

DESIGNING HEALTH POLICIES FOR PEOPLE

Exploring the integration of Human-Centered Design
in Health Policymaking



BY LIESE TAN

Master Thesis
Strategic Product Design
Industrial Design Engineering
Delft University of Technology

Supervision by
Dr. Ir. Marijke Melles
MSc Fredrik Bodell
MSc Martijn Mes

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DESIGNING HEALTH POLICIES FOR PEOPLE: EXPLORING THE INTEGRATION OF HUMAN- CENTERED DESIGN IN HEALTH POLICYMAKING

By Liese Tan — 5695252
February 12, 2025

MSc Thesis Strategic Product Design
Medesign Specialisation
Faculty of Industrial Design Engineering
Delft University of Technology

Chair | Dr. Ir. Marijke Melles
Mentor | MSc Fredrik Bodell
Internship provider | PricewaterhouseCoopers
Internship Mentor | MSc Martijn Mes

PREFACE

I am honored that you have taken the time to read my thesis. It is my pleasure to guide you through my research: an exploration of the intersection between design, policy, and health—fields that, while seemingly distinct at first glance, have the potential to complement one another in powerful ways. With a personal background influenced by both Western and Asian cultures, I have come to believe that blending different perspectives – whether cultural, professional or otherwise – can lead to innovative ideas that we might have not considered before.

The idea for this research was sparked during my internship at an organization advising on health and policy matters. I observed a genuine interest in design among policymakers and a recognition of its potential value to develop solutions that are holistic and responsive to human needs. Yet, in practice, they faced significant challenges in applying design methods to their projects and policy implementations. This led me to ask: What are the challenges health policymakers encounter, and how can we address these to integrate design more effectively, making health policies truly human-centered? As I delved deeper, a personal experience deepened my commitment to this research.

During the course of this study, my grandmother, who had lived a full and rich life, became gravely ill. Her illness and rehabilitation journey revealed how health policies—developed with good intentions—could sometimes worsen her challenges instead of alleviating them. From being sent home prematurely from a rehabilitation center without adequate home adjustments to navigating overwhelming paperwork and a health insurance system that seemed more focused on minimizing costs than on understanding her needs. Perhaps if she had been asked from the beginning, she might have shared that, having lived a fulfilling life, she was ready to let go. Her struggles highlighted a critical question: Are health policies genuinely designed with individuals in mind? Are we truly listening to what people need, particularly in their most vulnerable moments?

I believe many of us have someone like my grandmother in our life—someone who needs care and whose experiences underscore the gaps in our health system. This personal experience reinforced my dedication to exploring how health policies could be better designed to serve the real needs of those they aim to protect.

This research does not aim to provide definitive answers but rather to explore how design can foster more compassionate and responsive health policies. My hope is that it inspires

you to think differently about the role of design and how it can contribute to more human-centered health policies.

This journey would not have been possible without the support and efforts of many individuals. First, I would like to express my gratitude to all the health policymakers and citizens who participated in this research and shared their passionate and curious perspectives on how to make our health policies more human-centered. I am also deeply grateful to my supervisors at TU Delft & PwC, Marijke Melles, Fredrik Bodell, Martijn Mes and Marije Nieuwenhuis for their expertise, guidance, and flexibility, particularly during the period when I became sick myself and had to postpone my research. Lastly, I want to thank my boyfriend, family, and friends for their unwavering love and support throughout this journey.

As I close this chapter, I look forward to the next. I would love to discuss my research if it sparks your curiosity or encourages ideas on creating human-centered health policies.

- Liese

ABSTRACT

The Dutch health system faces significant challenges, yet health policymakers encounter complex dynamics that can hinder the development of effective policies. This research explores the integration of Human-Centered Design into health policymaking to help policymakers navigate these dynamics and develop more effective, responsive policies. Using a mixed-methods approach—including a literature review, semi-structured interviews, and a co-creation study—this study highlights the potential of Human-Centered Design to support policymakers in overcoming barriers in policymaking. By integrating its principles, health policies can be better aligned with real world needs, reducing the likelihood of costly revisions.

To support the integration of Human-Centered Design in policymaking, this study identifies ten challenges policymakers face when integrating it, based on interviews with policymakers, and proposes five solution areas derived from a co-creation session with policymakers and citizens. To further advance the integration of Human-Centered Design in health policymaking, this study recommends exploring practical tools that can assist policymakers in applying its principles, as well as exploring the role of designers in guiding this integration.

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DESIGNING HEALTH POLICIES FOR HUMAN NEEDS

1. INTRODUCTION

1. INTRODUCTION

This chapter introduces the research context of this thesis. It first explores one of the primary domains of this study—the health policy landscape—highlighting the barriers health policymakers encounter in policymaking. Then, it introduces the second field of interest, Human-Centered Design, and briefly explores its potential to overcome these barriers in policymaking. Additionally, this chapter presents the research objective and the central research question of the study. Finally, this introduction presents the approach to address the research objective.

1.1 THE HEALTH POLICY LANDSCAPE: A SYSTEM UNDER PRESSURE

The Dutch health system faces major challenges. An aging population, workforce shortages, and rising health costs, are placing a growing burden on the quality and accessibility of care (IZA, 2022). Despite the ongoing efforts to address these challenges, health policymakers encounter various dynamics that can create barriers to develop effective and responsive policies.

The first dynamic that can create barriers for health policymakers is the complexity of the challenges they need to address. These so called ‘wicked problems’ can be defined by their complex, open, interconnected and dynamic nature (Rittel & Webber, 1973). As these problems are deeply embedded within broader societal contexts, addressing these problems through traditional problem-solving approaches, such as reductionist and linear methods, often proves inadequate, as these methods tend to fragment complex issues into smaller, more manageable components, which can overlook their interconnected nature (Rittel & Webber, 1973; Sweeney & Griffiths, 2002).

The second dynamic that can create barriers for policymakers is the health policy environment itself. Within this environment, policymakers need to manage pressures from diverse stakeholders with competing interests and expectations, address short-term policy priorities influenced by electoral cycles, and respond rapidly to emerging crises such as pandemics (Greer et al., 2015; Johanson, 2018; Sweeney & Griffiths, 2002).

The third dynamic that can create barriers for health policymakers is the interconnected system in which policies are implemented. These systems—spanning organizations, healthcare networks, and entire nations—are influenced by economic, social, political, technological, and environmental factors, many of which lie beyond policymakers' control

(Haynes et al., 2019). As a result, key leverage points for change often lie beyond their influence (Sterman, 2006).

1.2 HUMAN-CENTERED DESIGN: A PROMISING APPROACH

Human-Centered Design (HCD) might provide a promising approach that can help policymakers to overcome the barriers posed by the dynamics in health policymaking. Human-Centered Design is a field of design that focuses on understanding human needs and developing solutions that effectively address them. It consists of three principles: understanding human needs, involving stakeholders throughout the process and adopting a systems approach (Melles et al., 2020). Integrating these principles into the policy development process may help policymakers overcome barriers and create more effective, responsive policies that align with human needs.

To overcome the barriers posed by the complex nature of the challenges that policymakers must address, policymakers might derive value from integrating Human-Centered Design principles, such as conducting in-depth research into human needs and adopting a systems perspective in their approach. Since societal challenges often lack clear definitions, doing thorough research into how individuals think, behave, and interact with their sociotechnical environment might help to frame the 'right' policy problems.

To overcome some of the barriers posed by the health policy environment itself, policymakers may derive value from integrating Human-Centered Design principles, such as involving stakeholders throughout the process. Given that policymakers need to navigate the pressures from stakeholders who have competing interests and expectations, early and continuous stakeholder involvement may help to align policies with stakeholders' needs and expectations.

However, the integration of Human-Centered Design into health policymaking is assumed to present challenges, due to methodological differences between the two fields, as Human-Centered Design is grounded in qualitative, user-centered research that emphasizes tacit knowledge, while health policymaking relies on explicit knowledge, such as health data and systematic research (Melles et al., 2020; Frenk et al., 2010). Yet, the literature on guiding the integration of Human-Centered Design into health policy formulation is sparse.

1.3 RESEARCH OBJECTIVE

This research explores the integration of Human-Centered Design into health policymaking to determine its potential in supporting policymakers in navigating the dynamics of the policy landscape and developing effective and responsive health policies.

Building on the work of Melles et al. (2020), who outline the principles of Human-Centered Design, this study examines how these principles can be effectively applied in the health policy context. Ultimately, this leads to the central research question: *'How can Human-Centered Design be effectively integrated into the health policy development process?'*

1.3.1 SCOPE

The scope of this research focuses on the Dutch health policy landscape, encompassing policymakers from governmental bodies, such as the Ministry of Health, Welfare & Sport and municipalities, which develop policies to ensure accessibility and quality in the health system. Additionally, it includes policymakers from regulatory and advisory bodies such as the Dutch Healthcare Authority (NZa) and branch organizations that advise or seek to influence these governmental authorities.

Moreover, this research considers policymakers from healthcare providers such as hospitals and insurers, which develop and implement policies regulating daily healthcare operations to align with broader health system objectives.

Finally, this research also considers consultancy firms, such as KPMG, McKinsey and PwC, that advise health policymakers on policy matters, recognizing their influence on policy development given the increasing government expenditure on consultancy services (Ministerie van Binnenlandse Zaken en Koninkrijksrelaties, 2023, 2024).

1.3.2 INTERNSHIP PROVIDER

This research is part of a graduation internship within the Healthcare Consultancy team at PricewaterhouseCoopers (PwC) Netherlands. PwC is a global company operating in over 150 countries, specializing in advisory, assurance, and tax & legal services.

The Healthcare Consultancy team at PwC consists of approximately 20 professionals who provide professional advice to various organizations and institutions in the health sector, ranging from government bodies and healthcare providers. The team advises policymakers on complex policy matters while also working on broader strategic and organizational challenges, such as transforming healthcare networks, implementing digital innovations, and optimizing healthcare operations. The team is particularly interested in integrating Human-Centered Design principles into their consulting strategies to support health policymakers overcome barriers in policy development while also creating new opportunities for business.

1.4 APPROACH

To explore the integration of Human-Centered Design into health policymaking, this research adopts a human-centered approach by applying its principles and tools. Through a mixed-methods design—including a literature review, semi-structured interviews, and a

co-creation study—it aims to identify challenges associated with integrating Human-Centered Design into health policymaking and explore potential solutions.

The study begins with a literature review to establish a deeper understanding of health policy and the field of Human-Centered Design. It examines the barriers that health policymakers encounter in policy development and explores the principles of Human-Centered Design. Furthermore, it explores how Human-Centered Design can support policymakers in overcoming these barriers. The literature review is presented in Chapter 2.

The second phase consists of an interview study with health policymakers. The aim of the interviews is to define the health policymaking process in practice and analyze how it differs from Human-Centered Design. Additionally, the objective is to identify challenges related to integrating Human-Centered Design into policymaking and evaluate whether policymakers perceive it as a valuable approach. The findings from this phase are discussed in Chapter 3.

The third phase involves a co-creation study with health policymakers and citizens, focusing on addressing some of the identified challenges. The objective of this session is to brainstorm ideas and explore potential solutions for integrating Human-Centered Design into health policymaking. This co-creation study ultimately aims to identify solution areas that can inform further research and guide policymakers to address these challenges. The co-creation study is presented in Chapter 4.

In the fourth phase, the implications of the findings from the interview and co-creation study are discussed, and recommendations for integrating Human-Centered Design into health policymaking are provided. These discussions and recommendations are presented in Chapter 5. Finally, the research concludes with a summary of the findings and final reflections.

This research ensures a human-centered approach by conducting research into human needs through interviews with policymakers. Furthermore, by involving stakeholders in both the interview and co-creation studies, the research incorporates the perspectives of policymakers and citizens. Additionally, a systems approach is applied by including policymakers from various levels of the health system, recognizing their interactions and interdependencies.

DESIGNING HEALTH POLICIES
FOR HUMAN NEEDS

**2. EXPLORING THE
CONCEPTS OF
HEALTH POLICY AND
HUMAN-CENTERED
DESIGN.
A LITERATURE
REVIEW**

2. EXPLORING THE CONCEPTS OF HEALTH POLICY AND HUMAN-CENTERED DESIGN. A LITERATURE REVIEW

The introduction provides a brief overview of the barriers in policymaking and how Human-Centered Design might be a promising approach to address them. However, a deeper understanding of the concepts of 'Health Policy' and 'Human-Centered Design' is necessary to explore how Human-Centered Design can be effectively integrated into health policymaking. Therefore, this literature review first explores the definition of health policy and the policymaking process. It then provides an overview of the Dutch health policy landscape, presenting insights into the various actors involved across different levels of the health system. Additionally, this literature review explores the barriers health policymakers encounter when developing policies and delves into the field of Human-Centered Design, its core principles, methods, and values. Finally, this study provides a more in-depth discussion on how Human-Centered Design might serve a promising approach to overcoming the barriers in policymaking.

2.1 HEALTH POLICY

This study explores the integration of Human-Centered Design into health policymaking. Therefore, it is essential to get an understanding of the foundational concept of health policy. The following sections outline a deeper exploration into the definitions of health policy, the policy formulation process, key actors in the health policy landscape and the barriers policymakers face when developing policies.

2.1.1 DEFINING HEALTH POLICY

Defining the concepts of 'health,' 'policy,' and ultimately 'health policy' is essential, as their meanings can vary depending on context and stakeholder perspectives. Given this variability, this research explores multiple definitions to establish a clear working definition, ensuring conceptual clarity and consistency throughout this study.

The concept of 'policy' is particularly challenging to define due to its multifaceted nature. Some interpretations associate policy with governmental actions, as reflected in the definition of Cochran et al. from 1983 (in Birkland, 2005, p18): *"The actions of government*

and the intentions that guide those actions". Others adopt a broader perspective, describing policy as *"The formal decision or plan of action adopted by an actor ... to achieve a particular goal"* (Richards & Smith, 2002, p1). From a legal perspective, policy can also be defined as *"The law,"* emphasizing its alignment with legislative and regulatory frameworks (Clavier & De Leeuw, 2013). These diverse interpretations demonstrate that 'policy' does not have a singular, universally accepted definition and is not a static concept. Instead, it is context-dependent, which adds complexity to understanding and defining its application within the health landscape.

Defining 'health' is equally challenging, as it encompasses multiple domains. Two particularly significant domains are 'public health' and 'healthcare,' which together can be perceived as the foundation of health-related efforts. Public health is focused on disease prevention and improving overall well-being across populations by addressing broader societal factors, including education, environmental influences, and socioeconomic conditions (Milio, 2000). In contrast, the healthcare domain is focused on maintaining and improving individual health through diagnosis, treatment, and disease prevention, typically delivered by health professionals through services such as primary care and specialized treatments (Thorpe et al., 2007).

Given the diverse interpretations of 'policy' and 'health,' this study adopts a working definition of health policy aligned with its focus. For the purposes of this research, health policy is defined as:

"The full range of actions and decisions made by institutions and organizations—whether public or private—with the authority to enact them, all aimed at achieving specific healthcare objectives"

This definition underscores a broad interpretation of policymaking, with a focus on the healthcare domain to align with the scope of PwC's healthcare consulting team. It was deliberately chosen to include both public and private institutions and organizations, reflecting the integral role of the private sector in the Dutch healthcare system, which operates within a privatized framework regulated by the government. This approach ensures that the definition captures the full spectrum of stakeholders and actions involved in health policymaking.

2.1.2 POLICY FORMULATION

With the concept of health policy defined, it is essential to understand how policies are formulated. This understanding lays the groundwork for researching how Human-Centered Design can effectively be integrated into health policymaking. Policy cycles provide structured frameworks for analyzing processes through which governmental and non-governmental institutions and organizations develop policies (Harris et al., 2022). Given the complexity and variability of the concept of 'policy,' there is no singular policy cycle model. Instead, various models exist, each highlighting different perspectives on the

polycymaking process. This study adopts the policy cycle proposed by Jann and Wegrich (2007) as the working policy cycle, as it has evolved into the conventional way of describing the policy process. A single model was chosen as the working policy cycle to ensure clarity and consistency throughout this research.

POLICY CYCLE BY JANN AND WEGRICH

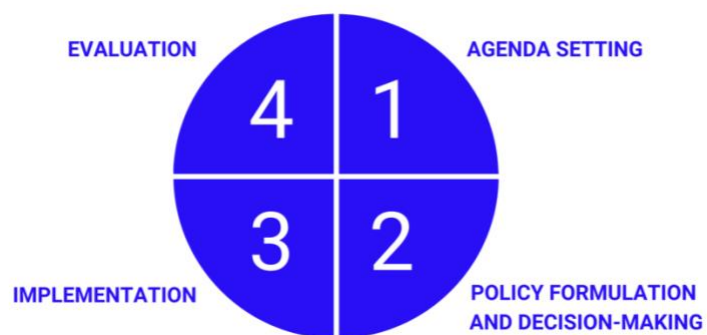
The policy cycle proposed by Jann and Wegrich (2007) consists of four stages: (1) Agenda setting, (2) Policy formulation and decision-making, (3) Implementation, and (4) Evaluation, which may lead to policy termination. Recognizing the limitations of earlier polycymaking models, Jann and Wegrich (2007) developed a framework that is more descriptive of the real-world policy-making process than a prescriptive normative model.

The first stage of Jann and Wegrich’s policy cycle (2007), agenda setting, involves recognizing and defining a social problem as one that requires intervention. Once recognized, the social problem is placed on the policy agenda for further consideration of action, where it competes with other pressing concerns for attention. Actors actively seek to influence and shape this agenda, for example, by leveraging rising public concern over an issue or framing the problem in a particular way. As a result, agenda setting leads to a selection of various social problems that are prioritized for further action.

The second stage of the policy cycle consists of two substages: policy formulation and decision making. In this stage social problems, proposals and needs are transformed into policies. Policy formulation involves defining policy objectives, considering various action alternatives, and proposing several instruments or strategies to achieve these objectives. The decision-making process determines whether the formulated policy will be adopted or rejected. This process extends beyond information gathering and processing, as it primarily involves negotiation and conflict resolution among stakeholders with vested interests. Some policy models distinguish between formulation and decision-making, but Jann and Wegrich (2007) contend that a strict separation is unrealistic because policies do not always develop into distinct programs, making these substages inherently interconnected.

The third stage, implementation, involves executing and enforcing the adopted policy by the responsible institutions and organizations. According to Jann and Wegrich (2007) effective implementation requires the allocation of resources, defining the details of the solution, and the delegation of decision-making authority. However, adopting a policy does

ILLUSTRATION 1. POLICY CYCLE BY JANN & WEGRICH



not ensure that its execution will fully align with the aims of the policymakers, as the policies formulated at the frontline are difficult to control through objectives, programs, laws and other mechanisms. As a result, adopted policies are frequently modified, delayed or even blocked.

The fourth and final stage of the policy cycle, evaluation, assesses whether the policy has met its intended objectives and contributed to resolving or alleviating the identified problem. Evaluation may lead to policy termination, or a redesign based on revised problem definitions. However, evaluation is not limited to the final stage; it can take place throughout all stages of the policy cycle, informing adjustments or potential discontinuation. Nevertheless, Jann and Wegrich (2007) argue that evaluation has evolved into a distinct subdiscipline within policymaking.

Although Jann and Wegrich (2007) acknowledge that their policy cycle provides a simplified depiction of reality, they argue that it remains a valuable framework for understanding how policies are developed, making it suitable for this study's objectives.

2.1.3 EXPLORING THE DUTCH HEALTH POLICY LANDSCAPE

Now that the policymaking process has been outlined, it is necessary to gain an understanding of the actors that are responsible for shaping these policies. Gaining an in-depth understanding of the Dutch healthcare policy landscape helps to identify the key actors involved in policymaking and the challenges they face.

POLICYMAKING ACTORS ACROSS HEALTH SYSTEM LEVELS

The Dutch healthcare system functions within a regulated market framework, where both governmental and private actors contribute to health policymaking. These actors operate across the three levels of the healthcare system: governmental, intermediary, and operational (Lamping et al., 2012). Understanding how these actors at these levels interact provides insight into how policies are developed.

The first level, the governmental level, is responsible for overseeing the healthcare system and ensuring accessibility, quality, and cost containment (Lamping et al., 2012). Authorities at this level develop and regulate policies to achieve these objectives. Actors at this level include the Dutch Parliament, the Ministry of Health, Welfare & Sport, provinces, and municipalities (Van Driesten & Wessels, 2023). These actors collectively contribute to policymaking within the Dutch healthcare system through a multi-level governance structure, in which decision-making responsibilities and authority are distributed across various governmental levels (Bache & Flinders, 2004; Van Overbeke & Stadig, 2020). An example of the interconnected dynamics of policymaking at this level is the Public Health Act (WPG). This act regulates various aspects of public health services, including infectious disease control, and is established at the national level (Van Driesten & Wessels, 2023). However, the responsibility for developing and implementing public health policies is assigned to municipalities (Lamping et al., 2012).

The second level, the intermediary level consists of organizations positioned between the governmental and operational levels, providing information and expertise for governmental policies. This level includes approximately 200 organizations that play a significant role in shaping policy development and implementation. According to Lamping et al. (2012), the increasing specialization of healthcare knowledge and expertise has led these organizations to play a central role in shaping policy debates and influencing decision-making processes. Actors at this level include the Dutch Healthcare Authority (NZA), which oversees pricing structures in the healthcare sector, the Health Council of the Netherlands, which provides advice to the Ministry and Parliament on healthcare research, and branch organizations representing healthcare providers (Van Driesten & Wessels, 2023). An example of how intermediary organizations shape policymaking is the role of the NZa in this process. As an independent administrative authority, it plays a critical role in regulating the curative and long-term healthcare markets. Beyond setting budgets and tariffs for healthcare providers, the NZa enforces compliance with regulations and advises the Minister on necessary policy adjustments (Van Driesten & Wessels, 2023).

