar scherp inhoudt.
				Workload Distribution	[interviewee 2] Binnen het team die zitten dat voor en die bespreken dat. En ja, die geven dan bij mij aan. Als het bij iemand niet goed gaat of dat er meer aandacht nodig is. Et cetera dus dat zij een verlengstuk van de teamleider eigenlijk op het moment
		Team Functionality	Collaboration		[interviewee 6] Ik denk dat ze een team goed functioneert als die voldoende informatie deelt met elkaar, dus voldoende elkaar op de hoogte brengt van welke initiatieven zijn er binnen een gemeente zijn er particuliere initiatieven
			Collegial Consultation		[interviewee 3] En door collega's met elkaar Natuurlijk te Laten praten. Ook een intervisie proberen we wel dat denken hè? Kijk je nu echt op dezelfde manier? Ben je net zo streng?
			Diversity		[interviewee 7] En wat maakt nou die verbinding heel goed? Ja, dat Dat is Misschien meer geluk dan wijsheid geweest, Maar het zijn. Het is echt van Jong. Er zit van Jong tot oud, hè? Die is nou ja, die zal begin 30 zijn, dus daar zit gewoon een hele andere levenservaring in, maar er zit ook een hele andere dynamiek in iemand van 30. Die kijkt heel anders tegen WMO voorzieningen
			Unanimity in Decision Making		[interviewee 4] dus hèt kan nu best nog wel wat verschillend zijn in wat een inwoner krijgt met de consulent die daaraan verbonden is.
		1. Municipality Receives Application	Receive Application		[interviewee 6] De aanvragen kunnen op twee manieren binnenkomen of Mensen melden zich bij een wijkteam
		2. Manual Case Routing	Application Screening		[interviewee 5] Die noteert de melding en zet de zet de vraag klaar in ons systeem, hè? Dus die maakt een cliënt aan in ons systeem als die er nog hè? Als die nog niet bekend is jacket of de iemand Als de inwoner staat ingeschreven bij de gemeente, zorgt dat er een bevestiging komt van de melding naar de cliënt en en en dat er mogelijkheid is om cliëntondersteuning.
			Application Routing		[interviewee 3] Nou, dan wordt hij door door de senioren wordt hij toegewezen aan een van de Van de consulenten.
			Front Office		[interviewee 5] Die noteert de melding en zet de zet de vraag klaar in ons systeem

	Well-Conducted Procedure		Re-Route Case	[interviewee 7] Het komt Natuurlijk wel eens voor dat een aanvraag toch uiteindelijk wordt doorgeschoven.
		3. Research by Case-Manager	Contact CItizen	[interviewee 4] En die neemt dan contact op met de inwoner om een afspraak te maken voor een huisbezoek
			Contact Specialists	[interviewee 2] Soms moeten ze nog nog wat verder onderzoeken. Soms is er een medisch advies nodig, Omdat We zijn geen medici, dus dat dat doet een extern bureau.
			Home Visit	[interviewee 3] Dan maakt hij een afspraak om op huisbezoek te gaan. In principe worden allereerste meldingen sowieso met een huisbezoek afgehandeld, dus dan gaat hij bij de cliënt thuis kijken bij de inwoner en eventuele heronderzoeken Laten we afhangen van Van joh. Wat is de vraag precies bij het heronderzoek? Maar alle nieuwe meldingen die komen sowieso
			Read up on Case	[interviewee 3] Die gaat dan eerst lezen van joh, wat staat er in die melding? Wat is globaal de vraag. Die gaat In het dossier kijken. Veel zijn er nog andere voorzieningen.
		4. Draft Report	Administration	[interviewee 2] WMO indicatie adviseur WMO consulent dat er op hun werk voorraad en dan gaan ze zelf bellen, dus Wij hebben het eigenlijk zo ingeregeld van A tot z dat de persoon in kwestie het zelf doet. Maar andere gemeentes zie je ook wel dat het administratieve deel dan later wordt afgerond door de administratie. Bij ons doen ze heel veel zelf, dus ook de administratie zelf en voorheen ging dat ging dat heel goed en nu ja, hebben we toch wat meer administratie dan voorheen gek
			Send Reserach Report	[interviewee 2] Ja wordt er een besluit genomen in hetgeen wat er nodig is. In ieder geval. Dat wordt een gespreksverslag gestuurd van het gesprek met mogelijke oplossing en afspraken. En die komt terug en aan de hand daarvan, die komt ondertekend terug. Kan iemand ook nog iets op aanvullen? Of ja, als ze niet niet ondertekenen, dan heb je eigenlijk ook niet echt meteen een aanvraag. Je moet wel echt een ondertekening
			Write Research Report	[interviewee 6] En dan wordt ja een vraag inhoudelijk beoordeeld, dus dan kijken we van, wat wordt er gevraagd zijn er hebben Mensen zelf middelen kunnen ze zelf, zijn er voorliggende voorzieningen mogelijk is er binnen hun netwerk mogelijk zijn er andere oplossingen nou, en dat wordt eigenlijk
		5. Final Advice and Care Allocation	Care Allocation	[interviewee 12] Op een gegeven moment gemeente is als opdrachtgever die komt naar ons toe van goh. We hebben hier iemand die een bepaalde zorg nodig. Jullie kunnen dat bieden, We gaan ermee aan de slag
			Lodged Appeal	[interviewee 2] Ze kunnen Natuurlijk wijzigingen op aanbrengen en dat tekenen of onder protest tekenen In de zin van ja, Ik wil dit gewoon hebben, Maar ik ben het hier en hier niet mee eens. Dat komt gelukkig vrijwel nooit voor
			Official Application	[interviewee 2] Ja, op het moment dat er een een beschikking is gestuurd, hè? Dat is eigenlijk.

			Signing of the Research Report		[interviewee 4] Die tekent dan voor een aanvraag en dan gaan Het gaat de aanvraag lopen.
		6. WMO Quality Control	Case Worker Manual		[interviewee 3] We hebben gewoon de normtijden uitgewerkt van joh. Zo lang doe je ongeveer over een huisbezoek. Zo lang doe je over een onderzoeksraport.
			Client Satisfaction		[interviewee 2] We doen ook een WMO cliëntervaringsonderzoek en Dat is wettelijk verplicht
			Compare to Other Municipalities		[interviewee 2] Daar komt dan ook naar voren van Goh, hoe doe je het als gemeente? Er worden bepaalde vragen gesteld en dan is een benchmark, dus waar staat je gemeente.nl? Daar kan je een beetje zien hoe je heel goed je. Dat doet vergelijking met andere gemeenten
			Functional Analysis		[interviewee 2] Onlangs is er nog een functionele analyse gemaakt van die suite van goh.
			Goals Achieved		[interviewee 6] En Ik denk dat het ook belangrijk is dat dat we nadien ook nog eens evalueren, dus dat we terughoren van de cliënt. Heeft die dat advies of die voorziening die is ingezet heeft dat nou het gewenste resultaat gehad voor u, zodat wij ook dat daar ook een soort lerend effect in ontstaat?
			Legal Frame	Budget	[interviewee 6] Absoluut, het moet Natuurlijk zijn passend binnen het budget, hè?
				Case Worker Training	[interviewee 3] We hebben nieuwe verordeningen gekregen In de gemeentes dat we alle consulenten trainen
				Future Legislation	[interviewee 2] Ik weet nog waar Ik was toen dat werd verteld, dat het niet meer vermogens en inkomensafhankelijk was. Nou ja, het voor een aanzuigende werking gezorgd. Natuurlijk hebben we alle gemeenten op geageerd en gezegd, doe dat niet. Nou, dat wordt dan in 2026 weer teruggedraaid. Of althans, het wordt weer inkomens vermogens afhankelijk
				Neccesity of Care	[interviewee 4] Wanneer de inwoner krijgt wat wettelijk noodzakelijk is.