The third level, the operational level, consists of organizations and institutes responsible for the provision and execution of healthcare services. These organizations develop and implement policies that can regulate daily healthcare operations to achieve broader health system objectives, such as hospital protocols and healthcare procurement strategies (Brouwers et al., 2021; Han & Kim, 2024; Piscitello et al., 2024). Actors at this level include hospitals, health insurers, and local health services like the GGD (Lamping et al., 2012; Van Driesten & Wessels, 2023). An example of policy application at this level is described by Iness et al. (2022), who explain how hospitals implemented visitor restrictions during the COVID-19 pandemic to mitigate the spread of infections.

In addition to the actors at the governmental, intermediary, and operational levels, consultancy bureaus can also be considered important actors in the Dutch health policy landscape. These firms, such as KPMG, Deloitte, PwC, McKinsey and Berenschot, provide expert advice to authorities and organizations across the different levels of the health system. Their role in the government has expanded in recent years, as reflected in the increasing government expenditure on external consultancy services. In 2022, the Dutch government spent approximately 200 million euros on large consultancy firms, marking a substantial increase from the 40-million-euro expenditure in 2018 (Ministerie van Binnenlandse Zaken en Koninkrijksrelaties, 2024). Among these expenditures, the Ministry of Health, Welfare, and Sport allocated 18 million euros in 2022 specifically for external policy advice (Ministerie van Binnenlandse Zaken en Koninkrijksrelaties, 2023). This growing expenditure suggests an increasing role for consultants in policymaking, leading to their consideration as influential actors in the health policy landscape.

CHALLENGES IN THE HEALTH POLICY LANDSCAPE

The Dutch healthcare landscape faces major operational and economic challenges. Due to an aging population, acute workforce shortages and rising healthcare costs there is a significant burden on the quality and accessibility of care. In addition, the healthcare sector faces broader systemic challenges, including the need to achieve sustainability objectives, enhance cross-sector collaboration and adapt to rapidly advancing technologies (IZA, 2022). Despite the ongoing efforts to address these challenges, policymakers encounter various dynamics that can create barriers to respond with effective policies.

The first dynamic that can create barriers for health policymakers stem from complexity of the challenges they need to address. Rittel and Webber (1973) describe these societal challenges as ‘wicked problems’ – problems that are open, interconnected, complex and are constantly changing. Unlike scientific or engineering problems, which can be clearly defined and broken down into smaller, solvable components, wicked problems resist such reductionist and linear problem-solving approaches as they are deeply embedded in broader societal contexts (Rittel & Webber, 1973; Sweeney & Griffiths, 2002). Wicked problems lack clear definitions, as the way a problem is framed determines the considered solutions, making it impossible to fully describe the problem without simultaneously evaluating potential approaches. For instance, when addressing the challenge of rising healthcare costs, is the root of the problem the aging population or the increasing healthcare expenditures? This example illustrates how the problem is framed, shapes the solutions that are considered. In contrast to engineering challenges, where all relevant information is available upfront, wicked problems evolve continuously as new perspectives emerge and additional complexities unfold.

The second dynamic that impacts health policymaking is the health policy environment itself. Within this environment, policymakers must navigate the influence of multiple stakeholders with competing needs, priorities, and objectives, including healthcare professionals, patient advocacy groups, industry representatives, and government authorities (Haynes et al., 2019). Additionally, policymakers must contend with political influences, including political decisions, conflicts, and resource constraints (Greer et al., 2015). Electoral terms at the governmental level further shape health policymaking, as decision makers often prioritize short-term political objectives over long-term (Johanson, 2018). This dynamic can lead to abrupt shifts in policy direction and funding distribution. Furthermore, the necessity for rapid responses, particularly during crises and public health emergencies, adds another layer of complexity, as the urgency to act can bypass standard consultation and evidence-gathering procedures (Sweeney & Griffiths, 2002).

The third dynamic that can create barriers for health policymakers is the interconnected system where policies are part of. As described earlier, health policies are implemented within large, interconnected systems, such as organizations, healthcare networks, and entire nations (Haynes et al., 2019). These systems are influenced by a wide range of factors—economic, social, political, technological, and environmental—making it difficult

for policymakers to control these factors. Many of the most effective points for change, also known as leverage points, lie beyond their reach of influence (Sterman, 2006).

2.2 HUMAN-CENTERED DESIGN

With an understanding of the health policy landscape established, it is essential to gain an understanding of the concept of Human-Centered Design, to explore its potential integration into health policymaking. The following sections provide a deeper exploration of the field of Human-Centered Design, its core principles, methods, and their values.

2.2.1 EXPLORING THE FIELD OF HUMAN-CENTERED DESIGN

Human-centeredness lies at the core of design. As Van Der Bijl-Brouwer & Dorst (2017, p.1) perfectly capture, “to today’s product and service designers it goes without saying that products and services should meet people’s needs and aspirations.” Over time, Human-Centered Design has evolved into a distinct field of expertise, providing methods and principles to understand human behavior and interactions with their environment. These principles guide the design of products and services that are both functional and meaningful, ensuring alignment with user needs and behaviors (Van Der Bijl-Brouwer & Dorst, 2017)

Over the past decades, design methodologies in general have gained traction in the social and public sectors, where they are used to address complex societal challenges. As a result, design is no longer confined to its traditional focus on products, but also plays a role in shaping services, procedures, strategies, and policies (Van Der Bijl-Brouwer & Dorst, 2017). Despite this growing recognition, the role of design in policymaking remains largely limited to the implementation phase, with minimal integration into the earlier stages of policy development (Junginger, 2013). This gap suggests that Human-Centered Design may have the potential to play a more comprehensive role in policy design, fostering policies are not only effectively implemented but also more aligned with the needs and experiences of the people they aim to serve. To further explore this potential a deeper understanding of the Human-Centered Design principles, methods and their value is required.

PRINCIPLES OF HUMAN-CENTERED DESIGN

According to Melles et al. (2020) Human-Centered Design consists of three principles: understanding human needs, involving stakeholders throughout the process and adopting a systems approach.

The first principle, understanding human needs, involves thorough research into the needs of the individuals for whom the designed intervention is intended. Human-Centered Design emphasizes that these interventions must be grounded in a deep understanding of how individuals think, behave and are influenced by their sociotechnical environment to ensure that the problem being addressed is the ‘right’ one. A practical example of this

principle, as outlined in the research of Melles et al. (2020) at the operational level in healthcare, comes from the design team Mullaney et al. (2012), who explored patient anxiety during radiotherapy. Their research identified fixation technology, a device used to keep patients immobile during treatment, as a key source of distress, as it reinforced a passive role and the 'sick role.' This insight into patients' needs and behaviors prompted a shift from conventional coping strategies to redesigning fixation devices and improving patient interaction during treatment. This case highlights the first principle of Human-Centered Design: gaining a deep understanding of human needs to ensure the right problem is solved.

The second principle, involving stakeholders throughout the process, encompasses early and continuous engagement of stakeholders throughout the design process. Melles et al. (2020) emphasize that since designers create interventions for individuals whose skills and experiences differ from their own, it is essential to engage both users and other affected stakeholders to ensure the intervention is aligned with real-world needs. Understanding how people behave, their underlying beliefs, and what drives them requires studying stakeholders in their own context and actively engaging them in the design process. This is particularly relevant in health policy, where interventions affect patients, health providers and often governmental institutes and intermediary organizations. Given the complexity of the health policy landscape, selecting the right stakeholders from the beginning is crucial. Stakeholders include both the intended users and those who influence or are influenced by the intervention. An example of stakeholder selection and engagement throughout the design process at the operational level in the healthcare system is provided by Kleinsmann et al. (2018), as outlined in the research of Melles et al. (2020). The team of Kleinsmann et al. (2018) conducted a study on parental involvement in pediatric oncology teams and identified 25 distinct stakeholder groups involved in the process. By use of stakeholder mapping, they selected 12 participants from eight stakeholder groups and engaged them throughout the design process using techniques such as shadowing, interviews and prototype evaluations. This case exemplifies the second principle of Human-Centered Design: the continuous involvement of stakeholders throughout the design process.

The third principle, adopting a system approach, emphasizes a broad holistic perspective. Human-Centered Design recognizes that interventions are embedded within broader sociotechnical systems, where multiple interdependent components interact to form an integrated whole (Dul et al., 2012; Van Der Bijl-Brouwer & Dorst, 2017). The health system can be considered as a multifaceted sociotechnical system in which individuals, technologies, and tasks interact within a given environment. These interactions drive various processes—ranging from physical and cognitive to social, behavioral, and organizational—that collectively influence outcomes (Carayon et al., 2020). In other words, changes introduced at the micro-system level—such as individuals utilizing tools or carrying out specific tasks—will have effect on meso-systems, including teams and professional networks, as well as macro-systems, such as organizations or societies (Dul et al., 2012; Rasmussen, 2000). Thus, recognizing and addressing the interactions across

different levels is essential for developing effective interventions. Moreover, adopting a macro-systems perspective is crucial for understanding how individual behavior can be guided to support organizational objectives. This ensures that interventions are designed in alignment with broader system objectives. A practical example of adopting a systems approach, as outlined in the research of Melles et al. (2020), is provided by Thomson et al. (2018). The team of Thomson et al. (2018) designed an eHealth intervention to support patients with a chronic condition in maintaining medication adherence. During the design process, a prototype was developed and evaluated through tests and discussions with physicians to assess its perceived value and impact on their workflow. Insights from this feedback were then used to refine and enhance the product's functionality. This case illustrates the third principle of Human-Centered Design: adopting a systems approach.

METHODS AND TOOLS OF HUMAN-CENTERED DESIGN

Human-Centered Design employs a diverse range of tools and techniques to systematically address user needs. Different techniques serve distinct purposes, depending on the design context. For example, to gain a deeper understanding of user needs, values, and behaviors, Human-Centered Design utilizes qualitative research methods such as interviews and observations (Melles et al., 2020; Van Boeijen et al., 2020). Additionally, to facilitate stakeholder involvement, Human-Centered Design provides approaches such as co-creation sessions and stakeholder mapping, a technique used to create a visual representation of all stakeholder groups relevant to a given problem (Kleinsmann et al., 2018; Melles et al., 2020). These methods can help to uncover both explicit and implicit knowledge about stakeholder needs, values, and behaviors.

Generative tools can complement these methods by enabling individuals to express their experiences and behaviors, offering insights that may not emerge through direct questioning. Generative make tools, which encourage participants to make something such as a mindmap, can facilitate associative and creative thinking, supporting individuals to reflect on past experiences and explore future possibilities (Sanders & Stappers, 2012). One example in healthcare research where generative tools were used is described by Van Smoorenburg et al. (2019), who gave their patients reflective booklets before their interviews. This approach encouraged participants to engage with the topic in advance and provided researchers with a deeper understanding of how patients perceive self-management.

VALUES OF HUMAN-CENTERED DESIGN

Human-Centered Design can contribute to shaping both the process and the outcome of interventions, ensuring they are effective and responsive. This section explores the value of Human-Centered Design when developing interventions, based on the three principles outlined by Melles et al. (2020): understanding human needs, involving stakeholders throughout the process, and adopting a systems approach.

First, Human-Centered Design can enhance both the effectiveness and efficiency of design processes and their outcomes, reducing the risk of costly revisions in later stages

of the design process. By doing thorough research into human needs, behaviors, and their sociotechnical context, Human-Centered Design can ensure that the right problem is addressed. Moreover, continuous stakeholder engagement throughout the design process can facilitate iterative refinement, ensuring that interventions remain aligned with stakeholder needs (Melles et al., 2020).

Second, Human-Centered Design can foster human well-being and user satisfaction. Conducting in-depth research into users' behaviors, experiences, and needs fosters the development of interventions that are intuitive across physical, perceptual, cognitive, and emotional dimensions (Giacomin, 2014; Melles et al., 2020).

Third, Human-Centered Design can foster stakeholder participation, ensuring that the stakeholders affected by a design are actively involved in shaping it. Rather than viewing users as passive informants, Human-Centered Design encourages co-creation and advocates for the early and continuous engagement of stakeholders throughout the design process. This approach ensures that interventions are aligned with stakeholders' needs, behaviors, and could eventually lead to faster adaptation and increased engagement of stakeholders with the designed interventions (Holeman & Kane, 2019; Melles et al., 2020; Van Der Bijl-Brouwer & Dorst, 2017).

Finally, Human-Centered Design can play a role in responding to complex societal challenges. By recognizing the complex interactions between people, technologies and environment related to these challenges, Human-Centered Design provides a holistic approach that enables a deeper understanding of these interactions. This, in turn, facilitates the development of effective designs that create value for individuals and the broader sociotechnical context (Melles et al., 2020).

2.3 DISCUSSION

This literature review explored the concepts of 'Health Policy' and 'Human-Centered Design'. It examined the definition of health policy, the policy formulation process, key actors in the health policy landscape, and the challenges policymakers face in developing effective policies. Additionally, it provided an in-depth exploration of Human-Centered Design, its core principles, methods, and value. The following section discusses whether Human-Centered Design might serve as a promising approach for policymakers to overcome the barriers they encounter in policymaking, based on insights from the literature review.

2.3.1 POTENTIAL OF HUMAN-CENTERED DESIGN FOR HEALTH POLICYMAKERS

Human-Centered Design might provide a promising approach that may help policymakers to overcome the barriers created by the diverse dynamics in the health policy sector. By integrating the Human-Centered Design principles outlined by Melles et al. (2020) into

their development process, policymakers might create policies that are both effective and responsive, ensuring alignment with human needs.

To overcome barriers posed by the complex nature of the challenges that policymakers must address, policymakers might gain value from integrating Human-Centered Design principles, such as conducting in-depth research into human needs and adopting a systems perspective in their approach. Given that these societal challenges often lack clear definitions, doing thorough research to understand how individuals think, behave and are influenced by their sociotechnical environment may help to frame the 'right' problem for policy matters, thereby simultaneously proposing problem-solving approaches. Moreover, through adopting a systems perspective, policymakers might be able to address the interconnected nature of these problems.

To overcome some of the barriers posed by the health policy environment itself, policymakers may derive value from integrating Human-Centered Design principles, such as conducting thorough research into human needs and involving stakeholders throughout the process. Given that policymakers need to navigate the pressures from stakeholders who have competing interests and expectations, early and continuous stakeholder involvement, along with thorough research into stakeholder needs during policy development, may result in policies that are better aligned with stakeholders' needs and behaviors. This, in turn, could facilitate faster adaptation and strengthen stakeholder engagement with the policies.

To overcome barriers posed by the interconnected nature of the system in which health policies are implemented, policymakers might gain value from integrating Human-Centered Design principles, such as involving stakeholders throughout the process and adopting a systems approach. Given that policies operate within systems that are part of larger interconnected systems, adopting a broad and holistic approach that considers the interactions between these systems may contribute to the development of policies that are effective for individuals and their broader sociotechnical context. Furthermore, engaging stakeholders from other systems throughout the policy development process and understanding their needs and perspectives, may facilitate better alignment between policies and the several systems they are part of.

Although Human-Centered Design appears to be a promising approach, its integration into health policymaking may present challenges due to fundamental differences in research methodologies between the two fields. Human-Centered Design primarily relies on qualitative research methods and user-centered studies that emphasize tacit knowledge, such as beliefs, lived experiences, and perspectives (Melles et al., 2020). In contrast, health policymaking predominantly depends on explicit knowledge derived from systematic research and statistical data (Frenk et al., 2010). To assess whether Human-Centered Design is indeed a promising approach in practice, it is essential to gain a deeper understanding of both its potential and the challenges policymakers may face when integrating it.

2.4 CONCLUSION

This literature review provided a foundational understanding of the concept of health policy, outlining its definitions and development process. Additionally, it provided an exploration of the Dutch health policy landscape, providing insights into the various policymaking actors across the different levels of the health system. Furthermore, this study explored the barriers health policymakers encounter when developing policies, such as addressing 'wicked problems,' balancing competing stakeholder interests, and interconnected systems.

This literature review also explored the field of Human-Centered Design, its core principles, methods, and values. It discussed how Human-Centered Design might present a promising approach to overcome the barriers in policymaking by fostering a deeper understanding of human needs, involving stakeholders throughout the policy development process, and adopting a systems perspective. These Human-Centered Design principles may support policymakers in developing more responsive and effective health policies.

However, the integration of Human-Centered Design into health policymaking is assumed to present challenges, due to the methodological differences between the two fields. Therefore, further research is needed to assess the practical viability of Human-Centered Design, and the challenges policymakers encounter when integrating it. A deeper understanding of these aspects can help to determine whether Human-Centered Design can contribute to the development of more responsive and effective health policies in practice.

DESIGNING HEALTH POLICIES
FOR HUMAN NEEDS

**3. EXPLORING THE
INTEGRATION OF
HUMAN-CENTERED
DESIGN IN HEALTH
POLICYMAKING.
AN INTERVIEW STUDY**

3. EXPLORING THE INTEGRATION OF HUMAN-CENTERED DESIGN IN HEALTH POLICYMAKING. AN INTERVIEW STUDY

The literature review in Chapter 2 provides a foundational understanding of the concepts of 'Health Policy' and 'Human-Centered Design' and how they could be of value for each other. However, to address the overarching research question, "*How can Human-Centered Design be effectively integrated into the health policy development process?*", a deeper understanding of the health policymaking process in practice is required. This insight is essential to understand the differences between health policymaking and the principles of Human-Centered Design, as well as the challenges associated with its integration – both of which are fundamental for addressing the central research question. Even more important is assessing whether health policymakers themselves perceive Human-Centered Design as a valuable approach within the context of health policymaking,

To explore these dimensions, fifteen interviews were conducted with Dutch health policymakers and consultants who provide advice to health policymakers. This study aimed to address the following sub research questions:

- RQ 1.1 How are health policies developed in practice?
- RQ 1.2 How does the health policymaking process in practice differ from Human-Centered Design?
- RQ 1.3 What challenges might arise when integrating Human-Centered Design into the policymaking process?
- RQ 1.4. What is the value of integrating Human-Centered Design in health policymaking for policymakers?

3.1 METHOD

To address the sub research questions of this study, semi-structured interviews were conducted with Dutch health policymakers spanning various levels of policymaking and consultants who provide advice to health policymakers. The primary objective of this interview study was to identify the challenges associated with integrating Human-Centered Design into health policymaking. An exploratory semi-structured approach was chosen, providing flexibility to explore emerging themes and adapt the discussion to topics of interest that arose during the interviews (Patton, 2014).

3.1.1 PARTICIPANTS SAMPLING

To capture a broad spectrum of perspectives on the health policy landscape and the interactions between the different levels of the health system it was decided to include participants representing governmental, intermediary, and operational levels and consultants who advise these health policymakers.

A combination of convenience and purposeful sampling methods was used to invite participants for interviews. Convenience sampling was employed to select health policymakers who were readily accessible through the researcher's network, the supervisory team at Delft University of Technology, and the internship provider, PwC. Purposeful sampling ensured that participants met specific predefined criteria (Patton, 2014).

The predefined criteria required participants to be employed by Dutch health institutes or organizations, or at consultancy firms which advise these organizations on health policy matters. These criteria aligned with the study's focus on the Dutch health policy landscape, recognizing consultants as influential actors due to their growing role in policy advice. Additionally, policymakers were required to have experience in the second phase of policymaking, referred to as '*Policy formulation and decision-making*,' where policy ideas are formulated and refined (Jann & Wegrich, 2007). This stage is particularly relevant for integrating Human-Centered Design principles, as it creates the opportunity to develop policies that align with human needs. Lastly, participants needed to have worked on health policy formulation within the past three years to ensure the relevance and applicability of their insights.

Note: Further in this interview study, any reference to policymakers will encompass both policymakers and consultants.

3.1.2 ETHICAL CONSIDERATIONS

The interview study received prior approval from the Human Research Ethics Committee of the Delft University of Technology under ethical approval number 4060. This approval process involved conducting a thorough risk assessment, developing a prevention plan, and preparing a detailed data management plan to ensure full ethical compliance. Additionally, participants provided verbal consent to the terms of the informed consent form prior to the start of the interviews.

3.1.3 DATA COLLECTION

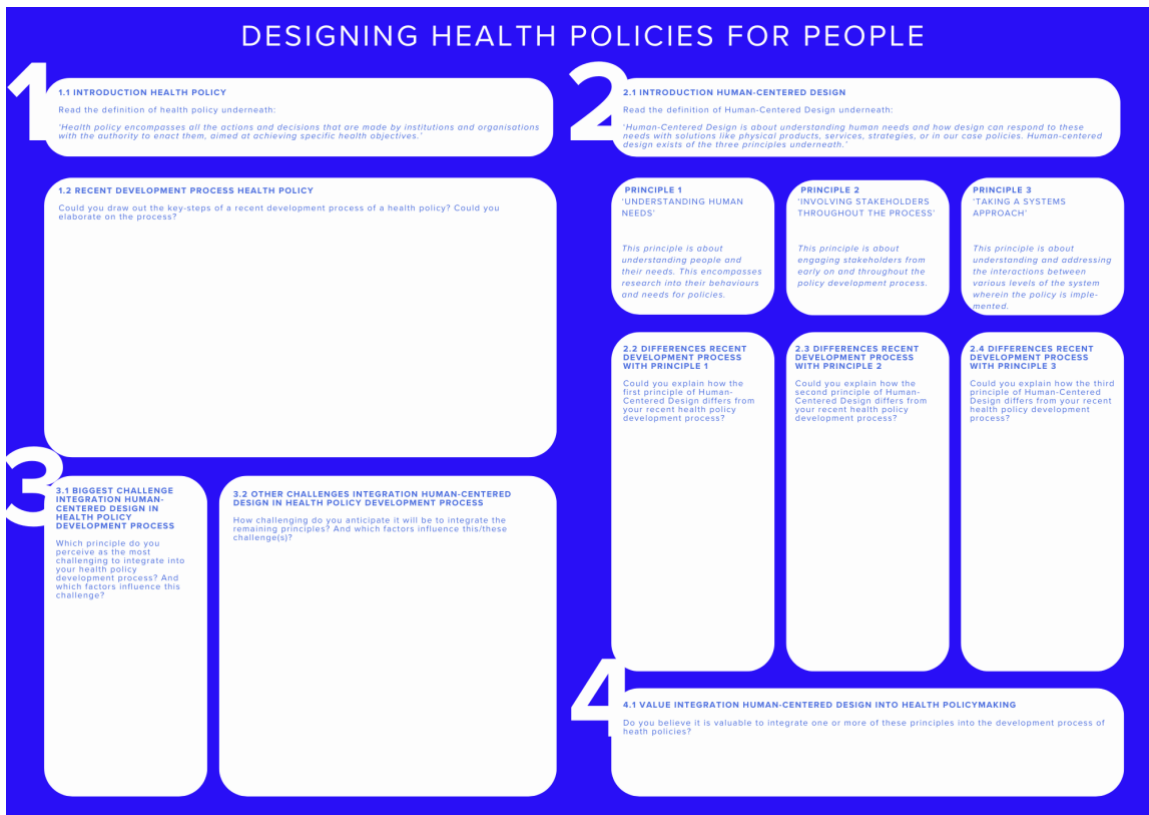
During the interviews, data was collected through four structured phases, each intended to address the sub research questions. These phases aimed to (1) define the health

policymaking process in practice, (2) analyze the differences between health policymaking in practice and Human-Centered Design principles, (3) identify challenges associated with integrating Human-Centered Design and (4) explore the perceived value of integrating Human-Centered Design for health policymakers.

The interviews were conducted over three weeks, lasting 30 to 45 minutes each, and were scheduled at times convenient for participants. Sessions were held either in person, in quiet meeting rooms, or online. A structured template, outlined in illustration 2, was provided during the interviews to guide discussions. This template was available in printed form for in-person sessions or digitally via the Mural platform for online interviews. Mural, functioning as an

interactive whiteboard, allowed participants to draw, write, or use virtual post-it notes. The template served as a generative tool to support and encourage participants' contributions (Sanders and Stappers, 2012). The data collected during the interviews included the interview transcripts and the filled in templates.

ILLUSTRATION 2. TEMPLATE PARTICIPANTS INTERVIEW STUDY



PROCEDURE

The interviews began with an introduction of the researcher, followed by the policymaker's introduction and an overview of the research objectives. Then formalities, including obtaining consent for the transcription were addressed. To ensure a shared understanding, the study's definition of health policy, as outlined in Chapter 1, was provided, recognizing the variability of definitions of the concept.

In the first phase, policymakers were asked to recall a recent health policy development at the 'policy formulation' stage in which they had been involved. They were then guided to visually represent the key steps of this process using the provided template. This activity was used as a generative tool to facilitate deeper insights (Sanders & Stappers, 2012). Reflecting on a recent development process in which they had participated was chosen to help policymakers articulate the steps more effectively, as discussing tangible experiences proved more intuitive and engaging than addressing abstract concepts (Sanders & Stappers, 2012).

The second phase involved an explanation of Human-Centered Design and its principles by the researcher. Policymakers were then asked to compare their recent policy development process to the principles of Human-Centered Design, identifying differences within each element. This comparison served to identify the differences and formed a bridge to the next phase of the interview.

During the third phase, participants were asked to identify potential challenges associated with integrating Human-Centered Design principles into health policymaking. When interesting themes or insights emerged, the discussion was further explored in greater depth to gain a more nuanced understanding.

In the final phase, participants were asked to assess the perceived value of Human-Centered Design from their perspective as policymakers.

At the end of the interview, policymakers had the opportunity to share any additional comments or questions. Once the discussion was concluded, the transcription was stopped. The policymakers were thanked for their contributions and assured they would receive a copy of the finalized research, bringing the interview process to an end.

3.1.4 DATA ANALYSIS

The data collected from the four phases were analyzed inductively to identify, analyze, and report patterns, which were subsequently grouped into themes. The six-phase approach outlined by Braun and Clarke (2006) was employed to guide the analysis process.

In the first phase, '*familiarizing yourself with your data*,' the transcripts were reviewed to correct any missing words or unusual transcriptions. The data were then anonymized, and the researcher immersed themselves in the content by repeatedly reading the transcripts

and noting initial ideas. This phase ensured both a deep understanding of the data and the documentation of preliminary insights.

In the second phase, *'generating initial codes,'* notable features of the data were coded using the software ATLAS.ti (v24). Since the interviews followed a structured format with distinct phases, each phase was analyzed and coded separately. The initial codes were categorized into folders aligned with each activity. For the data from the second phase of the interviews, which focused on the differences between the health policymaking process in practice and Human-Centered Design principles, codes were organized under the corresponding principles. Similarly, codes from the third phase, focusing on the challenges associated with integrating Human-Centered Design, were categorized by the corresponding principle. For the data from the final phase, the codes were categorized under related values.

The third phase, *'searching for themes,'* involved organizing the initial codes into potential themes, with all relevant data grouped under each theme. For the first phase of the interviews, which examined the health policymaking process in practice, themes were organized in chronological order to reflect the sequence of steps described by participants.

In the fourth phase, *'reviewing themes,'* the identified themes and associated codes were thoroughly evaluated. Similar codes were consolidated to enhance clarity and consistency. This phase included a review by the research supervisors to ensure the rigor and validity of the analysis.

The fifth phase, *'defining and naming themes,'* involved refining the themes by generating clear definitions that effectively conveyed the underlying story of each theme. And finally, in the sixth phase, *'reporting the themes,'* themes were documented and illustrated with selected data extracts. These examples provided evidence and context to substantiate each theme.

3.2 RESULTS

From the thematic analysis, themes were generated for each phase of the interview to address the sub research questions of this study. To answer the first sub research question, *'How are health policies developed in practice?'* an overarching process was identified of six steps representing the policymaking process in practice. For the second research question, *'How does the current development process differ from Human-Centered Design?'* The analysis described the differences between health policymaking in practice and the principles of Human-Centered Design. To address the third research question, *'What are the challenges that might arise when integrating Human-Centered Design into health policymaking?'* ten distinct challenges were identified. Lastly, for the fourth research question, *'What is the value of Human-Centered Design for health policymakers?'* the

analysis defined six distinct values. Within each identified theme, an explanation is provided, accompanied by relevant interview quotes, to offer a deeper understanding of the themes and their significance.

3.2.1 PARTICIPANTS

The interview study involved fifteen health policymakers representing various policy levels and organizations. This included six policymakers from the governmental level, two from the intermediary level, four from the operational level and three consultants who advise health policymakers across multiple levels. The participants were affiliated with 14 different organizations. Additional key characteristics of the participants are summarized in Table 1.

TABLE 1. CHARACTERISTICS PARTICIPANTS INTERVIEW STUDY

NUMBER	FUNCTION	POLICY LEVEL	INSTITUTE/ ORGANIZATION	YEARS OF EXPERIENCE
Health Policymaker 1	Policymaker	Operational	Hospital	5–10 years
Health Policymaker 2	Policymaker	Governmental	Municipality	25–30 years
Health Policymaker 3	Consultant	All levels	Consultancy	5–10 years
Health Policymaker 4	Policymaker	Intermediary	Branche association	20–25 years
Health Policymaker 5	Policymaker	Governmental	Ministry	20–25 years
Health Policymaker 6	Policymaker	Governmental	Ministry	20–25 years
Health Policymaker 7	Consultant	All levels	Consultancy	0–5 years
Health Policymaker 8	Policymaker	Governmental	Municipality	5–10 years
Health Policymaker 9	Policymaker	Governmental	Municipality	0–5 years
Health Policymaker 10	Policymaker	Operational	Health insurance	5–10 years
Health Policymaker 11	Policymaker	Governmental	Municipality	15–20 years
Health Policymaker 12	Policymaker	Operational	Hospital	10–15 years
Health policymaker 13	Consultant	All levels	Consultancy	5–10 years
Health policymaker 14	Policymaker	Operational	Care group	15–20 years
Health policymaker 15	Policymaker	Intermediary	Health council	5–10 years

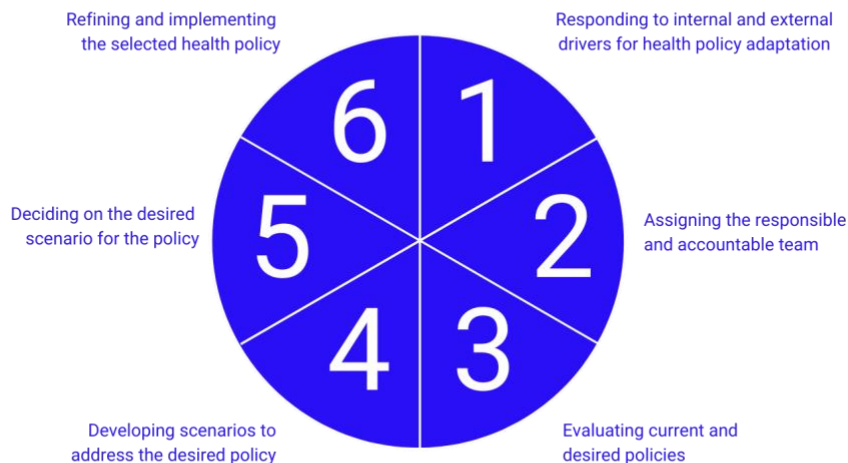
3.2.2 RESULTS PHASE 1: POLICY CYCLE IN PRACTICE

Based on the analysis of the data from a recent health policy development process described by policymakers, six interconnected stages were identified, leading to the development of the policy cycle in practice. These stages, as can be viewed in illustration 3, capture the practical flow of health policymaking:

1. Responding to internal and external drivers for health policy adaptation
2. Assigning the responsible and accountable team
3. Evaluating current and desired policies
4. Developing scenarios to address the desired policy
5. Deciding on the desired scenario for the policy
6. Refining and implementing the selected health policy

Policymakers described that these stages are not always strictly followed in this specific sequence but rather serve as a guiding framework for developing policies. They emphasized that policymaking is inherently circular, continuously adapting to changing societal needs, political contexts, and emerging innovations. This iterative nature ensures that policies remain relevant and effective, adapting to new challenges and evolving circumstances over time.

ILLUSTRATION 3. POLICY CYCLE GROUNDED IN PRACTICE



STAGE 1 – RESPONDING TO INTERNAL AND EXTERNAL DRIVERS FOR HEALTH POLICY ADAPTATION

The initial stage of the policy development process in practice, as identified through the descriptions of health policymakers, involves responding to internal and external drivers for health policy adaptation. These drivers act as key signals to revise existing policies or develop new ones.

Policymakers note that external triggers often arise from political, legislative, or systemic pressures. They describe the initiation of health policy development as a response to political scrutiny of existing frameworks, new legislative mandates requiring adjustments, or funding opportunities for healthcare transformation. As Health Policymaker 2 illustrates: *"... our approach to [specific Health] didn't fully fit within our current arrangements model. This also led to questions from the government about whether it should receive, let's say, more attention."*

Additionally, routine evaluations or annual renewals of certain policies are highlighted as drivers of continuous adaptation to maintain relevance and effectiveness. As Health Policymaker 6 explains: *"Policy development occurs in a structured way. Within the organization, you may notice risks or inefficiencies—things simply stop functioning smoothly. Eventually, these issues create friction, whether it is negative media coverage, inspection feedback, or internal pressure to improve. These external and internal stimuli compel you to act and make necessary changes.* Similarly, Health Policymaker 14 reflects on how funding opportunities can serve as a starting point for collaboration: *"It all began informally, during a meeting of four directors having coffee together. We knew that transition funds were available from the health insurer to enhance collaboration, particularly in addressing personnel challenges."*

In contrast, internal drivers are often rooted in the vision or intrinsic motivation of policymakers or their organizations. These motivations stem from a desire to address observed gaps or inefficiencies in care delivery. Health Policymaker 15 elaborates on the personal origins of such intrinsic motivation: *"For me, it started with intrinsic motivation—that was the greatest driving force behind this. [...] It shocked me how little attention is paid to these aspects in healthcare."*

In essence, health policy development starts with responding to external triggers, like political and legislative pressures, or internal drivers, such as organizational vision, to guide policy adaptation.

STAGE 2 – ASSIGNING THE RESPONSIBLE AND ACCOUNTABLE TEAM

The second stage of the policy development process in practice, as identified through the descriptions of health policymakers, involves assigning the responsible team for health policy adaptation.

Policymakers explain that, once the need to revise an existing policy or develop a new one is identified and acknowledged, decisions are made regarding which ministries, municipal

domains, or health organizations should be involved in the policy development process. They emphasize that assigning responsibility includes determining who within these entities will oversee the process or provide the necessary financing. This becomes particularly essential when a project requires coordination across multiple domains or organizations, where clear accountability and structured collaboration are essential. Health Policymaker 1 explains how this process is managed within their health organization: *"Sometimes, it is very clear that something falls within a specific care unit, [...] However, more often than not, the issue spans multiple care units. In such cases, there are typically two approaches. The easiest way is to propose it as a project. [...] This project-based approach is often preferred as it ensures clear ownership and accountability."*

Policymakers also highlight that, in some cases, the responsibility for policy development may be partially or entirely outsourced to consultants or specialized external teams. They explain that this outsourcing may occur when internal capacity is limited, specialized expertise is required, or there is a need for an impartial party to oversee or evaluate the process.

Concisely, the second stage in the health policy development process focuses on assigning responsibility and accountability for health policy adaptation, including determining who oversees the process and manages financing. Roles are designated internally or outsourced to consultants when necessary.

STAGE 3 – EVALUATING CURRENT AND DESIRED POLICIES

The third stage of the policy development process in practice, as identified through the descriptions of health policymakers, involves evaluating current and desired policies.

Policymakers explain that, once the responsibility and accountability for the health policy adaptation are assigned, the process begins with a comprehensive assessment of the current policy. This involves analyzing what has already been done, identifying successful elements, and determining the critical areas that need improvement.

Policymakers note that their focus then shifts to researching the desired outcome—what the policy aims to achieve. To gain a comprehensive understanding of these goals, policymakers often engage stakeholders, particularly those from healthcare providers, as well as experts. Through interviews and discussions, they gather insights into stakeholders' needs and aspirations for the revised or new policy. For instance, Health Policymaker 10 describes using statements about potential desired situations as a tool to facilitate discussions with healthcare providers, helping to refine the desired policy.

Once both the current and the desired situation of the health policy are defined, policymakers identify the gap between these two scenarios. This gap highlights the space for policy adaptation, outlining the challenges that need to be addressed and the objectives the new policy must achieve. Health Policymaker 9 elaborates on this third stage in the process, explaining: *"First, you look at what has already been done on this topic or theme. Then you evaluate: What went well, what didn't, and what needs to change? Next,*

you consider the future—what should the future of healthcare in society look like? To define this future state, you involve experts, the societal field, healthcare stakeholders, and even civil servants. With the current and future states clearly outlined, the policy's role is to bridge this gap."

Essentially, the third stage of health policy development involves evaluating the current and desired policies. Policymakers begin by analyzing the current policy to identify strengths, limitations, and areas for improvement, then they focus on defining future goals through collaboration with stakeholders to align the policy with their needs where possible.

STAGE 4 – DEVELOPING SCENARIOS TO ADDRESS THE DESIRED POLICY

The fourth stage of the policy development process in practice, as identified through the descriptions of health policymakers, involves developing scenarios to address the desired policy.

Policymakers explain that, once the current and desired policies are clearly defined, the gap that the new or revised policy needs to bridge becomes evident. This fourth stage focuses on developing potential scenarios to bridge this gap and achieve the policy objectives. As Health Policymaker 11 elaborates: *"Based on the regional analysis, we identify possible solutions. This eventually becomes the regional plan. It is about the substance—what is the major issue? For example, the labor market is a significant problem. Then we sit down with a group and explore what actions we can take to solve that problem."*

Next, they describe that these scenarios are often checked on feasibility, considering factors such as risks, implementation practicality and legal implications. As Health Policymaker 2 explains: *"This is all tested for implementation, legal consequences, and so on before it is presented to [the decision-maker within an organization]."*

Policymakers note that stakeholder involvement can be used during this stage to ensure that scenarios are informed by diverse perspectives. This involvement can include client councils, individuals, operational staff, and experts. Health Policymaker 13 provides an example of using a citizen panel to develop ideas for addressing the desired policy: *"We organized a citizen panel and formed a focus group of about [number] people. These individuals can be actively approached to provide input. The citizen panel contributed by thinking through all the ideas and adding their own. From this panel, a focus group was established to continue providing input in the coming period."*

Concisely, the fourth stage in the health policy development process involves developing scenarios to achieve the objectives of the desired policy and assessing their feasibility. This stage often includes incorporating stakeholder input to ensure that the policies are informed by diverse perspectives.

STAGE 5 – DECIDING ON THE DESIRED SCENARIO FOR THE POLICY

The fifth stage of the policy development process in practice, as identified through the descriptions of health policymakers, involves deciding the desired scenario for the policy.

Policymakers explain that once various scenarios have been developed to address the policy objectives and their effects and risks have been thoroughly assessed it is time to decide which scenario, if any, will be chosen and whether any adjustments are still needed. They note that this decision is typically made by a steering committee composed of the directors and board members within the responsible organizations. As Health Policymaker 3 explains: *"Ultimately, a decision is made by the steering board."* Similarly, Health Policymaker 9 elaborates: *"We call that a policy, and then the decision-making process begins."*

When the steering board cannot reach alignment on a health policy, or when the effects of the policy are uncertain and require further measurement, policymakers may choose to execute a pilot. This approach allows for testing the policy's outcomes, gathering data, and fostering alignment among stakeholders before fully implementing it. As Health Policymaker 12 elaborates: *"Yes, and maybe with wicked problems—or perhaps in general—you might never get everyone fully on board with the decision or the change. What I find always helps in these dynamics is suggesting, 'Let's call it a pilot.' After a year or two, we'll evaluate its effects and see if it delivers what we hope it will. This creates some space, builds trust among those who aren't yet convinced, and reassures them that the policy is not set in stone, and they still have the opportunity to say no later if necessary."*

In essence, the fifth stage in the health policy development process in practice, focuses on selecting the preferred scenario for the policy. This involves evaluating the developed scenarios and their assessed risks and effects, with the final decision typically made by a steering committee consisting of responsible directors and board members.

STAGE 6 – REFINING AND IMPLEMENTING THE SELECTED HEALTH POLICY

The sixth and final stage of the policy development process in practice, as identified through the descriptions of health policymakers, involves refining and implementing the selected health policy

Policymakers explain that after selecting the desired policy scenario and making necessary adjustments, they move forward with implementing the new policy. This involves a detailed comparison between the current and the selected policy to identify the specific steps required for effective implementation. During this phase, policymakers refine the policy further to accommodate practical constraints and possibilities.

This stage also includes informing stakeholders about the changes and, when necessary, contracting healthcare providers tasked with executing the policy. Policymakers highlight that feedback gathered from these providers during implementation can lead to additional refinements, ensuring the policy remains realistic and adaptable to the context. As Health Policymaker 9 elaborates on a recent process: *"Once we're operational and start contract*

negotiations, we assess what is working and what isn't, and the policy is refined accordingly. During this interim period, these updates must be communicated to the contracted parties, gradually completing the policy cycle."

Concisely, the sixth and final stage in the health policy development process focuses on refining and implementing the selected health policy. This includes comparing the current and selected policy, informing stakeholders, contracting healthcare providers for execution, and incorporating practical feedback during implementation.

3.2.3 RESULTS PHASE 2: DIFFERENCES BETWEEN HEALTH POLICYMAKING IN PRACTICE AND HUMAN-CENTERED DESIGN

After analyzing the data derived from phase two, the differences between the health policymaking in practice and the Human-Centered Design principles were identified. The results begin with an explanation of how each Human-Centered Design principle is interpreted within health policymaking, meaning how the principle is described and understood by health policymakers. This is followed by stating the differences between the health policymaking process in practice and the Human-Centered Design principles. A schematic overview of these findings is provided in Table 2

TABLE 2. OVERVIEW DIFFERENCES BETWEEN HEALTH POLICYMAKING IN PRACTICE AND HUMAN-CENTERED DESIGN

HUMAN-CENTERED DESIGN PRINCIPLE			
	UNDERSTANDING HUMAN NEEDS	INVOLVING STAKEHOLDERS THROUGHOUT THE PROCESS	ADOPTING A SYSTEMS APPROACH
INTERPRETATION IN HEALTH POLICY CONTEXT	<p><i>Understanding...</i></p> <ul style="list-style-type: none"> - Public <i>or</i> - Patients <i>or</i> - Clients <p style="text-align: right;"><i>... needs</i></p>	<p><i>Involving ...</i></p> <ul style="list-style-type: none"> - Health providers <i>or</i> - Healthcare organizations <i>or</i> - Network partners <i>or</i> - System actors <p style="text-align: center;"><i>.... throughout the process</i></p>	<ul style="list-style-type: none"> - Working across domains <i>or</i> - Integral approach <i>or</i> - Regionalization
DIFFERENCES BETWEEN HEALTH POLICYMAKING IN PRACTICE AND HUMAN-CENTERED DESIGN	<ol style="list-style-type: none"> 1. Health policymaking in practice often relies on assumptions, expert input or internal data 2. Direct public engagement to understand public needs remains limited in health policymaking practices 	<ol style="list-style-type: none"> 1. Health policymaking in practice often focusses on informing or consulting stakeholders 2. Active co-production when involving stakeholders remains limited in health policymaking practices 3. Health policymaking in practice is often focused on involving familiar and well-known parties, while less obvious but relevant stakeholders are frequently excluded 	<ol style="list-style-type: none"> 1. Health policymaking in practice often operates from their own organizational perspective 2. Efforts for cross-domain collaboration are increasing in health system practices 3. Collaboration beyond the healthcare sector remains limited in health policymaking practices
OTHER INTERESTING INSIGHTS	<ol style="list-style-type: none"> 1. All healthcare providers are required to have a client council 2. Involving client councils or citizens in policymaking is not mandatory at the governmental level 	<ol style="list-style-type: none"> 1. For some policymakers at the governmental level, involving stakeholders in policymaking is mandatory 	<ol style="list-style-type: none"> 1. Efforts for cross-domain collaboration are driven by systemic challenges and government-led initiatives

INTERPRETATION – UNDERSTANDING HUMAN NEEDS

Health policymakers interpret the Human-Centered Design principle ‘*understanding human needs*’ within the policy context as ‘*understanding public needs*,’ reflecting the diverse demands they must address, given that health policies are designed to serve entire populations or large groups within them. Policymakers from organizations with a more patient-centered focus refer to this principle as ‘*understanding patients’ needs*’ or, in cases where the individuals they serve are not considered patients, as ‘*understanding clients’ needs*.’