				Process Term	[interviewee 3] In principe staat er voor die eerste fase vanaf melding tot onderzoeksverslag staat 6 weken en voor die laatste fase staat formeel nog twee weken dus dus het totale proces heb je dan nou ja, de algemene wet bestuursrecht kent doorgaans ook een afhandeld termijn van 8 weken, hè? Nou, die hebben ze In de WMO Alleen verbijzonderd In de In de wet, Maar dat is nog steeds de standaard 8 weken eigenlijk die een overheidsland
				SRB 5 Steps	[interviewee 3] Nou ja, dat zijn de de factoren hè? Die de Centrale Raad van Beroep ooit heeft uitgewerkt dat zijn van die afpel factoren hebben ze gewoon 5 stappen gemaakt
			Report Assessments	High Costs Care	[interviewee 3] Besteding echt Maar de grote indicaties de grote woningaanpassing, die worden nog getoetst door een kwaliteitsadviseur
				Random Case-Report Assessment	[interviewee 2] Ja, het moet sommige aanvragen worden getoetst, niet alles.
			Within Time Limit		[interviewee 2] ja precies binnen de AWB termijn de 8 weken.

	WMO Purpose Fulfilled	Causes	[interviewee 2] Nou, op het moment dat iemand het doel van de WMO is soms zo lang mogelijk zelfstandig thuis te wonen en op een goede manier te kunnen participeren In de maatschappij. Op het moment dat iemand daar tegenaan loopt, dan ja, komen ze op een gegeven moment hopelijk zo snel mogelijk bij de gemeente terecht Omdat het de WMO betreft
		Goals	[interviewee 3] het hoofddoel van de WMO is zelfredzaamheid en maatschappelijke participatie. Dat zijn de de twee hoofdpijlers onder de Wet.

RQ	Code Level 1 (CSF)	Code Level 2	Code Level 3	Code Level 4	Text Example
	Challenge Awareness	Available Resources			[Interviewee 3] Dus, nou ja, op het moment dat je dan ook nog aankomt met oh ja, We gaan ook nog eens echt heel grof investeren in onze ICT. Ja, dan denk ik dat wethouders en gemeenteraden wel licht nerveus worden
		Lack of Execution			[Interviewee3] Ja wat wat ik in de praktijk heel vaak zie, is dat uiteindelijk. Wie geeft er nu een klap op dat we hier iets digitaals mee gaan doen? Nou ja, er wordt vaak zeker een overheid is dat denkt meer dan in bedrijfsleven. Heel veel over gepraat dat we het met zijn allen een heel goed idee vinden om dit efficiënter te gaan inrichten en meer te digitális. Maar Er is uiteindelijk Niemand die nou zegt Van oke en dan gaan we het nu ook doen
		Limited Knowlegde	Technology Proficiency Citizens		[Interviewee 4] De inwoners gaat van, hé, Maar dat kunnen we digitaal helemaal niet doen.
			Technology Proficiency Civil Servants		[Interviewee 6] Dat is wel wel de uitdaging en ook wel überhaupt de digitalisering en de digitale vaardigheden van onze medewerkers. Dat, Dat is wel iets wat ja, waar we continu mee bezig zijn.
		Stakeholder Resistance	Citizens	Data Leaks	[Interviewee 10] Ja, dat denk ik niet dat dat veilig is tegenwoordig, want alles wordt gehackt.
				Ethical Concerns	[Interviewee 2]: De ethische vraagstukken even daargelaten, daarom wil ik dit gesprek ook wel voeren over AI
				Fear of Unknown	[Interviewee 11] Dus dus daar loop ik dan vaak tegenaan en vandaar dat ik dat eigenlijk heel vervelend vind, want dan vraag ik me af of het dan wel klopt wat ze dan eruit draaien aan het einde.