DIFFERENCES – UNDERSTANDING HUMAN NEEDS

Health policymakers describe the differences between their policymaking practice and the Human-Centered Design principle ‘*understanding public needs*’ as the reliance of their practice on assumptions, expert input, or internal data rather than direct public engagement.

Policymakers describe that their understanding of public needs is frequently based on assumptions about what the public needs. As Health Policymaker 2 observes: “[...] *we most often work from our own assumptions about what the citizens need.*” Similarly, Health Policymaker 14 reflects: “[...] *you think you are working very client-focused, but you are still working very much from the perspective of what we think is best, instead of asking what the client needs.*”

Some policymakers describe how they consult experts, research institutions and professionals in the field to gain insights into public needs. Health Policymaker 9 describes this process: “*For that, well, we dive into the literature and consult knowledge institutions like Verweij Jonker, Movisie, the Netherlands Youth Institute, and professionals, but preferably also people from the field.*” Additionally, a few policymakers mention the use of management information from existing healthcare services and products to identify public needs. As Health Policymaker 3 explains: “*That might sound a little unkind, but of course we base our advice on what we know about, let’s say, demand. [...] That largely comes from our own management information about the products we currently offer.*”

Despite the efforts to understand public needs, policymakers describe that these needs are often not central in the policy development process. They note that policies are frequently developed without directly involving the public or assessing their impact on those they are intended to serve. As Health Policymaker 3 reflects on a recent health policy development process: “*Certainly, I think that much of what we develop, especially for the first principle, is thought out behind our desks, without mapping what the effects of the policy or the new policy will be on, for example, the patient, the human being, who should always be central to care. So, you lose sight of that.*”

A few policymakers describe the involvement of clients in policymaking through mechanisms such as citizen panels or client councils. Health policymakers explain that it is mandatory to have a client council for healthcare providers at the operational level and therefore play a significant role in the policy development process. Elaborating on this

role, Health Policymaker 10 provides insight into the composition of these client councils: “[...] so every health provider is required to have a client council. For example, in elderly care, these could be the people living in a nursing home or the sons or daughters of those residents.” Health Policymaker 12 underscores the influence these councils can have during policy development in hospitals, highlighting their legal authority: “A lot of healthcare executives don’t realize it, but the client council has the greatest legal power in a hospital. If they disagree with a change or process, they can go to the enterprise chamber, and they have inquiry rights. It is a bit of a legal story, but it is important to realize, especially as an executive, that you can never make decisions entirely on your own as a board member.”

However, involving client councils is often not mandatory for policymaking at the governmental level. Health Policymaker 11 reflects on this distinction: “[...] but it is not like your plan won’t be approved if you haven’t involved citizens, whereas if you don’t involve the health insurer, your plan won’t be approved. If you forget the general practitioners, your plan won’t be approved. But if you forget the citizens, you just get a brief warning that next time you really need to do better, but that’s all.”

Concisely, health policymakers describe the differences between their policymaking practice and the Human-Centered Design principle ‘*understanding public needs*’ as the reliance of their practice on assumptions, expert input, or internal data rather than direct public engagement.

INTERPRETATION – INVOLVING STAKEHOLDERS

Health policymakers interpret the Human-Centered Design principle, ‘*involving stakeholders throughout the process*,’ within the policy context as ‘*involving health providers*’ or ‘*healthcare organizations*,’ reflecting the specific scope they consider when selecting stakeholders to involve. In some cases, they refer to these groups as ‘*network partners*’ or ‘*system actors*,’ highlighting the more distant connection they often have with these organizations.

DIFFERENCES – INVOLVING STAKEHOLDERS

Health policymakers describe the differences between their policymaking practice and the Human-Centered Design principle ‘*involving stakeholders throughout the process*’ as being focused on informing or consulting stakeholders rather than actively engaging them in co-production.

Policymakers explain that in most cases stakeholders are involved in policymaking. They describe that this involvement typically is through passive methods, such as informing them of policy changes or gathering input through interviews. Health Policymaker 14 reflects on stakeholder involvement during a recent policy development process: “*In that, we also included some external locations from another organization. It is logical to say, ‘Hey, we have a role to inform and involve them in this.’ But it is still a lot of informing. There’s not much gathering, like asking, ‘What do you need right now?’ That is something I must admit.*”

Some health policymakers highlight examples of a more co-productive approach to stakeholder involvement. Health Policymaker 10 reflects on a recent experience of such an approach: *“What we did last year was to seek more contact with the providers. We don’t want to just impose policy and say, ‘Here, you have to comply with this.’ We want to ensure it is something providers can relate to, so they feel it is a form of co-production. [...] So what we did was invite all the providers at the managerial level, all the directors of our providers in our region, to discuss and put forward statements, such as: What takes precedence, is it the availability of care or the quality of care?”*

When stakeholders are involved, policymakers describe that engagement often centers on the most familiar and obvious parties, such as those they already work with or prominent health institutions. Health Policymaker 11 illustrates this tendency during a recent development process, stating: *“So this was really done with the big players.”* This reliance of involving familiar stakeholders is further explained by Health Policymaker 4: *“Well, as a policymaker, it is much easier to sit down with the usual parties—those that are obvious, that you already work with, and that are familiar.”* Moreover, Health Policymaker 6 shares an example in which they sought to involve stakeholders beyond the usual parties but encountered resistance: *“I have been in meetings with boards of directors who wanted to make certain policy changes, and I said, ‘I also want to speak with the Nursing Advisory Council. I want to work with those nurses.’ But they said, ‘No, that’s not necessary. We know perfectly well what it is about.”*

A few policymakers note that stakeholders are not always involved during policy development. Health Policymaker 1 reflects: *“I think we operate quite solo. We are learning, of course, that we are part of a chain and need to involve our chain partners, but whether they are directly seen as stakeholders... I think we often forget about them.”* This perspective was primarily shared by policymakers at the operational level. In contrast, some policymakers at the governmental level note that stakeholder involvement is mandatory during policymaking, with policies facing disapproval if this requirement is not met. As Health Policymaker 11 explains: *“[...] whereas if you don’t involve the health insurer, your plan won’t be approved.”*

In essence, health policymakers describe the differences between their policymaking practice and the Human-Centered Design principle *‘involving stakeholders throughout the process’* as being focused on informing or consulting stakeholders rather than actively engaging them in co-production. They note that engagement often centers on familiar parties, while less obvious yet relevant stakeholders are frequently excluded.

INTERPRETATION – ADOPTING A SYSTEMS APPROACH

Health policymakers interpret the Human-Centered Design principle, *‘adopting a systems approach,’* in the policy context as *‘working across domains,’* referring to the domains within the healthcare sector and are highlighting the fragmented structure of its system. In some cases, they refer to the Human-Centered Design principle as an *‘integral approach’*

or as *'regionalization,'* reflecting the growing emphasis on regional collaboration within the health system to collectively achieve broader system goals.

DIFFERENCES – ADOPTING A SYSTEMS APPROACH

Health policymakers describe the differences between their policymaking practice and the Human-Centered Design principle *'adopting a systems approach,'* as operating from their own organizational perspective. While efforts to collaborate across domains within the health sector are increasing, collaboration beyond the health sector remains limited.

Policymakers note that working across domains within the health system during policy development is often not the standard approach. They note that the health system is characterized by fragmentation, where many organizations act as separate entities rather than as part of an integrated network. As Health Policymaker 13 reflects: *"We are, of course, still very much divided into silos, like the WMO and WLZ, whereas patient needs often cut across these boundaries."* Similarly, Health Policymaker 11 illustrates this fragmentation: *"And the public law frameworks, let's call them that, as well as the social domain frameworks, have entirely different tasks, and the medical domain—hospitals, general practitioners, mental health services—all operate in their own worlds. And then you have health insurers, citizens, and professionals, all together. Yes, even within healthcare, you have many separate groups."*

Despite this fragmentation, policymakers observe that there is a growing emphasis on cross-domain collaboration within the health system. They state that this shift is encouraged by funding initiatives, such as Dutch Integrated Care Agreement (IZA) from the Dutch government aimed at promoting collaboration between domains. As Health Policymaker 8 explains: *"But we do need to move more toward cross-domain collaboration. That's why funding has been made available through the IZA, to ensure that cross-domain collaboration is much better organized."*

The increasing focus on working across domains is also driven by systemic challenges, such as personnel shortages and rising healthcare costs. Policymakers describe that these pressures have compelled the healthcare domains to reconsider their traditional boundaries and explore integral approaches. Health Policymaker 8 highlights this shift: *"But now, General Practitioners' (GPs) are increasingly dealing with societal problems in their consulting rooms, and until now, they just did nothing about it and accepted that someone would come back 30 times with stomach pain, saying every time, 'Well, there's nothing wrong.' Now they're saying, 'We cannot handle this anymore because it clogs the system for other patients. Where can we send these people so they can be helped?' This urgency, driven by fewer GPs and more people needing care, has made GPs more willing to look beyond their boundaries."* Similarly, Health Policymaker 12 emphasizes the need for integrated solutions: *"I think the problems, not only societal but also within hospitals, have become too complex. You cannot solve them alone anymore, so it demands integration—and integration in solutions as well."*

However, a few health policymakers point out that, despite this urgency and the emphasis on adopting an integral approach, some organization remains the tendency to focus predominantly on their own operations rather than broader, integral solutions. As Health Policymaker 6 reflects: *"Of course, many organizations also value this broader perspective, with regionalization of care and tailored solutions like 'appropriate care.' We all recognize that the solutions don't always lie within healthcare alone. [...] So, we all understand how important context is and the need to look beyond healthcare. But how tempting is it to simplify your reality a bit, make it less complex, and put yourself more at the center of the universe? That tendency still exists."*

While cross-domain collaboration within the health system is gaining momentum, policymakers describe that working across domains beyond healthcare sector as an even greater challenge. Health Policymaker 8 reflects on this complexity: *"[...] it is about bringing the healthcare domain and the safety domain closer together, which is a very difficult development. Everyone says it is important and necessary, but achieving it is really... it is really very complicated."* This challenge is further illustrated by Health Policymaker 4, who highlights the conflicting priorities between the healthcare and housing sectors. In the healthcare sector seniors are encouraged to live at home longer and receive care at home instead of moving to nursing homes. Simultaneously, the housing sector faces a shortage of available houses. As Health Policymaker 4 explains: *"We all want seniors to live at home for longer. At the same time, we have a ministry saying, 'Great, all these seniors staying at home longer, but we need housing for young people.' So, it is fantastic that we're promoting seniors staying at home longer. But then, where else are they supposed to go?"*

Concisely, health policymakers describe the differences between their policymaking practice and the Human-Centered Design principle *'adopting a systems approach,'* as operating from their own organizational perspective, while efforts to collaborate across domains within the health sector are increasing, collaboration beyond the health sector remains limited.

3.2.4 RESULTS PHASE 4: CHALLENGES INTEGRATING HUMAN-CENTERED DESIGN INTO HEALTH POLICYMAKING

A thematic analysis of the data derived from phase 3, identified ten potential challenges related to the integration of Human-Centered Design into health policymaking. Several challenges are specific to a particular principle of Human-Centered Design. For example, *'achieving stakeholder alignment among diverse and conflicting interests'* emerges when health policymakers would integrate the Human-Centered Design principle *'Involving stakeholders throughout the process.'* To provide clarity and structure, these challenges are organized around the three principles, as illustrated in Table 3. Additionally, challenges that apply across multiple Human-Centered Design principles are categorized under *'Overarching Human-Centered Design principles.'*

TABLE 3. OVERVIEW CHALLENGES INTEGRATING HUMAN-CENTERED DESIGN INTO HEALTH POLICYMAKING

<p>1. UNDERSTANDING HUMAN NEEDS</p> <p>1.1 Managing unrealistic public expectations within health systems constraints</p> <p>1.2 Extracting meaningful insights from public involvement</p>
<p>2. INVOLVING STAKEHOLDERS THROUGHOUT THE PROCESS</p> <p>2.1 Building a comprehensive understanding of the stakeholder field and accurately selecting who should be involved</p> <p>2.2 Achieving stakeholder alignment among diverse and conflicting interests</p>
<p>3. ADOPTING A SYSTEMS APPROACH</p> <p>3.1 Fostering awareness of organizational viewpoints and shifting these towards broader health system perspectives</p> <p>3.2 Establishing effective strategies to navigate high-complexity challenges in the health system</p> <p>3.3 Developing customized care solutions within a highly regulated and political health system</p>
<p>4. OVERARCHING HCD PRINCIPLES</p> <p>4.1 Breaking free from assumption-driven thinking to unlock human-centered solutions</p> <p>4.2 Embedding human-centered solutions within a market-driven health system</p> <p>4.3 Integrating human-centered approaches within the constraints of time, resources and data protection laws</p>

1. CHALLENGES – UNDERSTANDING HUMAN NEEDS

Challenge 1.1 – Managing unrealistic public expectations within health systems constraints

“... I think that if we already involve the clients at the front of policymaking, and that is such a broad perspective with so many different needs, is that actually possible? That is what I think, can we meet those expectations? That is a challenge, I think, that you don’t create disappointment by asking for expectations.” – Health Policymaker 14

The initial challenge in integrating ‘understanding human needs’ into policymaking, as identified through health policymakers’ descriptions, involves managing unrealistic public expectations within the constraints of the health system.

Policymakers emphasize that during public engagement in policy development, they frequently encounter expectations that diverge significantly from what is realistically

feasible within the existing system. These expectations are often focused on individual needs and preferences, which may not fully align with broader systemic constraints, including limited financial resources and personnel shortages within the Dutch health system. As Health Policymaker 10 illustrates, *“So yes, we do sometimes receive complaints like, [healthcare provider] didn’t shower me for the second time today.’ Yes, those kinds of things. Yes, we find it very unfortunate for that client at that moment that they experience it that way. But we understand very well that it doesn’t happen, because that possibility just doesn’t exist anymore.”* This example underscores health policymakers’ concerns regarding their inability to meet expressed needs, which they fear may result in disappointment and public criticism.

Beyond unmet expectations, health policymakers also describe situations where individuals disregard the risks associated with their expressed needs. As custodians of public welfare, policymakers bear accountability for any adverse outcomes, with health inspection authorities closely monitoring their actions. This responsibility compounds the complexity of their role, as health policymakers must mitigate potential risks while addressing public needs.

Additionally, policymakers state that they observe a noticeable shift toward a customer-oriented mindset among individuals engaging with governmental institutions. This trend, which policymakers perceive as further exacerbating the challenge, requires a delicate balance between fulfilling a commissioning role and acting as a partner in service provision. As health Policymaker 9 explains, *“We talk a lot about, you just must talk to the public, the public is central, but at the same time the public still really has the idea, and the public is somewhat strengthened in the feeling of, hey, I am a customer of the government, and the government must do what I say. And that is of course contrary to the traditional idea that the government is given, so you see the government really struggling with, I also really want to emphasize, really struggling with that commissioning role and partner role at the same time.”*

Thus, health policymakers grapple with managing unrealistic public expectations within the constraints of the health system.

Challenge 1.2 – Extracting meaningful insights from public involvement

“What I think we are really still looking for, is guidance on how to have a good conversation with people.” – Health Policymaker 11

Another challenge in integrating ‘understanding human needs’ into policymaking, as identified through health policymakers’ descriptions, involves extracting meaningful insights from public involvement.

Policymakers explain that they feel that individuals often lack a comprehensive understanding of laws, regulations, and the complexities inherent in the health policy landscape, which can lead to input that does not fully address broader policy objectives.

Additionally, they express that individuals frequently lack the necessary background knowledge to formulate well-informed opinions, thereby limiting their ability to make meaningful contributions to policy discussions. Health Policymaker 13 underscores this challenge with an example; discussions around the digitalization of healthcare require a comprehensive understanding of the transformative processes involved to produce relevant insights.

Policymakers also state that they encounter a focus among individuals on specific, individual-level concerns rather than considering broader, macro-level policy implications. This can complicate efforts to formulate comprehensive policies. As Health Policymaker 10 illustrates, *“But what you often end up with in client councils is, yes, I want an extra cookie with the tea or I want a different kind of coffee and that may be quite important for the individual client, but when we talk about the policy that is formed by us, that is not the point that we can include in our contracting policy.”* Moreover, policymakers describe instances where individuals provide politically correct responses, hindering efforts to gather genuine insights. As a result, policymakers find it challenging to sustain productive discussions and steer them toward actionable outcomes.

Furthermore, policymakers note that they struggle to formulate effective questions that elicit meaningful responses during public engagement. As Health Policymaker 11 remarks, *“Because we often end up with very vague questions for people and then you don’t get anything out of it.”* In addition, they grapple with addressing the needs of individuals with special requirements, such as those with disabilities, finding it challenging to involve these individuals meaningfully in the policy-making process.

Concisely, a challenge for health policymakers is to extract meaningful insights from public engagement, while navigating varied levels of understanding and an individual-focused perspective, ensuring the process remains both effective and inclusive in shaping health policies.

2. CHALLENGES – INVOLVING STAKEHOLDERS

Challenge 2.1 – Building a comprehensive awareness of the stakeholder field and accurately selecting who should be involved

“Because so often most initiatives that fail in healthcare, because we just didn’t think well enough at the front about yes, but why are we doing this and who are our main stakeholders and then just take a little pause to experience how you can really make a difference.” – Health Policymaker 6

The first challenge in integrating *‘involving stakeholders throughout the process’* into policymaking, as identified through health policymakers’ descriptions, involves building a comprehensive awareness of the stakeholder field and accurately selecting who should be involved.

Policymakers describe that they are not always fully aware of the diverse range of stakeholders, which can lead to overlooking critical stakeholders and missing opportunities for engagement and collaboration. Health Policymaker 1 reflects on this challenge within their organization: *“I think we sometimes forget? I think with the limited view we have, we regularly overlook someone, and then realize it too late, when it is too difficult to fix. Sometimes we even need an external agency to advise us; by saying it is useful to involve the municipality, a council member, the alderman, or people with knowledge about planning or site design—things we just don’t know much about. It is sometimes challenging to oversee who your stakeholders are, and often you realize too late.”*

Policymakers explain that a lack of awareness of external dynamics can result in policies that fail to address stakeholder needs and face challenges during implementation. Health Policymaker 4 provides an example of a health law that encountered such difficulties due to incomplete stakeholder involvement: *“That’s why the law is so difficult to apply. Not all stakeholders who provide [specific care path] were involved in the development of the law, and that’s why we are now stuck with a law that is difficult to apply.”* This underscores the importance of early and strategic stakeholder engagement, which policymakers view as critical for successful policy transformation. Health policymaker 12 emphasizes that involving the right stakeholders from the beginning maintains support and credibility, stating: *“Yes, I think that to implement policy, the most important thing is to involve the right stakeholders right from the start of the change process. That is essential for maintaining both your support base and your credibility as a policymaker.”*

When health policymakers are involving stakeholders in policy development, they emphasize that engaging stakeholders beyond the most obvious and familiar parties remains challenging. Health Policymaker 4 elaborates: *“Yes, well, as a policymaker, it is obviously much easier to sit down with the usual parties—those that are familiar and you already work with. But you need to map out who the stakeholders are, how they operate, and what their interests are.”*

Concisely, a challenge for health policymakers lies in building comprehensive stakeholder awareness to accurately identify and involve the appropriate stakeholders.

Challenge 2.2 – Achieving stakeholder alignment among diverse and conflicting interests

“Undoubtedly, with some policy issues, it will be the case that there is endless ‘poldering’ about what such a policy will look like. And by ‘poldering’, I mean involving all sorts of stakeholders and then you actually come to little or no conclusion.” – Health Policymaker 4

Another challenge in integrating *‘involving stakeholders throughout the process’* into policymaking, as identified through health policymakers' descriptions, involves achieving stakeholder alignment among diverse and conflicting interests

Health policymakers describe that reaching mutual agreements among numerous stakeholders can be complex due to varying care types, organizational cultures, and interests. Health Policymaker 3 highlights that this diversity makes it difficult to reconcile differences. Policymakers therefore describe that it is unrealistic to satisfy all the stakeholders fully when collaborating. Health Policymaker 12 underscores this reality, stating: *“Yes, then you just have to realize that every change process with so many different stakeholders is about consent, but not consensus, so yes, that is the only thing you can achieve.”*

Reaching consent may become even more challenging when stakeholders prioritize their individual needs over broader system goals. Health Policymaker 14 elaborates with an example about how the councils of different healthcare organizations may stand for their own interests: *“Yes so, if you consider bringing four different organizations together, each with their own cultures, and you want these four to create something new together, then it ultimately becomes challenging. [...] For example, does each organization council stand up solely for its own people? They don’t think collectively, so that is really, really difficult.”* Additionally, personal egos can obstruct progress toward agreement. As emphasized by Health Policymaker 15, stating: *People always want to leave their own mark on something.*

Even when consensus is reached, health policymakers note that they may encounter difficulties garnering support within their own organizations. Health Policymaker 2 illustrates this tension: *“But what I have discovered is that [own organization] is quite a top-down organization. ... [care organization] is another large care organization that is also going to collaborate with us, right? So, we do that together, that one is much more bottom-up, so they discuss things with everyone. But if you are going to do something regional, you cannot let everyone discuss everything, because sometimes you just say yes, we have discussed this in the steering group, this is how we are going to do it. So [other care organization] has something very different to explain in its own organization than for our [care organization].”*

In essence, health policymakers face the challenge of achieving stakeholder alignment among diverse and conflicting interests due to differing organizational cultures, individual priorities, and varying perspectives on collaboration.