				Loss of Personal Touch	[Interviewee 7] Ja naar mijn gevoel is nog altijd het gesproken, het gesproken deel het meest waardevolle. Hè? Het feit dat wij nu met elkaar praten, maakt het al een stuk makkelijker om wel of niet?
				No Way Back	[Interviewee 2] Het is ook ook onomkeerbaar, denk ik, vrees ik.
				Polarisation	[Interviewee 7] En en het leidt volgens mij ook heel erg tot polarisering. Wat we nu aan het doen zijn
			Civil Servants	Job Security	[Interviewee 6] Ja, Ik denk dat Mensen in eerste instantie altijd gelijk bang zijn voor hun eigen baan, hè? Dus dat ze denken van OH jee, straks gaan een computer mijn werk doen, dus dat zal denk ik weerstand opleveren en en ook het
				Loss of Human Touch	[Interviewee 11] Ik heb liever dat Mensen naar kijken
				Reluctant To Change Work Procedures	[Interviewee 3] je merkt dat bij consulenten daar ook wel heel vaak in zit met, oh ja, maar zo hebben we het altijd gedaan, dus zo willen we het eigenlijk het liefst ook blijven doen
				Skeptical of Functionality	[Interviewee 12] De ervaring leert ons dat zij vaak sceptisch zijn op op dergelijke vlakken
				System Change Effort	[Interviewee 7] En dan moet je dus overstappen naar een ander systeem en dat kost dan nog wel eens wat wat inspanning,

		System Safety	Complexity	[Interviewee 13] De complexiteit van je landschap wordt in absoluut term, wordt die complexer en meer entiteit, meer verbindingen.
			Human Error	[Interviewee 4] Zit daar dan ook nog, kan naar hun ook nog een menselijke fouten in zitten, want die data moet opgevoerd worden
			Overrelience	[Interviewee 13] Het wordt er wel een ding, Als je Alleen nog maar ja, je hebt dus dat de mens zo lui wordt dat we alles maar vertrouwen
			Solid Foundation	[Interviewee 13] Maar dat wil wel zeggen dat er dingen onder jou steeds goed moeten zijn, hè?
		Technology General	Bias	[Interviewee 8] Yeah. And I just don't want to be. A subject of.Implicit bias that is contained in the model.
			Inaccurate Input	[Interviewee 3] op het moment dat jij nou ja, niet het goede aan de voorkant erin stopt, gaat ook zo'n systeem het niet foutloos aan de achterkant eruit gooien
			Privacy	[Interviewee 6] Hoe ga je om met privacy dat soort zaken? Wat jij nou net aan mij vroeg hè? Van tevoren even een een documentje Laten ondertekenen? Ja niet zomaar lukraak allerlei informatie ophalen en dat vervolgens weer verwerken en delen of Mensen toegang geven van buitenaf in teams.
			Reduced Control	[Interviewee 13] Maar ik denk voor elke organisatie is dat men steeds minder in controle is van wat gebeurt er nou eigenlijk allemaal onder de motorkap? Ik vind dat best wel ook zorgwekkend.
	Meaningful Human Control	Human Involvement	Communication with Human	[Interviewee 11] Met de telefoon kan ik wel mee leven. Ja, want dan nou ja, goed dan dan, dan krijg je toch. Wel is ook een half persoonlijk zeg.
			Human Touch	[Interviewee 2] Ja, we werken met Mensen voor Mensen.
			Visible Human Control	[Interviewee 4] Maar dat menselijke contact met name binnen de WMO zou wel moeten blijven.
		Human Supervision	Collaborative Oversight	[Interviewee 7] Het komt natuurlijk wel eens voor dat een aanvraag toch uiteindelijk wordt doorgeschoven. En wat ik al zei, hebben we ook een keer. In de week hebben ze casuïstiek overleg, dus dan komt dit soort dingen vrij snel naar boven.