3. CHALLENGES – ADOPTING A SYSTEMS APPROACH

Challenge 3.1 – Fostering awareness of organizational viewpoints and shifting these towards broader health system perspectives

“Well, I think most organizations often still have a challenge there, because it is very tempting when you’re busy to mainly have an internal orientation and to forget what’s happening in the outside world. So, really keeping an eye on what’s happening in the outside world.” – Health Policymaker 6

The first challenge in integrating ‘adopting a systems approach’ into policymaking, as identified through health policymakers’ descriptions, involves fostering awareness of organizational viewpoints and shifting these towards broader health system perspectives

Policymakers note that they experience that organizations often remain unaware of the diverse perspectives that exist when addressing problems in health policy development. Consequently, organizations tend to frame issues solely through the lens of their own organization. Health Policymaker 9 exemplifies this by comparing how two organizations approach the same problem from different perspectives: *“And at this moment, you just have an organization X that is about debt counseling. They just have a certain perspective and organization Y, which is about youth care. They also have a certain perspective.”* Policymakers describe that this organizational focus can result in inefficiency and overburdening certain parts of the healthcare system. Health Policymaker 11 elaborates: *... but the general practitioner ends up discovering that they are dealing with many social problems in the consultation room. And until now, they just didn't do anything about it, effectively accepting that someone comes back 30 times with stomach pain, and every time they'd say, well, it is nothing, right? [...] We can no longer have that, because it actually clogs up the care for other people.*

When policymakers are aware of the differing perspectives among organizations, they note that collaboration to achieve broader systems perspectives is not always part of their usual practice, making it difficult to meet the public needs. As Health Policymaker 13 states: *“We are, of course, still very much divided into silos, like the WMO and WLZ, whereas patient needs often cut across these boundaries.”* Policymakers also describe that it can be challenging to establish connections with other organizations due to the fragmented nature of the Dutch healthcare sector: Health Policymaker 9 illustrates this challenge: *“You have to come up with it, right, to seek contact with someone from debt counseling, and you also need to have the contacts for it.”*

Furthermore, some policymakers note that they believe that maintaining a broader systems perspective is not inherent to their policy framework or role, and, as a result, it is not prioritized in their work. Health Policymaker 8 explains: *“[...] you are very dependent on the person in front of you and whether or not they can look beyond the walls of their own institution. And in some cases, it is simply said, you know, this is what is stated in my framework, in my policy framework, and I am not allowed to deviate from it. I think that is still very common at the moment.”*

Hence, a challenge for health policymakers lies in looking beyond organizational perspectives, by recognizing diverse perspectives and establishing connections with other organizations across the health system.

Challenge 3.2– Establishing effective strategies to navigate the high-complexity challenges in the health system

“I think the problems, not only societal but also within hospitals, have become too complex. You cannot solve them alone anymore, so it demands integration—and integration in solutions as well.” – Health Policymaker 12

Another challenge in integrating ‘adopting a systems approach’ into policymaking, as identified through health policymakers’ descriptions, involves establishing effective strategies to navigate the high-complexity challenges in the health system.

Policymakers describe that the issues they face, such as ensuring accessibility to healthcare, are becoming very big and complex. They note that traditional solutions strategies often fail to address these challenges, requiring the needs for new and integrated approaches. Health Policymaker 12 explains: *“Yes, I think an integrated approach is necessary, as we just mentioned. The problems are too complex to solve alone; they are no longer linear solutions. So, you must consider and resolve them in an integrated manner.”* To illustrate the need for new approaches, Health Policymaker 12 compares the complexity of these problems to the difficulties in forming a government in Dutch politics. In that case, traditional methods proved ineffective, prompting politician Kim Putters to propose a new strategy to form a new government.

Due to the inherent complexity of the problems within the healthcare system, policymakers observe that organizations sometimes tend to avoid adopting a systems perspective. Health Policymaker 6 reflects on this tendency: *“We all understand that context is incredibly important and that you need to look more broadly. But how tempting is it to simplify your reality again, to make it a little less complex? To place yourself more at the center of the universe? That tendency exists. Yes, because then it is manageable, and you make your own reality just a bit easier to oversee.”*

When stakeholders do collaborate to address these complex problems, new challenges for governance and coordination arise. Health Policymaker 2 elaborates: *“That happens because of what I just mentioned—the complexity you’re actually dealing with. As a result, you have to collaborate with various people—experts in finance, domestic violence, legal matters. Sometimes you need to coordinate with 10 or more individuals to solve a particular issue. And that doesn’t align well with governance structures.”*

Moreover, relationships between stakeholders can come under pressure as more tough decisions need to be made. Health Policymaker 10 explains this with an example about the relationship between a healthcare provider and an insurer: *“Well, it is becoming increasingly difficult because, as I just mentioned, the availability of care is getting harder to organize. So, it is becoming more challenging to quickly provide the best possible care for every individual client, right? That’s difficult for the care provider, but we [health insurer] are also finding it harder and harder to come up with solutions. And that also means that the relationship with the care provider gets more tense.”*

In essence, a challenge for health policymakers is to establish effective strategies to navigate the highly complex challenges within the healthcare system, addressing governance issues and ensuring alignment among diverse stakeholders.

Challenge 3.3 – Developing customized care solutions within a highly regulated and political health system

“What we are doing now is, everyone should have a right to that, everyone should get it, but what is suitable for one is not for the other” – Health Policymaker 15

Another challenge in integrating ‘adopting a systems approach’ into policymaking, as identified through health policymakers' descriptions, involves *developing customized care solutions within a highly regulated and political health system*.

Policymakers explain that operating within the regulated system shifts the focus towards complying with rules rather than addressing public needs. As health Policymaker 12 elaborates: *“We are, of course, in the entire healthcare landscape constantly tempted by all sorts of things that have to be done, things that are becoming increasingly bureaucratized, or that, in any case, do not directly contribute to better patient care”*.

Moreover, policymakers describe that this regulatory structure leads to the creation of standardized care designed to universally address the public needs. However, they emphasized that this standardized care approach limits the capacity to develop solutions that meet the diverse needs of individuals. Health Policymaker 9 illustrates this contrast between standardized health products and personalized care services, stating: *“But yes, then the government, in its commissioning role, must be able to place trust in it, right? Such a team is somewhat uncontrollable, right? Because you can control products. You feel it in the sense that you’ve delivered them, you can put a price tag on them, and then you can tell the politicians, look, we did well [...] If, at some point, you say, I want to spend money, but on something that is very difficult to control, that becomes very challenging in a democracy. Because, yes, where should the council members start to exercise oversight?”*

Health policymakers also point that past instances of fraud within Dutch governmental organizations have led to skepticism regarding governmental-funded initiatives. As a result, they observe that the public finds it difficult to trust situations where it is unclear how resources are allocated or whether they are used efficiently, complicating efforts to deliver customized care that addresses the diverse needs of individuals. Health Policymaker 9 elaborates on this: *“People find it very hard to understand [...] when there are five people doing something that could actually be done with just three. The Dutch people, with their frugal mindset, find that quite difficult.”*

When efforts are made to provide customized care, health organizations mention that they face scrutiny from the Dutch regulatory bodies, which may hold them accountable for any perceived risks or deviations. Health Policymaker 10 provides an illustrative

example, describing how a nursing home may hesitate to accommodate an elderly resident's request for a carpet in her room, fearing she might trip and that this could lead to negative repercussions during inspections.

Additionally, health policymakers must navigate shifts in the political landscape, which complicates their ability to create sustainable policies. These frequent changes require them to continually develop new policies rather than providing certainty to the public. As Health Policymaker 3 elaborates: *"Politics can be quite frustrating, actually, because it drives policy, but sometimes it leads to very, very inconsistent policy. One moment the wind blows in one direction, and we must do that, and the next moment it blows in another direction. Yes, that makes it difficult to provide much certainty from such parties."*

Concisely, health policymakers face the challenge of developing customized care solutions while navigating the demands of a protective and political health system, public skepticism, and shifts in the political landscape.

4. OVERARCHING HCD PRINCIPLES

Challenge 4.1 – Breaking free from assumption-driven thinking to unlock human-centered solutions

"We tend to make adjustments on the backend, whereas we could also conduct more fundamental research into needs. However, we usually don't do that because we believe we already have a sufficient understanding of what is needed." – Health Policymaker 2

A challenge that spans multiple principles of Human-Centered Design, as identified through health policymakers' descriptions, involves breaking free from assumption-driven thinking to unlock human-centered solutions.

Policymakers note that they often rely on assumptions about public needs, the appropriate stakeholders to involve, the nature of the problems, the methods to approach them and potential solutions. These assumptions can hinder steps such as conducting thorough research into the public needs. As Health Policymaker 2 highlights: *"[...] we most often work from our own assumptions about what the citizens need."* This mindset can lead policymakers to bypass direct public involvement in policy development. For example, Health Policymaker 11 explains a team decision to exclude the public from a project because they believed that, as professionals, they could make the necessary decisions based on their field expertise and their own experience as humans.

In some cases, health policymakers describe that this assumption-driven thinking comes from a genuine desire to help people, leading policymakers to adopt a caregiver role. This focus on providing care can sometimes overshadow the need to ask individuals about their specific needs. As Health Policymaker 14 observes: *"We take care of you is more the primary tendency, rather than asking what you need."* In other cases, policymakers perceive little need for fundamental research into the public needs, as they view them as

straightforward. Health Policymaker 2 provides an example: *“People who can no longer clean their homes need domestic help.”* However, Health Policymaker 5 emphasizes that a lack of curiosity about people’s needs, can act as a significant barrier to human-centered solutions.

This assumption-driven thinking can also affect decisions about which stakeholders to collaborate with. Health Policymaker 4 remarks, *“Yes, well, it is of course, as a policymaker, much easier to engage with familiar parties—those that are obvious and already well-known—than to take the time to identify and understand other stakeholders. But we need to map out who these stakeholders are and how they operate.”*

Assumptions further shape the initial stages of policy development when defining problems and identifying suitable solutions. Health Policymaker 6 notes: *“We want something, without knowing what, and then we have the solution already laying down. While if we take a different level of view with each other, what is actually the real problem, why are we actually talking about this with each other? That then you get a whole different discussion.”*

Moreover, these assumptions can influence how projects are approached and the openness towards new approaches, such as Human-Centered Design. Health Policymaker 11 illustrates this point: *“When people say, bring into view or explore how this and this can be done. Then I always say, yes, what do you want? Do you want a paper, or do you want a dance? [...] In our world of papers and PowerPoint presentations, to deliver something different, but you also notice that if you would do that, people are mostly surprised and then you lose a lot of time creating support for the other idea. That is, I think, really just a fact that it is unknown behavior within my system, within my professional world.”*

Furthermore, policymakers argue that this assumption-driven thinking can be stimulated by the top of an organization. As Health Policymaker 6 explains: *“The tone at the top, I strongly believe in that, is decisive in an organization. So, if you already have a certain kind of preconceived ideas, those will trickle down, and you’ll essentially get back from the organization what you yourself have loudly proclaimed.”*

Hence, a challenge for health policymakers lies in breaking free from assumption-driven thinking by conducting thorough research into public needs, identifying the appropriate stakeholders to involve, understanding the problems, selecting suitable methods to address them, and exploring potential solutions.

Challenge 4.2 – Embedding human-centered solutions within a market-driven health system

“Yes, the difficulty in healthcare is that healthcare has naturally become a market. Where people have started to focus on production and that has led to people thinking in terms of market forces and the intrinsic motivation of the healthcare provider has been lowered.” – Health Policymaker 15

Another challenge that spans multiple principles of Human-Centered Design, as identified through health policymakers' descriptions, involves embedding human-centered solutions within a market-driven health system.

Policymakers emphasize that the market-oriented nature of the health system often shifts the focus away from delivering meaningful, individualized care, transforming healthcare into a production-driven sector. Health Policymaker 15 highlights this shift, noting that healthcare has evolved from offering value-based care for individuals to becoming a production-oriented endeavor, often at the expense of nuanced individual needs. This production-driven mindset also shapes the language and thinking of health policymakers. Health Policymaker 2, for instance, refers to the launch of a new health initiative as *“Putting a new product in the market.”* Health Policymaker 9 explains that such terminology reinforces a perception of healthcare as a series of 'products' rather than holistic, individual-centered solutions, illustrating this with examples of simplified responses to complex individual needs: *“Someone is struggling in their relationship? I need a relationship therapist—product: relationship therapist. A child has difficulty eating? I need a parenting product.”*

When the public is involved in policymaking to express their needs, financial stakeholders often determine the direction of the initiatives. Participant 13 describes a project involving a health insurer, a client board, and a healthcare provider, where the health insurer's financial leverage ultimately dictated the project's direction, overshadowing the public input.

These market-driven incentives can also complicate collaboration between stakeholders. Health Policymaker 12 elaborates on stakeholders holding their cards close to the chest during collaboration: *“Not everyone is as open, or there are interests at play that they do not want to disclose, which may not be substantive at all, but more financially driven interests.”*

Market-driven incentives can further constrain the adoption of a broader systems perspective. As Health Policymaker 6 mentions that: *“Healthcare is a production-driven system, and you also have to keep an eye on your balance sheet and cash flow, so revenue must be generated. This often conflicts with broader thinking. [...] I once spoke with an administrator who said, 'Yes, but everything I contribute to reorganizing care more appropriately costs me money because it all leaves my organization.' So, while they are willing to consider it, they conclude, it is just not smart or practical for me to do this right now.”*

Thus, a challenge for health policymakers lies in embedding human-centered solutions within a market-driven health system by focusing on public needs, fostering collaboration with stakeholders, and adopting a broader systems perspective in policymaking.

Challenge 4.3 – Integrating human-centered approaches within the constraints of time, resources and data protection laws

“Oh, we are in a hurry. We don’t have time to question everyone or involve everyone or to question the stakeholders. We need to implement a new policy now, so let’s work quickly and just skip that part.” – Health Policymaker 3

Another challenge that spans multiple principles of Human-Centered Design, as identified through health policymakers’ descriptions, involves integrating human-centered approaches within constraints of time and resources and data protection laws.

Policymakers describe that they experience struggles when integrating principles of Human-Centered Design with limitations in time, resources and data protection laws. They emphasize that the public’s broad variety of needs complicates efforts develop policies that effectively address such diverse demands. As Health Policymaker 9 explains: *“So a conversation with you, I go into that very differently, I get something very different than when I have a conversation with my grandmother and so the first challenge is to find a kind of yes common denominator from all those different perspectives of the public.”* This diversity adds complexity to problem-solving, often requiring more time and resources like employees to develop inclusive policies, which is not always available. Health Policymaker 3 provides an example when addressing human needs through a personalized approach became too costly and increased the waiting time: *“I think the current healthcare policy was extremely human-centered and aligned very well with the needs of patients and clients, but as a result, it became unaffordable for the [Healthcare organization]. It was a very personalized approach, which, yes, naturally brings higher costs, and that also led to longer waiting lists.”*

When involving stakeholders throughout the policy development process similar constraints arise. Health policymakers describe that the diverse interests, cultures, and priorities of all stakeholders, together with the broad scope of the stakeholder field, often complicates problem-solving. This complexity can result in prolonged timelines and increased costs, leading policymakers to involve stakeholders that are more familiar or visible for them. Health Policymaker 14 illustrates this with an example: *“COVID-19 was a good example where action had to be taken quickly. Even then, it was easier to approach the stakeholders that were already more visible.”* Health Policymaker 6 adds that time constraints often discourage thorough stakeholder engagement: *“Now I think that a lot, of course time is scarce, and we’re all overloaded in work. And often this is seen as extra thorough, as an investment that doesn’t immediately pay off.”*

Moreover, adopting a systems approach introduces new limitations. Policymakers highlight that the fragmented nature of the healthcare systems makes accessing

information and fostering collaboration across organizations difficult. They describe that addressing these issues often requires additional resources, such as larger project teams or extended timelines. As Health Policymaker 9 elaborates with an example of the differences in cross-domain collaboration between a small and a large municipality: *"I think that in the larger cities, [...] we simply have enough manpower to make it possible. For example, the municipality of [small town] has only three policymakers responsible for the entire social domain, including assistance, stairlifts, youth care, and so on. In contrast, the municipality of [city] has an army of 100 civil servants dedicated to these tasks, which allows us to accomplish this."*

Even when the right organizations from various domains are identified, collaboration can be obstructed by differences in organizational systems and restrictive data-sharing regulations. Policymakers emphasize that data-sharing is complicated by concerns about data protection laws and medical confidentiality. Health Policymaker 8 elaborates on this with an example from policy development spanning the health and safety domains: *"Sharing information from the Public Prosecution Service, the police, probation services, or judicial institutions with the healthcare sector is challenging. But it is not just that—it also involves the medical aspect, which includes mental health care (GGZ), and they are not allowed to share data with, among others, welfare organizations."*

Thus, a challenge for health policymakers lies in integrating human-centered approaches within the constraints of time, resources, and data protection laws.

3.2.5 RESULTS PHASE 4: VALUES OF INTEGRATING HUMAN-CENTERED DESIGN

Following a thematic analysis of the data derived from phase 4, six values were identified related to the integration of Human-Centered Design into policy formulation for health policymakers. These values are as follows:

1. Connecting with individuals beyond their health problems
2. Moving beyond assumptions to develop health solutions grounded in public need
3. Reconnecting policymakers with their intrinsic drive to work in the health sector
4. Establishing a support base to achieve stakeholder alignment
5. Fostering collective efforts to address high-complexity challenges in the health system
6. Preventing health policy revisions by addressing the root causes of problems

Value 1 – Connecting with individuals beyond their health problems

“But then humans will see humans more, looking at their needs instead of their care.”- Health Policymaker 4

The first value of integrating Human-Centered Design into policymaking, as identified through health policymakers' descriptions, involves connecting with individuals beyond their health problems.

Policymakers note that the conventional approach in health often prioritizes addressing problems, regulatory concerns, or procedural demands over considering the person behind them. They explain that this problem-centered focus can leave individuals feeling unheard and disconnected, often unsure of why certain decisions are made about their care. Instead, Human-Centered Design challenges this sequence by reversing the focus—beginning with understanding the individual and their unique needs before addressing their health problems. As Health Policymaker 15 explains: *“It is a different way of approaching things. It is the person first and then the disease. Whereas in healthcare, we are used to starting with the problem—whether it is a disease or something else.”*

Policymakers emphasize that this shift toward prioritizing and understanding the person first transforms the healthcare system from being problem-centered to human-centered. They note that this approach helps individuals comprehend the reasons behind decisions, while considering their needs, ultimately making them feel seen and valued and fostering deeper compassion and stronger connections between policymakers and those they serve. As Health Policymaker 15 elaborates: *“People find it important to feel seen. But they also need to understand why they are being seen, and that it is to make care better.”*

Thus, a value of Human-Centered Design lies in its ability to enhance individual and public health experiences by seeing individuals beyond their health problems, ensuring they feel heard and considered, while fostering deeper compassion and stronger connections between policymakers and those they serve.

Value 2 – Moving beyond assumptions to develop health solutions grounded in public needs

“In the sense that we might be able to get more out of it, because we tend to follow a certain line of thinking or course of action. This sometimes prevents us from fundamentally questioning whether we’re actually doing the right things and truly meeting people’s needs.” – Health Policymaker 2

The second value of integrating Human-Centered Design into policymaking, as identified through health policymakers' descriptions, involves moving beyond assumptions to develop health solutions grounded in public needs.

Policymakers note that policy development often relies on their assumptions about what the public needs. They describe that these assumptions can lead to policies that do not always fully address the realities and expectations of the individuals they aim to serve. By integrating Human-Centered Design, which emphasizes conducting research to understand individuals' needs, policymakers can gain deeper insights into the lived experiences of those affected. They describe that this approach can enable the creation of health solutions and policies that are more relevant, effective, and responsive to public needs, which can increase trust in the health system. Health Policymaker 6 provides an example of how researching patient needs has led to improved care solutions in practice: *"At [healthcare organization], we analyzed the patient journeys of [a target group with specific care needs] who were nearly declared cured. What was the process like for these individuals? What did their journey look like, and where did they feel, they were truly listened to as partners in the discussion? By peeling back, the layers of this end-to-end journey, from the perspective of the individual, we uncovered numerous areas for improvement."* Similarly, Health Policymaker 11 elaborates on the insights gained through conducting research into public needs: *"Yes, yes, and I once participated in a design-like process where we created a customer journey. During that process, we discussed something we had encountered in our work, but eventually, we also discussed it in detail with the people it was about, through interviews and such. And it became very clear how different our worlds of experience were."*

Hence, a value of Human-Centered Design for policymakers lies in its ability to stimulate them to move beyond assumptions and develop health solutions that effectively address public needs.

Value 3 – Reconnecting policymakers with their intrinsic drive to work in the health sector

"In the hospital, it is quite simple—if you can answer the question, 'Does this make the patient better?' then you know why you're doing it. It really is that straightforward. And it is important to keep asking yourself that, especially because, within the broader healthcare landscape, you're constantly being drawn into things that are becoming increasingly bureaucratic or don't directly contribute to improving patient care." – Health Policymaker 12

The third value of integrating Human-Centered Design into policymaking, as identified through health policymakers' descriptions, involves reconnecting policymakers with their intrinsic drive to work in the health sector.

Many policymakers highlight that their work is driven by a profound desire to help others and improve the well-being of the people they serve. Reflecting on the reason behind their dedication to policymaking, Health Policymaker 11 explains: *"I want to feel that when I've completed my work, I can say that, at the end of the process, someone has become healthier or that someone has been able to live a few minutes longer. And if that's not the result, then*

you simply need to stop." However, policymakers note that the current healthcare system's emphasis on procedural demands, financial incentives, and problem-solving frameworks can diminish their sense of purpose in work. They explain that the adoption of Human-Centered Design, which begins with understanding human needs, shifts the focus back to individuals, fostering a more human-centered approach. Policymakers explain that this shift can help them to reconnect with their original drive to care for and support people, being the reason why they work in the health sector. As Health Policymaker 15 elaborates: *"People ultimately really appreciate this, because a healthcare provider starts from intrinsic motivation. You become a healthcare provider because you enjoy caring for others or doing something for someone else. [...] And by bringing the patient's context into proactive care so clearly, the healthcare provider experiences the joy of helping this person – not just the problem of the person, but the person themselves. This feels rewarding for providers, and it spreads."*

Thus, a value of integrating Human-Centered Design for health policymakers lies in its ability to reconnect them with their intrinsic motivation to prioritize helping others through a human-centered approach.

Value 4 – Establishing a support base to achieve stakeholder alignment

"Yes, I think that to implement policy, the most important thing is to involve the right stakeholders right from the start of the change process. That is essential for maintaining both your support base and your credibility as a policymaker." – Health policymaker 12

Another value of integrating Human-Centered Design into health policymaking, as identified through health policymakers' descriptions, involves establishing a support base to achieve alignment during development of health policies among diverse stakeholders.

Policymakers note that the diverse interests, cultures, and priorities of stakeholders and the public combined with the broad scope of the stakeholder field, often make achieving alignment during policy development a complex challenge. They explain that Human-Centered Design, through its emphasis on involving stakeholders throughout the policymaking process, can help to bridge these differences achieve alignment on new health policies. Policymakers highlight that engaging stakeholders early in the policy development process ensures they feel heard and valued, increasing their likelihood of supporting the final policy. Reflecting on stakeholder involvement during a recent policy development process, Health Policymaker 3 observes: *"I think they appreciated being involved in the process. Otherwise, you're confronted with a fait accompli."* Similarly, Health Policymaker 10 states: *"Look, the sessions we do with providers, where they feel heard, help to build a good relationship. It ensures that we remain in dialogue and that they feel aligned with what we're doing. They also get the sense that what this [organization] is doing is right and that they can work with it."*

In addition, policymakers highlight that involving stakeholders fosters mutual understanding of each other's perspectives, which, in turn, strengthens relationships and builds credibility which can lead to a support base –elements they describe as essential for the success of health policy transformations. As Health Policymaker 4 emphasizes: *“To be honest, I think having a coffee at the beginning—getting to know each other, maintaining that contact, and fostering goodwill—is of critical importance for success.”*

Hence, a value of integrating Human-Centered Design for health policymakers lies in its capacity to align diverse stakeholders by fostering a support base.

Value 5 – Fostering collective efforts to address high-complexity challenges in the health system

“It is impossible, when faced with complex challenges, for one person alone to come up with a good plan. It is something you must continuously shape together.” – Health Policymaker 5

Another value of integrating Human-Centered Design into health policymaking, as identified through health policymakers' descriptions, involves fostering collective efforts to address high-complexity challenges in the health system.

Policymakers note that the issues faced by the health sector have become too complex to resolve them alone. They describe that Human-Centered Design, through its emphasis on stakeholder involvement and adopting a systems perspective, fosters a collaborative environment where the burden of solving wicked problems is shared among professionals, families, and other key actors of the system. As Health Policymaker 14 underscores the importance of shared accountability: *“Yes, because you distribute the responsibility across a very broad pathway, and that is, I think, especially important for healthcare. Everyone is already talking about it—everyone has a role to play, and family and loved ones will need to step up as well.”* This shared responsibility ensures that every stakeholder contributes to addressing healthcare challenges, making the process both more fulfilling and effective. Health Policymaker 5 reflects on the positive experience of collective efforts: *“Then almost every step you take is a success. And then it just becomes a more beautiful movement, because you all contribute to a certain yes movement, so to speak, and then it just becomes more fun.”*

In addition to distributing accountability, policymakers highlight that involving stakeholders from diverse perspectives can inspire innovative and creative solutions that might not emerge otherwise. As Health Policymaker 13 notes: *“What’s really exciting about it is that it can bring out-of-the-box ideas—things professionals and executives might not immediately think of but that can be incredibly useful.”*

Concisely, a value of integrating Human-Centered Design for health policymakers lies in its ability to foster collective problem-solving by sharing accountability, encouraging

collaboration, and inspiring innovative solutions to address the complex challenges of the healthcare system.

Value 6 – Preventing health policy revisions by addressing the root causes of problems

"I truly see value in this, because if you now look at that [health policy case], I genuinely doubt whether this is truly adding value. We're doing a calculation because a motion requested that we do so. But has this really been thought through? As far as I'm concerned, no. And is this going to contribute to solving the problem they want to address? Again, no." – Health policymaker
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Another value of integrating Human-Centered Design into health policymaking, as identified through health policymakers' descriptions, involves preventing policy revisions by addressing the root causes of problems.

Policymakers note that health policies are often developed without a thorough understanding of the underlying problems, due to insufficient research into human needs or the exclusion of relevant stakeholders. This approach, they explain, can lead to policies that address the wrong problem, are challenging to implement, and ultimately require costly and time-consuming revisions. As Health Policymaker 4 reflects on the challenges of a poorly designed law: *"That's why the law is so difficult to apply. Not all stakeholders who provide care under coercion were involved in the development of the law, and that's why we are now stuck with a law that is difficult to implement. [...] I think the law evaluation itself is this summer, and any adjustments won't happen until the end of this year or next year. You cannot wait that long for an evaluation..."*. Policymakers emphasize that Human-Centered Design, with its emphasis on understanding public needs, active stakeholder engagement, and adopting a systems perspective, provides a comprehensive understanding of the underlying issues within the system and the needs of both the public and stakeholders. This approach enables policymakers to accurately identify root causes, ensuring that health policies are developed to address real challenges rather than assumptions. By grounding policies in this deeper understanding, policymakers explain, the resulting policies become more effective, practical, and better integrated within existing system while also minimizing the likelihood of policy failures or costly revisions after implementation. Health Policymaker 15 illustrates this point: *"When you look at older adults, someone might come in with a complex tumor but also express that they are ready to end their life. Yet, this isn't asked. Instead, an arsenal of diagnostics, scans, and treatments is deployed. If you had talked to them, you might have arranged good home care or hospice care instead. That way, you would have saved significant costs while adding warmth and humanity to the care provided."*

Hence, a value for health policymakers in integrating Human-Centered Design lies in its ability to create effective and sustainable health policies by accurately identifying root

problems, aligning with the real needs of the public and stakeholders, and minimizing costly revisions or implementation delays.

3.3 DISCUSSION

This study explored the integration of Human-Centered Design into health policymaking from the perspective of health policymakers, based on insights gathered through interviews. It defined how health policies are developed in practice and how these practices differ from Human-Centered Design principles. Moreover, this study identified ten challenges in integrating Human-Centered Design into policymaking, as well as six values that policymakers associate with its integration.

3.3.1 VALUES OF INTEGRATING HUMAN-CENTERED DESIGN

The findings of this study highlight the potential of Human-Centered Design to support health policymakers in overcoming barriers. By fostering deeper connections with individuals beyond their health problems and engaging them in the policymaking process, Human-Centered Design can contribute to the development of more effective and responsive policies while reducing the need for costly revisions.

Furthermore, the value of integrating Human-Centered Design can extend beyond its direct application for policymakers. By connecting the values of Human-Centered Design to the Quadruple Aim framework of Bodenheimer & Sinsky (2014), which is widely used to enhance performance within the health sector, this study illustrates how Human-Centered Design has the potential to contribute to broader health system goals. This framework evaluates the value of initiatives within the health system based on four objectives: (1) improved patient outcomes, (2) enhanced patient experience, (3) improved provider experience, and (4) lower costs of care. In the context of health policy, these objectives are adapted to: (1) improved experiences for citizens, (2) improved outcomes for citizens, (3) improved provider experience, and (4) Lower costs of care. An overview of the values of Human-Centered Design for policymakers, aligned with these adapted objectives, is presented in Table 4.

The integration of Human-Centered Design can contribute to improved outcomes for citizens, by enabling policymakers to connect with individuals beyond their health problems, ensuring they feel heard and considered in decision-making. It can further improve outcomes for citizens, by encouraging policymakers to move beyond assumption-driven approaches, fostering the development of health solutions grounded in real public needs. Through research into individuals' lived experiences, policymakers can gain deeper insights into the lived experiences of those affected, ultimately leading to policies that can be more attuned to the needs of citizens.

Moreover, Human-Centered Design can enhance the experiences of health providers by reconnecting them with their intrinsic motivation to work in the health policy sector, creating a more fulfilling work environment, and creating a shared support base to align

stakeholders. This alignment can encourage collective efforts to tackle the high-complexity challenges within the health system more effectively.

Finally, Human-Centered Design can contribute to reducing healthcare costs by reducing the need for policy revisions. By identifying and addressing the root causes of health system challenges, Human-Centered Design can ensure that policies are developed to address real issues rather than being based on assumptions. This deeper understanding can lead to more effective and practical policies that are better integrated within existing system, thereby reducing the likelihood of policy failures and costly revisions after implementation.

While this research identified values of Human-Centered Design from the perspective of health policymakers, even more values could emerge through a deeper exploration of the perspectives of the individuals directly impacted by health policies. This suggests that the value of Human-Centered Design adaptation might be even greater than currently recognized, underscoring its potential for further research and development.

TABLE 4. VALUES OF INTEGRATING HUMAN-CENTERED DESIGN CONNECTED WITH THE QUADRUPLE AIM FRAMEWORK

<p>1. Improved experiences for citizens</p> <p>1.1 Connecting with individuals beyond their health problems</p>
<p>2. Improved outcomes for citizens</p> <p>2.1 Moving beyond assumptions to develop health solutions grounded in public needs</p>
<p>3. Improved provider experience</p> <p>3.1 Reconnecting policymakers with their intrinsic drive to work in the health sector</p> <p>3.2 Establishing a support base to achieve stakeholder alignment</p> <p>3.3 Fostering collective efforts to address high-complexity challenges in the health system</p>
<p>4. Lower costs of care</p> <p>4.1 Preventing health policy revisions by addressing the root causes of problems</p>

3.3.2 POLICY CYCLE IN PRACTICE

This study defined the health policymaking process in practice, identifying a policy cycle consisting of six stages: (1) responding to internal and external drivers for health policy adaptation, (2) assigning the responsible and accountable team, (3) evaluating current and desired policies, (4) developing scenarios to address the desired policy, (5) deciding on the desired scenario for the policy, and (6) refining and implementing the selected health policy.

These six stages provide a more detailed and nuanced understanding of policymaking in practice compared to the more conceptual four-phase model proposed by Jann and Wegrich (2007), who outline the process as: (1) agenda setting, (2) policy formulation and decision-making, (3) implementation, and (4) evaluation.

While there are some similarities between the two models, this study's policy cycle is grounded in practice and adds depth by providing a more detailed description of the specific activities in each stage. For instance, Jann and Wegrich's (2007) first stage '*Agenda setting*,' which refers broadly to the identification of a problems requiring policy adaptation, has some similarities to '*Responding to internal and external drivers for health policy adaptation*.' However, the distinct definition underscores the triggers – ranging from political and legislative pressures to intrinsic organizational motivations—that initiate policy adaptation, illustrating how agenda setting involves a dynamic interplay of systemic and contextual factors.

Moreover, third, fourth, and fifth, stages of this study's policy cycle— '*Evaluating current and desired policies*,' '*Developing scenarios to address the desired policy*' and '*Deciding on the desired scenario for the policy*'— appears similar to what Jann and Wegrich (2007) describe as, '*policy formulation and decision making*.' However, by defining these phases in three distinct phases, this study presents a more detailed structure that enhances the understanding of how existing policies are assessed, gaps are identified, and potential solutions are explored.

Another contribution of this study is the inclusion of an additional stage absent in Jann and Wegrich's (2007) policy cycle: '*Assigning the responsible and accountable team*.' This stage is essential, as it involves defining the composition and roles of the accountable and responsible project team, including the potential involvement of stakeholders and citizens. Their participation can greatly shape policies, as their perspectives, insights, and knowledge can influence the direction and outcomes of the policymaking process.

However, as this study's six-stage policy cycle is defined on base of the descriptions of health policymakers across the different system levels, governmental, intermediary and operational, its generalizability to a specific level or type of healthcare organization may be limited. Nonetheless, this study aims to offer a deeper understanding of how policies are developed in practice by presenting the health policy cycle in practice.

3.3.3 DIFFERENCES BETWEEN HEALTH POLICYMAKING IN PRACTICE AND HUMAN-CENTERED DESIGN

This study defined the differences between health policymaking in practice and Human-Centered Design principles. The results highlight that when health policymakers seek to understand human needs, they often rely on assumptions, expert input, or internal data rather than engaging directly with the public. These findings align with the research of Frenk et al. (2010), who emphasize that health policymaking predominantly depends on explicit knowledge, such as health data and systematic research, while overlooking tacit

knowledge—beliefs, experiences, and perspectives. Similarly, Lamping et al. (2012) emphasize that public engagement remains largely absent from the health policymaking process, further underscoring the limited integration of public perspectives when developing policies. This limited integration could be explained by another finding of this study; while all healthcare providers are required to have a client council that can influence health policymaking, there is no mandate for involving client councils or citizens at the governmental. This raises the question of whether similar requirements should be introduced to ensure public perspectives are consistently incorporated across all levels of policymaking.

The findings also highlight that stakeholder involvement, while evolving, primarily focuses on informing or consulting stakeholders rather than fostering co-production. These findings align with the research of Fusco et al. (2020), who describe the operations of the health policy sector as highly fragmented, despite its increasing interest in co-production. Moreover, the results highlight that stakeholder engagement often centers around familiar and established parties, excluding less obvious yet equally relevant stakeholders. The research of Lamping et al. (2012) similarly notes that stakeholder involvement often centers around governmental organizations, due to their legal authority, while many other health organizations remain excluded. While limiting the number of stakeholders can help to manage complexity, it raises critical questions about the underlying rationale for stakeholder inclusion. Are stakeholders deliberately limited to ensure manageability, or does their inclusion stem from convenience, with policymakers favoring those who are well-known or easily accessible, as they themselves have mentioned in this research.

Furthermore, this study found that health policymakers often operate from their own organizational perspective, aligning with Visser and Hemerijck (1997) and Lamping et al. (2012), who describe the field of health policy as institutionally segmented and self-regulated. While systemic challenges and government initiatives have encouraged collaboration within the healthcare sector, this study found that collaboration beyond the health sector remains limited. This supports findings by Godfroy (1993) and Lamping et al. (2012), who highlight that public domains like healthcare, social housing, and education, often operate independently while addressing overlapping challenges.

These findings are particularly interesting given Junginger's (2013) observation that design remains largely confined to the policy implementation phase, with limited integration into earlier stages of policy formulation. Understanding the how health policymaking in practice differs from Human-Centered Design can be the first step towards effectively integrating it into earlier stages of policy formulation.

3.3.4 CHALLENGES IN INTEGRATING HUMAN-CENTERED DESIGN

This study identifies ten challenges associated with integrating Human-Centered Design into health policymaking. While Human-Centered Design offers a range of tools and methods that could help address these challenges, their application in policymaking requires further exploration.

One of the findings of this study highlight the challenge for policymakers to break free from assumption-driven thinking, as policymakers often rely on assumptions about public needs. These findings align with reports from the Council of Public Health & Society (RVS) (2021) and the Institute for Social Research (SCP) (2022), which describe that governmental policies are often shaped by overly simplistic, optimistic, or pessimistic conceptions of the public. Such conceptions can result in certain groups being overlooked or left without adequate support, ultimately undermining public trust and the legitimacy of policies. To address this challenge, Human-Centered Design offers several methods for validating assumptions, such as interaction prototyping— which involves creating and testing prototypes to stimulate how individuals experience a future design. These prototypes can take different forms, including written scenarios, illustrated storyboards, or fully functional models (Melles et al., 2020; Van Boeijen et al., 2020). Utilizing this method, might help policymakers to explore how individuals experience new policy scenarios.

Additionally, this study identified the challenge for policymakers to establish effective strategies to navigate the high-complexity challenges in the health system. These finding align with the research of Rittel and Webber (1973), and Sweeney and Griffiths (2002), which describe that societal problems often resist traditional problem-solving approaches, like reductionists and linear, as these societal problems have a nature of being open-ended, interconnected, complex, and constantly evolving. A potentially valuable design tool to address this challenge is system mapping, which is a visually representation of the elements of a challenge, their interconnections, and system boundaries (Chipperfield et al., 2008; Meadows, 2008). By using system mapping, policymakers may gain a more holistic understanding of the challenges they encounter, the interdependencies within the system in which these challenges are embedded, and the ways in which different stakeholders interact within that system.

Another significant challenge for policymakers, identified in this study, is extracting meaningful insights from public engagement. Policymakers noted that individuals often lack a comprehensive understanding of laws, regulations, and the complexities inherent in the health policy landscape. As a result, it can be challenging to extract meaningful insights that address broader policy objectives. This finding is consistent with a report from the Ministry of Health, Welfare & Sports (VWS) (2024), which highlights that in co-creation sessions between regional care offices and citizens, participants frequently expressed that they found it challenging to seek clarity on how a regional vision should take shape. Human-Centered Design offers several methods that can guide citizens in providing input and help policymakers extract meaningful insights, such as journey mapping. Journey mapping is a tool that visualizes an individual's experience as they navigate a particular process. In the context of health policy, this method can provide policymakers with structured insights into how a policy impacts citizens' daily lives and how they would ideally like it to shape their experiences. Policymakers can use these insights to shape policies or develop visions for it.

While Human-Centered Design offers a variety of tools and methodologies that could help address these challenges, their applicability within the policymaking context remains uncertain, as the field of Human-Centered Design has traditionally been focused on product and service design (Van Der Bijl-Brouwer & Dorst, 2017). Furthermore, if these tools prove to be relevant, it is unclear whether policymakers would be inclined to adopt them. This hesitation may stem from the methodological differences between the fields of Human-Centered Design and policymaking. Human-Centered Design depends largely on qualitative research and user-centered approaches that prioritize tacit knowledge, such as lived experiences, beliefs, and perspectives while health policymaking predominantly depends on explicit knowledge derived from systematic research and statistical data (Frenk et al., 2010; Melles et al., 2020). Therefore, it is necessary to gain a broader perspective beyond the field of Human-Centered Design to explore policymakers' perspectives on potential solution areas for addressing these challenges.

3.3.5 LIMITATIONS & FUTURE RESEARCH

This explorative interview study has several limitations that may have influenced its findings. One constraint was that several policymakers did not use the tools provided in the Mural format to explain their health policy development processes. Many participants found it difficult to articulate these stages visually or were unfamiliar with the Mural platform. As a result, the researcher had to analyze these stages independently, which could have led to misinterpretations of the actual health policy development process. Offering the interview sessions physically alongside an introductory visual exercise might help participants engage more effectively with the platform and think visually, thereby enhancing the accuracy of the data collected.

Another limitation relates to the composition of the sampled policymakers for the interviews. While the sample included policymakers from governmental, intermediary and operational health system levels, this broad representation may have led to challenges that reflect the entire policymaking system rather than specific issues unique to a single level, such as governmental level challenges. As a result, the findings may provide a broader perspective on the challenges rather than offering detailed insights into challenges specific to a particular health system level.

Despite these limitations, this study offers valuable insights into the practical realities of health policymaking, highlighting both the challenges and values associated with integrating human-centered approaches. These findings lay the groundwork for future research to explore strategies for effectively supporting policymakers in adopting these principles within the policymaking process.

3.4 CONCLUSION

This study explored the integration of Human-Centered Design into health policymaking from the perspective of policymakers, based on insights from fifteen interviews. It highlighted the potential of Human-Centered Design to support policymakers in addressing the complexities of the health policy landscape and can contribute to broader health system objectives. Additionally, it defined how health policies are developed in practice, presenting a policy cycle comprising six stages. Furthermore, this study identified ten challenges associated with integrating Human-Centered Design into policymaking, as well as six values that policymakers relate to its integration.

While this study explores how Human-Centered Design tools might help address the challenges policymakers face when integrating it, this study also highlights the uncertainty regarding their effectiveness in the health policy landscape due to its traditional focus on product and service design, as well as the fundamental methodological differences between Human-Centered Design and policymaking. Therefore, gaining a broader perspective beyond the field of Human-Centered Design on potential solution areas is essential for identifying approaches that align with the realities of policymaking.

4. EXPLORING
SOLUTIONS TO
OVERCOME
CHALLENGES OF
INTEGRATING
HUMAN-CENTERED
DESIGN IN HEALTH
POLICYMAKING.
A CO-CREATION
STUDY

4. EXPLORING SOLUTIONS TO OVERCOME CHALLENGES OF INTEGRATING HUMAN-CENTERED DESIGN IN HEALTH POLICYMAKING. A CO-CREATION STUDY

The interview study in Chapter 3 provides insights into the practical aspects of health policymaking and the differences with Human-Centered Design principles, highlighting both challenges and values associated with its integration. However, it does not provide an answer yet to the overarching research question: *“How can Human-Centered Design be effectively integrated into the health policy development process?”*

To explore potential solutions to these identified challenges that align with the realities of policymaking, a co-creation session was conducted. Due to the research's time constraints, the session focused on two specific challenges: (1) Managing unrealistic public expectations within the constraints of health systems and (2) Breaking free from assumption-driven thinking to enable human-centered solutions. These challenges were selected because breaking free from assumption-driven thinking is a critical initial step for integrating Human-Centered Design to allow policymakers to be receptive to its principles. Furthermore, both challenges revolve around the assumptions policymakers and citizens hold about each other or their capabilities, making it interesting to study this dynamic in greater depth. Building on these challenges, this study aims to address the following sub research questions:

- RQ 2.1: How can unrealistic expectations of the public be managed within health system constraints?
- RQ 2.2: How can health policymakers break free from assumption-driven thinking to unlock human-centered solutions?