			End-Stage Quality Check	[Interviewee 7] En, ik geloof er ik, ik geloof er wel in dat dat de de menselijke kant van het hele aanvraagproces ook aan de achterkant wel leiden tot de betere besluitvorming.
			Human can Override	[Interviewee 8] I really think that a model shouldn't be allowed to make the final decision. I really think that. A human. The employee must have the final say on any decision
		Responsibility	Human Final Say	[Interviewee 8] So in the end, I think who's accountable, accountable for decisions is always a human and not a mode
			Technology has Support Function	[Interviewee 4] Ik denk dat AI het menselijke proces niet helemaal kan vervangen, Maar het kan wel helpen in ondersteuning. Waarom je het op bepaalde keuzes komt.

Q4. Succes Factors AI Implementation	Stakeholder Engagement	AI Opinion Involved Parties	Better then Human		[Interviewee 4] Ik denk wel dat daar wat tijd overheen gaat en op een gegeven moment voor de inwoner zou daar Natuurlijk uiteindelijk uit kan als wari goed geïmplementeerd hebben, zou dat Natuurlijk kunnen bijdragen aan een eerlijker toewijzingsproces.
			Carefull Approach		[Interviewee 10] En ze denken, ja, Het is Alleen maar vooruitgang, denk ik. Maar het moet wel met beleid. En voorzichtigheid behandeld worden, denk ik.
			Necessity AI		[Interviewee 13] Nou, je gaat op een gegeven moment achterop lopen, maar is dan kun je de vraag stellen, is dat erg?
		Citizens	Citizen Involvement		[Interviewee 13] moeten wij Natuurlijk ook ja structureel contact blijven houden met die klant en die klant informeren dat die die integratie op een nette manier draait.
			Citizen Willingness		[Interviewee 7] Ja, dan zou ik het willen proberen, dan zou ik gewoon willen kijken. Kan het mij iets bieden en dat heb ik gewoon nog niet door.
			technologie mening inwoners		[Interviewee 10] Alhoewel, ja nu mijn gegevens Natuurlijk daar in mijn gemeente ook Natuurlijk allemaal in In de computer staan
		Civil Servant	Employee Willingness		[Interviewee 3] En altijd Mensen die nog 100.000 Leeuwen en beren zien en denken, oh ja, maar wat betekent dit dan voor mijn baan en gaat het dan niet fout en wat dan als?
			Enthousiasm		[Interviewee 13] Ik zit in het groepje dat ik. Ik vind het heel leuk om nieuwe dingen te bedenken en Ik vind het een mooie kans
			Skeptical of Neccesity		[Interviewee 7] Belangrijkste vraag is of of ik of ik het zou willen denk ik hè, of ik of ik of ik dit soort technieken wel zie zitten?
			Citizen Communication	Inform Citizens	[Interviewee 9] Ja dus, kijk voor voor het stukje informeren is Natuurlijk het. Het register ook In het leven. Daar staat Natuurlijk ook niet alles in, dus dus Het is ook een kwestie van. Ja hopen dat Mensen ook de vragen die ze hebben ook gewoon stellen.
				Open Communication Citizens	[Interviewee 13] Steeds meer burgers zijn wantrouwend ten opzichte van de gemeente en gaan ook de gemeente kritische vragen stellen van Hé, gebruiken jullie HI, wat weten jullie van mij? Dus wij moeten heel snel die burgers ook kunnen voorzien van het feit
			Decision Making	Bottum-Up Desicion Making	[Interviewee 6] Dingen wordt dat vaak van het onderaf geïnitieerd, hè? Wij hebben wij willen juist dat de consulenten aangeven van oké, welk proces loopt goed en welk proces loopt niet goed.
				Municipal Wide Involvement	[Interviewee 9] En dat het ook moeilijk is om ja die Mensen ook echt betrokken te krijgen en je hebt die ook nodig Natuurlijk, want zij weten wat er inderdaad staat.

		Municipal Support		Top-Down Decision Making	[Interviewee 7] En dat besluit wordt binnen de directie genomen en als dat heel veel geld kost, dan zullen we daar toestemming moeten vragen van de gemeenteraad, want die gaan over de financiën. Maar uiteindelijk beslist de directie, want die krijg je Natuurlijk vanuit hun leidinggevende te horen van dat dingen niet goed meer werken of te langzaam gaan
			Ensure Legality		[Interviewee 13] Omdat de gemeente gebonden is aan allerlei wet en regelgeving.
			Government Coercion		[Interviewee 13] Alle informatiestromen gaan via dat hit, dus Je moet je staat midden In de hectiek. Wij moeten naar boven kijken naar die processen. We moeten naar beneden kijken naar de technologie. Links staat een security man naast me, rechts staat een privacy vrouw naast me. Die hebben allemaal het belangen en alles moet aan elkaar geknoopt worden, dus dat maakt het extreem complex en moeilijk.
			Political Program		[Interviewee 9] Vaak wordt er eerder al besloten, ne, welke welke kant je opgaat, dus Dat is echt meer de echt de de richtlijnen vanuit de politiek, hè? Dus echt het programma wat wordt opgesteld
			Resource Investment		[Interviewee 9] Ontwikkelaar kan zelf namelijk niet bepalen wat goed genoeg is. Die heeft daar een idee bij. Die wil het altijd nog beter doen, maar op een gegeven moment is het goed genoeg en kost het.
		Process Contributions	Faster Process		[Interviewee 6] Ja zeker zeker ja. Het versnellen van het process is belangrijk
			Increased Efficiency		[Interviewee 3] Maar vooral die efficiëntieslag, denk ik, waardoor je? Nou ja, je je medewerkers kunt Laten doen waar ze voor zijn. Dat lijkt me wel een hele. Mooie toevoeging.
			Increased Quality		[Interviewee 4] Wat mij persoonlijke moet opleveren, is dat we hogere kwaliteit kunnen leveren
			Low Margin for Error		[Interviewee 9] Ja dan worden de eisen Natuurlijk aan wat je doet veel hoger, dan moet de mate waarin dat correct is ook veel hoger zijn.
			Reduced Employee Workload		[Interviewee 3] Nou wat een enorme meerwaarde, denk ik zal zijn, is dat het de senioren eigenlijk ontlast zodat ze aan die kwaliteitseis ontwikkeling op de afdeling.
		System Interactions	System Compatibility		[Interviewee 3] Ja, ik denk dat het heel erg moet aansluiten bij bij in ieder geval de bestaande hoofd applicaties. Dus Als je echt een heel ander systeem moet gaan implementeren om dit te kunnen doen. Nou ja, dan dan gaat dat niet werken. Gaan gemeente het ook niet doen, want Dat is ook veel te kostbaar, dus
			System Safety		[Interviewee 2] Ja überhaupt om om met met de met de systemen aan de slag te gaan waar we mee werken en die brongegevens goed te Laten landen

	Technical Functionality		Systemen Jungle	[Interviewee 3] Dat zijn bijvoorbeeld BMO, twee hele belangrijke samenwerkende partners. Nou, die hebben hele andere systemen, dus die kunnen bijvoorbeeld niet in ons systeem werken.
			User-Friendly	[Interviewee 2] goed te Laten landen om zo een goed dashboard te hebben en dergelijke.
		Tool Functionalities	Data Protection	[Interwiewee 6] Op welke documenten slider op wat niet. Hoe ga je om met privacy dat soort zaken?
			Decision Criteria Insights	[Interviewee 4] Maar het zal je moeten helpen in besluitvorming waarin je met elkaar zou. Ook zou kunnen leren van hé. Waarom kom jij tot een ander besluit dan ik? En daar zou MI wel een mooie toevoeging kunnen zij
			Excludes Citizen Involvement	[Interviewee 13] Die case denk ik nou niet van, maar je moet ergens anders naartoe en die is ga je hoop ik kundig genoeg om dan te beseffen, die moet ik naar een kopietje sturen en dan wordt het gecorrigeerd, dus dan heeft die burger daar relatief weinig last van
			Frequent Updates	[Interviewee 5] Dus die tool moet wel goed afgestemd worden en ook telkens geupdate worden van als er iets verandert In het team.