4.1 METHOD

To address the sub research questions of this study, a co-creation session was held with Dutch health policymakers representing several levels of policymaking, alongside Dutch citizens. The primary objective of this session was to brainstorm ideas aimed at addressing two of the challenges associated with integrating Human-Centered Design, ultimately identifying potential solution areas to inform further research and address these challenges. The co-creative approach was chosen to ensure that these solution areas are both effective and sustainable, while closely aligning with the stakeholders' realities and contexts, as advocated by Sanders and Stappers (2008).

4.1.1 PARTICIPANTS SAMPLING

The selected challenges for this study, (1) Managing unrealistic public expectations within the constraints of health systems, and (2) Breaking free from assumption-driven thinking to unlock human-centered solutions, center around the assumptions policymakers and citizens hold about each other. Therefore, it was essential to include perspectives from both stakeholders in this study to explore potential solutions.

To capture a broad range of viewpoints on the health policy landscape, policymakers from governmental, intermediary, and operational levels and consultants who advise these policymakers were invited, alongside young adult citizens. It was intentionally chosen to include young adult citizens to ensure that the developed solutions would reflect the needs and priorities of future generations. Participants were promised that if they joined the co-creation session, the researcher would present the results of the research afterwards at the health institution or organization if the participant would like to.

Participants were sampled using convenience and purposeful sampling methods. Convenience sampling was employed to invite health policymakers who had already participated in the interview study or who were readily accessible through the researcher's network, the supervisory team at Delft University of Technology, or the internship provider, PwC (Patton, 2014). Young Adult Citizens were similarly sampled from the researcher's network. Purposeful sampling ensured that participants met specific predefined criteria (Patton, 2014).

The criteria for policymakers required them to be employed by a Dutch health institute or organization, or at a consultancy firm advising on health policy matters. This criterion aligned with this study's focus on the Dutch health policy landscape, recognizing consultants as influential actors due to their significant role in health policy advice. Furthermore, policymakers and consultants needed to have experience in the second phase of policy development, known as '*policy formulation and decision making*,' where policy ideas are conceptualized (Jann & Wegrich, 2007). Additionally, policymakers and consultants were required to have worked on health policy formulation within the past three years to ensure the relevance and applicability of their input. For the Dutch citizens, an age range of 20–30 years was specified to ensure that the solutions reflected perspectives that would align with the needs and priorities of future generations.

Note: Further in this co-creation study, any reference to policymakers will encompass both policymakers and consultants.

4.1.2 ETHICAL CONSIDERATIONS

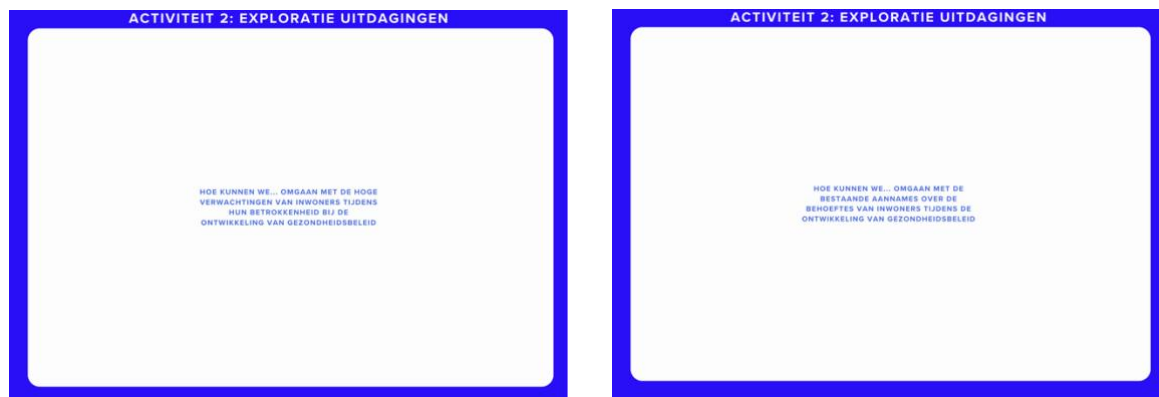
The co-creation study received prior approval from the Human Research Ethics Committee of Delft University of Technology under ethical approval number 4060. This process included conducting a thorough risk analysis, developing a prevention plan, and preparing a data management plan to ensure full ethical compliance and secure approval. Participants were also required to provide written consent, agreeing to the terms outlined in the informed consent form.

4.1.3 DATA COLLECTION

During the co-creation session, data were collected through a series of brainstorming activities framed to generate ideas for addressing the two challenges: (1) Managing unrealistic public expectations within the constraints of health systems, and (2) Breaking free from assumption-driven thinking to unlock human-centered solutions.

The co-creation session was organized as a two-hour, in-person event held at the office of PwC. The timing was selected to accommodate the availability of most participants. To guide the session, a presentation provided an in-depth introduction to the topic and an explanation of the brainstorming activities. Moreover, an experienced designer from PwC was also present to assist as needed. During the session, participants were given A3 workbooks containing templates for each activity, along with space for writing, drawing, or using post-its and stickers. These templates, included in illustrations 4-6 served as generative tools to support and stimulate engagement throughout the session (Sanders & Stappers, 2012). The data collected during the session included the filled-in workbooks and audio recordings of general discussions.

ILLUSTRATIONS 4-6. TEMPLATES PARTICIPANTS CO-CREATION STUDY



ACTIVITEIT 3: BRAINSTORM

1 **MOMENTEN INTERVENTIES**

ACTIVITEIT
ANALYSEER HET PROCES VAN BELEIDSONTWIKKELING IN DE ZORG. KIES EEN SPECIFIEK MOMENT IN DIT PROCES WAAR VOLGENS JOU EEN INTERVENTIE NODIG IS OM EEN NIEUW IDEE TE INTRODUCEREN DAT DE 'HOE KUNNEN WE...' VRAAG BEANTWOORDT.

DOEL
MOMENTEN IDENTIFICEREN WAAR HET PROCES Aangepast MOET WORDEN OM DE 'HOE KUNNEN WE...' VRAAG TE BEANTWOORDEN.

2 **CRAZY 8 BRAINSTORM**

ACTIVITEIT
SCHETS OF SCHRIJF ELKE MINUUT EEN OPLOSSING IN EEN VAN DE VAKJES HIernaast DIE DE 'HOE KUNNEN WE...' VRAAG BEANTWOORDT. DE IDEEën MOGEN VARIATIES ZIJN OP ELKAAR.

DOEL
IDEEën GENEREEREN DIE MOGELIJKE OPLOSSINGEN BIJEN VOOR DE 'HOE KUNNEN WE...' VRAAG.

ACTIVITEIT 3: BRAINSTORM

3 **IMPACT/EFFORT SCALE**

ACTIVITEIT
PLAATS JE IDEEën UIT DE BRAINSTORM OP DE IMPACT/EFFORT-ASSEN. KIES EEN IDEE DAT DE MEESTE IMPACT HEEFT EN DE MINSTE EFFORT KOST. DIT IDEE GA JE STRAKS VERDER UITWERKEN.

DOEL
EEN IDEE KIEZEN DAT DE MEESTE IMPACT HEEFT EN DE MINSTE EFFORT KOST, OM STRAKS VERDER LIT TE WERKEN EN TE PITCHEN.

ACTIVITEIT 3: BRAINSTORM

4 **CONCEPTUALISATIE**

ACTIVITEIT
SCHETS OF SCHRIJF JE GEKOZEN IDEE VAN DE IMPACT/EFFORT-SCHAAL UIT EN BEANTWOORD DE ONDERSTAANDE VRAGEN.

VRAAG 1
HOE BEANTWOORD JOUW IDEE DE 'HOE KUNNEN WE...' VRAAG?

VRAAG 2
WAAR OP DE PROCESLIJN CREERT JOUW IDEE EEN INTERVENTIE?

VRAAG 3
WIE ZIJN BETROKKEN BIJ HET UITVOEREN VAN JOUW IDEE?

VRAAG 4
WELKE MIDDELEN ZIJN ER NODIG VOOR DE UITVOERING VAN JOUW IDEE?

DOEL
EEN IDEE UITWERKEN OM STRAKS IN TWEE MINUTEN TE KUNNEN PITCHEN.

PROCEDURE

The co-creation session consisted of an introduction, a brainstorming phase with five activities and group discussions, and a concluding phase,

The session began with a walk-in period, offering participants an opportunity to meet informally and establish a relaxed atmosphere. This was followed by an introduction to the session and of the participants themselves. To inspire imaginative and creative thinking, participants were asked to introduce themselves by selecting an image from a collection of health-related visuals that reflected their vision for the future of the health system (Sanders & Stappers, 2012). Furthermore, before commencing the co-creation session, a moment was dedicated to reassuring participants that there were no right or wrong answers and emphasizing the importance of respecting one another's ideas throughout the session. This step was taken to foster an open and collaborative environment.

Then, an overview of the study was provided, outlining the background, the principles of Human-Centered Design, and the overarching research objectives. The two challenges were introduced in detail, with supporting quotes from the earlier interview study to present the context. Participants were divided into two groups; each including at least one policymaker and one citizen and were assigned a specific challenge to explore. Each group explored one of the challenges, using the mind map method to collaboratively brainstorm related associations and specifications. This method was employed to help participants delve deeper into the context of the challenges, fostering free-flowing, associative thinking, collaboration and creativity (Buzan et al., 2010)

The brainstorming phase followed, during which data collection began. At the beginning of this stage, each participant had to work individually, receiving a 'How might we' question based on their assigned challenge. Participants addressing challenge 1 received the question: *'How might we manage unrealistic expectations of the public within the constraints of the health system?'* For challenge 2 the question was: *'How might health policymakers overcome assumption-driven thinking to unlock human-centered solutions?'* The 'How might we' method was utilized to encourage opportunity-focused thinking (Van Boeijen et al., 2020). Moreover, it was ensured that at least one policymaker and one citizen worked on each challenge to gather both perspectives on the challenges.

In the first brainstorming activity, participants identified a point within the six-stage policy cycle in practice—based on insights from the interview study—where an intervention to address their challenge could have the most impact. The second activity involved a Crazy 8 brainstorm, where participants generated eight ideas in eight minutes to address their 'How might we' question. This time-constrained exercise was utilized to encourage spontaneity and creativity over deliberation. In the third activity, participants utilized an impact/effort scale to evaluate their ideas by mapping them according to potential impact (y-axis) and required effort (x-axis). The use of this tool guided participants to identify the ideas with the highest impact and lowest effort, prioritizing them for further development.

Each participant then selected one of these ideas to refine and conceptualize further. For the fourth activity, participants conceptualized their chosen idea in greater detail by answering four structured questions: (Q1) *How does your idea address the 'How might we' question?* (Q2) *Where in the policymaking process does your idea create an intervention?* (Q3) *Who is involved in implementing your idea?* (Q4) *What resources are needed to execute your idea?* After a short break, participants pitched their refined concepts to the group. Feedback was provided through post-it notes, where participants noted three potential risks and three ways to strengthen each idea. This feedback facilitated group discussions led by the researcher, fostering constructive dialogue between policymakers and citizens. Participants then voted on the concepts they believed held the most potential by placing stickers on their preferred ideas. Three top-ranked concepts were chosen for further iteration, with the selection ensuring that at least one concept addressed each challenge. For the fifth activity, participants iterated on the concepts in pairs, each group consisting of a policymaker and a citizen, incorporating the feedback received earlier. During this iteration, participants revisited the four structured questions to refine and further develop their ideas. The updated concepts were then pitched and briefly discussed in a final group session.

The session concluded with an opportunity for participants to share final comments or questions. Once the discussion ended, participants were thanked for their contributions and assured they would receive a copy of the finalized research, marking the conclusion of the co-creation session.

4.1.4 DATA ANALYSIS

The data collected from the co-creation session was analyzed using thematic analysis, with an inductive approach to identify, analyze, and report patterns that were subsequently grouped into themes. The six-phase approach outlined by Braun and Clarke (2006) was employed to guide the analysis process.

In the first phase, *'familiarizing yourself with your data'*, the researcher digitized and anonymized the participants' workbooks by transferring their contents into the interactive platform Mural. Next, the researcher repeatedly reviewed the workbooks and listened to the audio recordings of the discussion sessions with policymakers and citizens. This process facilitated immersion in the data while allowing for the documentation of initial ideas.

In the second phase, *'generating initial codes,'* notable features from the brainstorming activities and significant quotes from the discussions were systematically coded. Given that the co-creation session was structured around two distinct challenges for health policymakers, the data for each challenge was analyzed and coded separately.

In the third phase, *'searching for themes,'* the initial codes were collated into potential themes, with all relevant data grouped under each theme. Then in the fourth phase, *'reviewing themes,'* the themes and associated codes were thoroughly reviewed. Similar

codes were merged when necessary to ensure clarity and consistency. The fifth phase, *'defining and naming themes,'* involved refining the themes by generating clear definitions that effectively conveyed the underlying story of each theme.

Finally, in the sixth phase, *'reporting the themes,'* the themes were documented, supported by selected data extracts to illustrate and substantiate each theme.

4.2 RESULTS

From the thematic analysis, themes were generated for each challenge to address the research questions of this co-creation study. For the first challenge, *"How can unrealistic expectations of the public be managed within health system constraints?"*, two solution areas were identified. For the second challenge, *"How can health policymakers overcome assumption-driven thinking to unlock human-centered solutions?"*, three solution areas were identified. Each theme includes a detailed explanation to provide a deeper understanding of the findings, supplemented with ideas and quotes from policymakers and citizens.

4.2.1 PARTICIPANTS

The co-creation session included six participants: three health policymakers and three young adult citizens. The health policymakers represented various policy levels and organizations. This included perspectives of the governmental, operational level and consultants. Among the policymakers, two had previously participated in the interview study. Additional key characteristics of the participants are summarized in Tables 4 and 5.

Initially, five policymakers and five young adult citizens confirmed their participation in the session. However, two policymakers canceled due to work commitments. To maintain balance, it was decided that two young adult citizens would not participate, ensuring an equal number of policymakers and citizens in the session.

TABLE 4 & 5. CHARACTERISTICS PARTICIPANTS CO-CREATION STUDY

HEALTH POLICYMAKER	FUNCTION	POLICY LEVEL	INSTITUTE/ ORGANIZATION	YEARS OF EXPERIENCE
Health Policymaker 1	Policymaker	Governmental	Municipality	25-30 years
Health Policymaker 2	Policymaker	Operational	Hospital	5-10 years
Health Policymaker 3	Consultant	All levels	Consultancy	5-10 years

YOUNG ADULT CITIZEN	AGE
Young Adult Citizen	25
Young Adult Citizen	24
Young Adult Citizen	23

4.2.2 RESULTS CHALLENGE 1: MANAGING UNREALISTIC PUBLIC EXPECTATIONS WITHIN HEALTH SYSTEM CONSTRAINTS

A thematic analysis of the data related to first challenge revealed two solution areas to manage unrealistic public expectations within the constraints of the health system. This challenge arises as policymakers describe that they often encounter public expectations during health policymaking that exceed what is achievable within the constraints of the health system.

The identified solution areas, derived from the thematic analysis, offer a basis for exploring strategies to address this challenge and effectively integrate human-centered design into health policymaking. The identified solution areas include:

- Solution area 1.1: Allowing the public to experience the complex dynamics of policymaking through active involvement
- Solution Area 1.2: Strengthening public understanding of health system constraints by fostering transparent communication

SOLUTION AREA 1.1 – ALLOWING THE PUBLIC TO EXPERIENCE THE COMPLEX DYNAMICS OF POLICYMAKING THROUGH ACTIVE INVOLVEMENT

One solution area identified, based on the descriptions of health policymakers and young adult citizens, for managing unrealistic public expectations within the constraints of the health system involves allowing the public to experience the complex dynamics of policymaking through active involvement.

Policymakers and citizens noted that unrealistic public expectations often stem from individuals focusing solely on their personal perspectives. They proposed ideas that would allow the public to experience the diverse opinions, competing priorities, and systemic constraints of policymaking and could help demonstrate its complexity, thereby reducing unrealistic expectations. These ideas were primarily aimed at interventions within the third and fourth phases of the policymaking process: *'Evaluating current and desired policies'* and *'Developing scenarios to address the desired policy.'* For instance, Health Policymaker 1 proposed, *"Let people prioritize; only two can be processed,"* as a method to engage citizens by enabling them to select a limited number of topics for policymaking. Health Policymaker 1 described that this approach aims to foster an understanding of the compromises inherent in the process, helping to lower public expectations that all topics can be addressed. Similarly, Young Adult Citizen 2 proposed an initiative to *"Select a group of citizens who are paid to go through steps 1 to 6 and compare their process with that of the policymakers."* Young Adult Citizen 2 explained that through this approach, citizens would work alongside a team of policymakers to develop their own health policy for a specific problem, allowing them to experience the complexities firsthand and evaluate how their proposed policies might differ in practice.

While these ideas were viewed as helpful, feedback during the session and the impact/effort scale evaluation suggested that extensive public involvement might be too time-intensive and yield limited practical impact. Therefore, policymakers and citizens emphasized the importance of providing clear frameworks to guide public involvement in specific parts of the policymaking process. Such frameworks could help ensure that public contributions remain realistic and within the constraints of the health system, making their involvement more productive and feasible.

In essence, the ideas in this solution area aim to let the public experience the diverse perspectives and complex trade-offs that policymakers must navigate by actively engaging them in the policymaking process, ultimately encouraging more realistic public expectations.

SOLUTION AREA 1.2 – STRENGTHENING PUBLIC UNDERSTANDING OF HEALTH SYSTEM CONSTRAINTS BY FOSTERING TRANSPARENT COMMUNICATION

Another solution area identified, based on the descriptions of health policymakers and young adult citizens, for managing unrealistic public expectations within the constraints of the health system, is by strengthening public understanding of health system constraints by fostering transparent communication

Policymakers and citizens noted that unrealistic expectations could stem from citizens being unaware of the limitations of the health system and how these constraints translate to individual situations. They proposed ideas aimed at acknowledging public needs while helping citizens to understand what these systemic limitations mean for them. These ideas were primarily targeted at interventions within the third phase of the policymaking process: *'Evaluating current and desired policies.'* For instance, Young Adult Citizen 2

suggested, *"When involving others, also inform them about the challenges policymakers face, so they understand that unrealistic ideas are not feasible."* Similarly, Policymaker 1 proposed *"Conversations about the new normal,"* where discussions with citizens include explanations of the health system's constraints to foster a shared understanding of its limitations. Broader-scale initiatives were also suggested. For example, Young Adult Citizen 2 proposed, *"Providing information can also be done through an impactful video showing that their concerns are acknowledged, while also highlighting the other issues policymakers have to address."*

While these ideas were considered meaningful, feedback during the session and the impact/effort-scale evaluation indicated that they might be more suitable for future implementation due to their high effort. One discussion point raised was how to ensure that the insights from these personal conversations about system limitations effectively reach the broader communities represented by the citizens involved.

Concisely, this solution area aims to strengthen public understanding of health system constraints by fostering transparent communication.

4.2.3 RESULTS CHALLENGE 2: BREAKING FREE FROM ASSUMPTION-DRIVEN THINKING TO UNLOCK HUMAN-CENTERED SOLUTIONS

A thematic analysis of the data addressing the second challenge identified three solution areas to encourage policymakers to break free from assumption-driven thinking and unlock human-centered solutions. This challenge encompasses the tendency of policymakers to rely on assumptions about public needs, the selection of appropriate stakeholders, the definition of the root of the problems, the methodologies to address these issues, and the identification of viable solutions. This tendency may result in policies that do not fully address the realities and expectations of the individuals they aim to serve.

The identified solution areas, derived through thematic analysis, offer a framework for further exploration of strategies to address this challenge and effectively integrate human-centered design principles into health policymaking. The identified solution areas are as follows:

- Solution Area 2.1: Incorporating public perspectives into policymaking by including citizens in policymaking teams
- Solution Area 2.2: Verifying policy assumptions through stakeholder consultation
- Solution Area 2.3: Gaining insights into stakeholder realities by immersing policymakers in practice

SOLUTION AREA 2.1 – INCORPORATING PUBLIC PERSPECTIVES INTO POLICYMAKING BY INCLUDING CITIZENS IN POLICYMAKING TEAMS

One solution area identified, based on the descriptions of health policymakers and young adult citizens, for encouraging policymakers to break free from assumption-driven

thinking involves integrating public perspectives into policymaking by including citizens in policymaking teams.

Policymakers and citizens explained that including the public in project teams could allow their perspectives to be directly integrated, thereby reducing policymakers' reliance on assumptions about public needs. These ideas were primarily aimed at creating interventions within the second phase of the policymaking process: *'Assigning the responsible and accountable team.'* For instance, Health Policymaker 3 proposed, *"Make citizens part of the project group"* and *"Have a part of the policy document written by the citizens, outlining what they can do."* Similarly, Young Adult Citizen 3 proposed creating *"a focus group of citizens who represent the rest of the population to identify assumptions."* Building on this idea, Young Adult Citizen 1 reflected on the broader mindset underlying policymaking, asking, *"Policymakers and citizens, why do we even think so dualistically?"* Other suggestions focused on engaging citizen project teams in parts of the policymaking process. For instance, Health Policymaker 3 proposed, *"Let the citizens participate in the assessment of feasibility and affordability."*

These ideas were generally regarded as impactful but less feasible in the short term due to their high implementation effort, suggesting they might be more appropriate for future adoption. Challenges highlighted included identifying citizens with the necessary skills to be able to participate in policymaking, as Health Policymaker 3 questioned, *"How do you get people, and how do you get skilled people? People who have the capabilities to do it well?"* Additionally, Health Policymaker 2 stressed the importance of forming a representative project group, while Health Policymaker 1 questioned whether achieving full representation should always be the primary goal, given the challenges in attaining it. Both Health Policymaker 3 and Young Adult Citizen 2 further emphasized the importance of transparent communication regarding citizen involvement in policy development. Such transparency would enable other citizens to recognize their peers' contributions and strengthen trust in the policymaking process by demonstrating a genuine commitment to public input.