			Transparency	[Interviewee 13] Daarnaast is de gemeente ook Natuurlijk een publieke organisatie die hè dus reputatie van de gemeentes heel erg belangrijk. Dan is het belangrijk dat je ook transparant bent dat je weet wat er voor technologieën gebruikt worden binnen een organisatie.
		Cost-Beneft Awareness		[Interviewee 4] Nou, er zitten eigenlijk altijd in tekorten, helemaal In de afgelopen tijd, dus om dat soort efficiëntieslagen te maken kost geld moet in geïnvesteerd worden, dus daar moet een heel goed kosten en batenanalyse op gemaakt worden vanwege. Wat gaat het ons uiteindelijk opleveren? En mijn ervaring bij gemeenten is dat het altijd in geld uitgedrukt moet worden.
			1. Needs Assessment	[Interviewee 9] Ja in die zin gaat het ook vooral om om echt het neerzetten van een goede business case. Waar moet het eigenlijk aan voldoen en wat we probleem wil je nu eigenlijk mee oplossen en welk onderdeel van het proces gaat dat dan precies vervangen en gaat het iets vervangen of is het ter ondersteuning dus echt het bepalen van hoe je het inzet en voor wat precies.
			2. Tool Selection	[Interviewee 2] Ja, Ik denk dat EI ook wel weer heel, heel breed inzetbaar is en hè, dus Het is maar wat wat welk stukje van A ga je gebruiken?
			3. Data Collection and Integration	[Interviewee 5] Nou, ja ik, Ik kan me voorstellen dat je dat je die computer zeg, maar hè, die dat bedenkt bepaalde input geeft en op basis daarvan gaat hij dat uitzetten, maar die input kan wijzigen, dus wil je er het juiste uit krijgen moet je goed opletten wat je erin stopt om het te kunnen aan te gaan.

	Well-Conducted Implementation Procedure	Implementation Steps	4. Training and Capacity Building	[Interviewee 9] waar ze ook actief aangeven welke functionaliteiten zij nodig hebben en welke functionaliteit je collega's nodig hebben om de om de tool te gebruiken.
			5. Tool Configuration and Customization	[Interviewee 3] Ja, Ik denk dat het heel erg moet aansluiten bij bij in ieder geval de bestaande hoofd applicaties. Dus Als je echt een heel ander systeem moet gaan implementeren om dit te kunnen doen.
			6. Pilot Testing and Evaluation	[Interviewee 9] Ja dat dat valt de straat denk ik gewoon met een monitoring ook die je van tevoren afspreekt, hè? Dus Als je van tevoren afspreekt waar het aan moet voldoen, moet je in ieder geval die punten gaan meten dat het ook echt zo is.
			7. Rollout and Integration	[Interviewee 3] En twee is ook het het vroegtijdig Laten oefenen van Van medewerkers, dus een soort testomgeving creëren waarin ze gewoon eens kunnen zien met oké wat, wat gebeurt er nu?
			8. Continous Improvement	[Interviewee 9] Nou ja, en dat wil je eigenlijk periodiek Natuurlijk even weren, dus na een periode zeg een jaar Misschien twee jaar kijk je nog naar die afspraken en kijk je of je het dan daar nog steeds mee eens bent met elkaar en of dat er in een veranderende wereld nog aanpassingen nodig zijn.
		Iterative Process		[Interviewee 9] Ja en Ik denk ook dat die vaker terugkomt, he? Want op het moment dat je bezig bent, kunnen dingen Misschien net anders zijn, Maar dat je verwacht van tevoren en dan moet je dat ook bijstellen.