In essence, this solution area emphasizes citizen participation in project teams as a means of reducing reliance on assumptions about public needs and ensuring policies are informed by diverse perspectives.

SOLUTION AREA 2.2 _ VERIFYING POLICY ASSUMPTIONS THROUGH INVOLVED STAKEHOLDER CONSULTATIONS

Another solution area identified, based on the descriptions of health policymakers and young adult citizens, to support policymakers to break free from assumption-driven thinking involves consulting the involved stakeholders in the policymaking process to verify assumptions about their needs and the impact of their developed policies.

Policymakers and citizens proposed consulting involved stakeholders to ensure decisions are informed by real-world perspectives and experiences, while allowing policymakers to retain control over when and how to consult stakeholders and how to use this information,

maintaining a clear balance between the roles of policymakers and stakeholders. These ideas were primarily aimed at creating interventions within the third and fifth phases of the policymaking process: *'Evaluating current and desired policies'* and *'Deciding on the desired scenario for the policy.'* For example, Young Adult Citizen 3 suggested *"Mapping existing assumptions through a survey and incorporating them into the evaluation"* and consulting citizens by *"Comparing the bottlenecks in the current policy as identified by policymakers with those identified by residents and examining where the differences lie."* Furthermore, Health Policymaker 2 proposed the concept of a *"mirroring conversation,"* where policymakers present their adapted health policy ideas to citizens, who provide feedback based on how the policy would affect their daily lives. Health Policymaker 2 described that in this approach, policymakers are expected to listen without defending their decisions, using the feedback to refine the policy further.

These approaches were largely regarded as impactful and feasible, as feedback during the session and the impact/effort scale evaluation by participants indicated that they offer high impact with relatively low effort. For instance, the mirroring conversation approach was highlighted by Health Policymaker 2 for its additional benefits, such as generating fast feedback loops of innovative ideas from citizens and caregivers that could be quickly implemented. However, Young Adult Citizen 3 raised concerns about whether health policymakers would consistently adopt this method if it required significant additional time.

In essence, this solution area emphasizes consulting stakeholders as a means of verifying policymakers' assumptions about their needs and assessing the impact of adapted policies.

SOLUTION AREA 2.3 – GAINING INSIGHTS INTO STAKEHOLDER REALITIES BY IMMERSING POLICYMAKERS IN PRACTICE

Another solution area identified, based on the descriptions of health policymakers and young adult citizens, to support policymakers to break free from assumption-driven thinking focuses on immersing policymakers in the day-to-day operations of health providers and executing organizations to gain deeper insights into stakeholder realities.

Policymakers and citizens highlighted that experiencing how their policies are working in practice could provide policymakers with firsthand insights into the contexts their policies aim to address, as well as the impact of these policies, thereby challenging their assumptions. The ideas in this solution area were primarily aimed at creating interventions within the third phase of the policymaking process *'Evaluating current and desired policies.'* For instance, Young Adult Citizen 3 suggested, *"Having policymakers immerse themselves at health providers allows them to discover and experience firsthand the challenges faced by citizens."* Similarly, Health Policymaker 2 proposed, *"Join the executing organizations and spend a day observing."*

These ideas were considered valuable, yet feedback during the session and the impact/effort scale evaluation indicated that while they could have a significant impact,

their implementation would require considerable effort. As a result, these ideas were seen as more suitable for future adoption when additional resources and time are available. Several considerations were discussed for effectively implementing these initiatives. Health Policymaker 2 emphasized the importance of having a “*Clear rationale for deciding which health providers you visit*” to ensure transparency and accountability in the process. Another critical discussion point centered on how the insights gained by individual policymakers could be effectively communicated and shared with their teams or networks to maximize their impact.

Hence, this solution area involves immersing policymakers in the daily operations of health providers and executing organizations to gain firsthand insights into the realities their policies address.

4.3 DISCUSSION

This co-creative study explored the integration of Human-Centered Design into the health policy development process, focusing on overcoming challenges associated with its adaptation. Specifically, the study focuses on two challenges identified from the interview study, trying to answer the following research questions ‘*How can unrealistic expectations of the public be managed within health system constraints?*’ and ‘*How can health policymakers break free from assumption-driven thinking to unlock human-centered solutions?*’. By incorporating the perspectives of the involved stakeholders in these challenges, policymakers and citizens, this study identifies several solution areas that provide a foundation for further research into effective strategies for addressing these challenges.

4.3.1 SOLUTION AREAS FOR INTEGRATING HUMAN-CENTERED DESIGN

This study identified six solution areas for further development of effective strategies to address two of the challenges associated with the integration of Human-Centered Design. Building on these solution areas, the three directions – transparent communication, public participation, and policymakers in practice—are explored in greater depth in the following sections.

TRANSPARENT COMMUNICATION

This study identified ‘*transparent communication*’ as a potential solution area for enhancing public understanding of health system constraints. By openly addressing the complexities and limitations of policymaking and connecting these realities to citizens’ realities, policymakers may align public expectations with achievable outcomes. Research by Fairbanks et al. (2007) underscores that transparency strengthens public support, regulatory compliance, and trust in institutions. Furthermore, Goodman & Hirsch (2010) emphasize that honesty in communication forms the bedrock of trust-based relationships in a democracy.

Structured communication models, such as those proposed by Fairbanks et al. (2007) provide frameworks for implementing transparent communication effectively. However, achieving this requires significant investments in resources, staffing, and time, emphasizing the need for careful planning to make transparency an impactful strategy for managing public expectations.

PUBLIC PARTICIPATION

This study also identified ‘Public participation’ as a direction in several potential solution areas. Public participation may serve as a mechanism to temper unrealistic expectations and reduce policymakers' reliance on assumption-driven thinking. Engaging citizens in the policymaking process could allow them to encounter firsthand the diverse perspectives, competing priorities, and systemic constraints inherent in health policymaking. This could foster a grounded understanding of what can realistically be achieved. Fiorino (1990) and Bobbio (2019) highlight that participatory approaches can enhance the legitimacy of policies, foster consensus, and can promote greater public support for decisions. Additionally, participation can provide policymakers with practical knowledge and insights, enabling more accurate problem definitions and policy formulations (Hisschemöller & Cuppen, 2015).

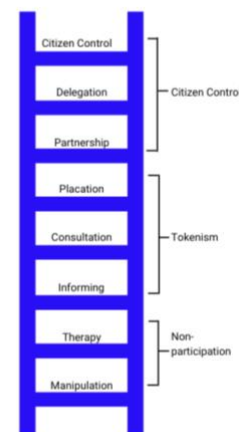
However, the implementation of public participation raises critical questions, such as the degree of influence granted to citizens and the primary objectives of their involvement—whether to give them a voice or to gather actionable insights. Arnstein’s (1969) ladder of participation, as can be seen in Illustration 7, illustrates varying degrees of public involvement, from consultation to citizen power, highlighting the need for clarity in the objectives of public participation.

Moreover, to achieve full representation of the public during public participation remains challenging, as achieving it is often impossible. However, even partial citizen input might be valuable, offering insights that otherwise might be missed. To effectively implement public participation, policymakers could be guided by clear guidelines and tools tailored to specific projects and policymaking phases.

POLICYMAKERS IN PRACTICE

This study also identified the immersion of policymakers in practice as a potential solution area. This immersion in practical contexts could allow policymakers to gain firsthand insights into the realities of their policies and their impact. This aligns with research by Horlick-Jones and Prades (2014), which emphasizes the value of understanding the lived experiences of social actors to address real-world challenges. Bevan et al. (2024) further highlight that immersive practices can enhance empathy and understanding, enabling policymakers to imagine life in their

ILLUSTRATIONS 7. ARNSTEIN'S LADDER OF PARTICIPATION



stakeholders' shoes. This could lead to the creation of policies that are more responsive to lived realities.

Although immersive practices could be impactful, their implementation requires careful planning regarding resource allocation and time investment. Additionally, effective mechanisms must be in place to disseminate the insights gained to broader teams or networks, ensuring they contribute to broader decision-making and policy development.

4.3.2 LIMITATIONS & FUTURE RESEARCH

This exploratory co-creation study has several limitations that may have influenced the depth and breadth of its findings. During the session, it was observed that the brainstorming ideas generated by policymakers and citizens remained somewhat superficial. This may be attributed to the participants' limited prior exposure to the research topic and the specific challenges under discussion, as their introduction to the subject occurred only during the session itself. Additionally, the session's short duration—restricted to two hours due to participants' availability—limited the depth of exploration. Extending the session's duration and involving participants with a more substantial background in the overarching study topic could potentially yield more nuanced and in-depth results.

Another limitation lies in the generic nature of the solution areas generated during the session. Many of these solution areas align with widely explored concepts, suggesting that the brainstorming process may not have fully capitalized on opportunities for innovative idea generation. This could stem from the participants' lack of familiarity with creative problem-solving methods or experience in designing novel solutions. To address this, future iterations of the co-creation session could include participants with design expertise, such as professional designers or innovation specialists, to explore whether more emergent and groundbreaking solution areas might arise.

Despite these limitations, this study provides a foundation of solution areas that can guide future research into effective interventions for addressing the identified challenges. By building on these preliminary insights, researchers can further investigate how to enable health policymakers to effectively adopt Human-Centered Design principles in the policymaking process.

4.4 CONCLUSION

This study explored solution areas for effectively integrating Human-Centered Design into health policymaking by addressing two of the challenges associated with its integration: managing unrealistic public expectations and breaking free from assumption-driven thinking. Insights from a co-creation study with health policymakers and young adult citizens led to the identification of six potential solution areas which can serve as directions for further development of effective strategies. However, this study does not provide a concrete answer on how to effectively integrate Human-Centered Design into health policymaking. Therefore, recommendations need to be provided for further research to address these challenges.

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FOR HUMAN NEEDS

**5. GENERAL
DISCUSSION &
RECOMMENDATIONS**

5. GENERAL DISCUSSION & RECOMMENDATIONS

This study explored the integration of Human-Centered Design into health policymaking, providing a foundational understanding of both concepts grounded in literature. Drawing on insights from fifteen interviews with Dutch health policymakers, this research introduces a six-stage policy cycle grounded in practice, presents the differences between the current practices of policymaking and Human-Centered Design and identifies ten challenges and six values associated with integrating it into health policymaking. Additionally, a co-creation study with Dutch health policymakers and young adult citizens identified five potential solution areas to address two of the challenges associated with integrating Human-Centered Design. This chapter discusses the implications of these findings and provides recommendations for further research.

5.1 GENERAL DISCUSSION

This study provides insights with implications for health policymaking, healthcare consultants, the health sector, the field of human-centered design, and the broader scientific community. While the impact of these findings may vary across contexts, the following sections outline how they could contribute to theoretical discussions and practical applications in these fields.

5.1.1 IMPLICATIONS FOR HEALTH POLICYMAKERS, CONSULTANTS & THE HEALTH SECTOR

The findings of this study highlight the potential of integrating Human-Centered Design into policymaking to support policymakers in overcoming barriers in policymaking. By fostering deeper connections with individuals beyond their health problems, engaging stakeholders into the policy process, and adopting a systems perspective, this study found that Human-Centered Design can contribute to the development of policies that are effective and responsive and can reduce the need for costly revisions.

Moreover, this study highlights that the value of integrating Human-Centered Design can extend beyond its direct application for policymakers. By connecting the values of Human-Centered Design, as identified in interviews with policymakers, to the Quadruple Aim framework of Bodenheimer & Sinsky (2014), which focuses on optimizing the health system performance, this study illustrates how integrating Human-Centered Design can

contribute to broader health system goals. For instance, this study found that Human-Centered Design contributes to improving both citizen experiences and health outcomes while also improving the provider experience by reconnecting them with their intrinsic drive to work in the health sector.

Additionally, this study provides insights into how the policymaking process in practice differs from Human-Centered Design principles. Through the interviews and co-creation session, policymakers reflected on their current practices of the Human-Centered Design principles identified by Melles et al. (2020): understanding human needs, involving stakeholders throughout the process, and adopting a systems perspective. Some policymakers became aware that their application of these Human-Centered Design principles was not as comprehensive as they initially had perceived. The insights of this study can therefore contribute to foster awareness among policymakers of their current practices, stimulating them to reflect on their approaches and identify areas where Human-Centered Design principles can be more effectively integrated.

Moreover, by identifying the challenges that health policymakers face when integrating Human-Centered Design into their processes and exploring potential solution areas to address some of these challenges, this study aims to provide insights that can support policymakers in this integration. While this study does not present a concrete answer to how Human-Centered Design can be effectively integrated into health policymaking, it seeks to lay the groundwork for further research to develop strategies for overcoming these challenges.

Furthermore, this study acknowledges the role of consultancy firms in health policymaking. The findings present a new perspective on how these firms can advise policymakers in overcoming barriers in policy development. By integrating Human-Centered Design principles into their strategies, consultancies can foster human-centered health policies, enhance stakeholder collaboration, and promote a systemic approach to policymaking. These contributions align with the broader objectives outlined in the Dutch Integrated Care Agreement which emphasizes the importance of human-centered care, cross-sector collaboration, and a systematic approach to health system improvement (IZA, 2022). As healthcare organizations work towards these goals, consultancy firms can provide guidance towards these objectives based on Human-Centered Design principles.

5.1.2 IMPLICATIONS FOR THE FIELD OF (HUMAN-CENTERED) DESIGN

The findings of this study illustrate the broader relevance of Human-Centered Design within health policymaking. While Human-Centered Design has its origins in optimizing industrial production, its application has traditionally been focused on product and service design (IEA, 2006; Van Der Bijl-Brouwer & Dorst, 2017). This study aims to demonstrate that Human-Centered Design can extend beyond this traditional field of design and can serve as a valuable approach within health policymaking. By integrating the H Human-Centered Design principles identified by Melles et al. (2020): –understanding human needs, engaging stakeholders throughout the process, and applying a systems

perspective – into policymaking, this study positions Human-Centered Design as an approach to overcome barriers in policymaking and develop health policies that are both effective and responsive.

Furthermore, this study addresses the limited role of design in policymaking and advocates for a broader role. As Junginger (2013) highlights, design has predominantly been confined to the policy implementation phase, with minimal integration into earlier stages of policy development. This study demonstrates how Human-Centered Design can add value in the policy formulation phase by enabling policymakers to move beyond assumptions, ensuring that policies are grounded in public needs, and identifying root causes of policy challenges. By doing so, it contributes to strengthening the role of design within health policymaking while also encouraging its broader application in earlier stages of the policy process.

5.1.3 IMPLICATIONS FOR BROADER SCIENCE & PRACTICE

This study highlights the potential of cross-disciplinary collaboration between the fields of design, policy and health. While these fields may appear distinct at first glance, their integration can create new approaches for solving complex health policy challenges. By demonstrating how cross-disciplinary methods can contribute to effective and responsive health policies, this study seeks to encourage a broader dialogue on the role of interdisciplinary collaboration as a strategy for problem-solving.

Additionally, this study aims to strengthen the connection between scientific research and practical health policymaking. It introduces a six-stage policy cycle, grounded in practice, to provide insights into real-world policy processes and offer a comparative perspective on more conceptual models, such as the framework proposed by Jann and Wegrich (2007). Furthermore, by identifying the challenges of Human-Centered Design into health policymaking and exploring potential solution areas for some of these challenges, this study aims to translate academic knowledge into actionable insights, reinforcing the practical relevance of Human-Centered Design.

5.2 RECOMMENDATIONS

This study aims to demonstrate the value of Human-Centered Design in policymaking, identify the challenges associated with its integration, and explore potential solution areas. However, it does not provide a concrete answer on how to effectively integrate Human-Centered Design into health policymaking. Therefore, this research presents recommendations for further exploration toward developing a concrete integration strategy.

5.2.1 DEVELOPING A TOOLBOX FOR HEALTH POLICYMAKERS

The first set of recommendations advocates further exploration into the development of a toolbox for health policymaking to support policymakers in integrating Human-Centered Design into their policymaking process.

This study identified challenges for policymakers when integrating Human-Centered Design into their policymaking process. To address these challenges, policymakers can utilize a range of Human-Centered Design tools and techniques as well as methods from other disciplines to address these challenges effectively. For instance, one of the identified challenges that may be addressed using Human-Centered Design tools is the challenge of *'Building a comprehensive understanding of the stakeholder field and accurately selecting who should be involved'*. A relevant Human-Centered Design tool to address this challenge is 'Stakeholdermapping', which involves making a visual map of all stakeholder groups related to a given problem (Kleinsmann et al., 2018; Melles et al., 2020). This tool might help policymakers to gain a comprehensive understanding of the involved stakeholders in the policymaking process, enabling them to make informed decisions about stakeholder selection and engagement strategies.

Another identified challenge that may be addressed through Human-Centered Design tools is the challenge of *'Breaking free from assumption-driven thinking to unlock human-centered solutions.'* The Human-Centered Design tool 'interaction prototyping', which involves creating and testing prototypes to stimulate how individuals experience a future design, may support policymakers in validating their assumptions about stakeholders' needs. These prototypes can take various forms, such as conceptual sketches, role-playing exercises and fully functional prototypes (Van Boeijen et al., 2020). Moreover, this tool also aligns with a potential solution area for this challenge, identified based on the insights from the co-creation session: *'Verifying policy assumptions through involved stakeholder consultation.'*

Beyond tools and techniques from the field of Human-Centered Design, additional methods from other disciplines can also support policymakers in addressing the challenges of its integration. One such approach, drawn from healthcare practice, is 'mirroring conversations'—a method in which healthcare providers listen attentively to patients' experiences without interrupting or responding (Participatiekompas, 2022). This method may help policymakers challenge their assumptions about patient needs and gain insights into lived experiences.

Given the broad spectrum of available tools and techniques, a critical next step is to evaluate their applicability to health policymaking. Identifying the most suitable tools for different stages of the policy formulation process can inform the development of a structured toolbox that offers practical guidance on selecting and applying these (HCD) tools effectively. Furthermore, complementing this toolbox with training programs can

help to ensure that policymakers are not only aware of these tools but are also equipped with the necessary skills to integrate them meaningfully into their work.

5.2.2 INTEGRATING DESIGNERS IN THE HEALTH POLICY SECTOR

The second set of recommendations advocates for further exploration of the integration of designers in the health policy sector to guide the integration of Human-Centered Design approaches.

While this research demonstrates that Human-Centered Design can play a valuable role for health policymakers in overcoming barriers in health policy development, its integration in practice may present additional challenges due to the distinct foundational cultures and methodological approaches of design and policymaking. Design practices often thrive on ambiguity, taking chances, fostering innovation and workflow flexibility (Brinkman et al., 2023). In contrast, public organizations value reasoning, stability and responsibility, often contributing to their image as inflexible and risk-averse (Brinkman et al., 2023).

Moreover, Human-Centered Design employs mostly qualitative research methods and user-centered studies that emphasize tacit knowledge—such as beliefs, lived experiences, and perspectives (Melles et al., 2020). In contrast, health policymaking predominantly depends on explicit knowledge derived from systematic research and statistical data (Frenk et al., 2010).

Additionally, this study identified an assumption-driven mindset among some policymakers as a challenge for integrating Human-Centered Design. While all policymakers who were interviewed acknowledged the value of Human-Centered Design, some policymakers indicated that deviating from established methods is uncommon within the health policy domain, posing a challenge to its integration.

These findings could suggest that even when policymakers recognize the potential of Human-Centered Design and are supported with a toolbox, its adoption may still be challenged by disciplinary differences and ingrained practices. In this context, designers working within the health policy sector could further facilitate this integration. By fostering an environment where uncertainty and new perspectives are embraced and leveraging their expertise in various tools and methodologies, designers can support policymakers in bridging these disciplinary differences, thereby further facilitating the integration of Human-Centered Design.

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6. CONCLUSION

6. CONCLUSION

This study explored the integration of Human-centered design into health policymaking. The findings highlight the potential of Human-Centered Design to support policymakers in overcoming barriers in policymaking, contributing to the development of policies that are effective and responsive. By integrating Human-Centered Design principles, health policies can be better aligned with real world needs, reducing the likelihood of costly revisions.

Additionally, this study identifies ten challenges that health policymakers face when integrating Human-Centered Design into their processes and presents five potential solution areas to address these challenges. These insights aim to support policymakers in this integration.

To further advance the integration of Human-Centered Design in health policymaking, this study recommends exploring practical (HCD) tools that can assist policymakers in applying Human-Centered Design principles, as well as exploring the role of designers in guiding this integration.

While this study does not provide a definitive answer on how to effectively integrate Human-Centered Design into health policymaking, it aims to establish a foundation for future research and hopes to inspire further development of strategies to address these challenges. Consequently, fostering health policies that are designed for the people they aim to serve.

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DESIGNING HEALTH POLICIES
FOR HUMAN NEEDS

APPENDIX

APPENDIX A: PROJECT BRIEF



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TU Delft

IDE Master Graduation Project

Project team, procedural checks and Personal Project Brief

In this document the agreements made between student and supervisory team about the student's IDE Master Graduation Project are set out. This document may also include involvement of an external client, however does not cover any legal matters student and client (might) agree upon. Next to that, this document facilitates the required procedural checks: -Student defines the team, what the student is going to do/deliver and how that will come about -Chair of the supervisory team signs, to formally approve the project's setup / Project brief -SSC E&SA (Shared Service Centre, Education & Student Affairs) report on the student's registration and study progress -IDE's Board of Examiners confirms the proposed supervisory team on their eligibility, and whether the student is allowed to start the Graduation Project

STUDENT DATA & MASTER PROGRAMME

Complete all fields and indicate which master(s) you are in

Family name: Tan	IDE master(s) IPD: SPD	DfI: SPD
Initials: [REDACTED]	2nd non-IDE master: -	
Given name: Liese	Individual programme (date of approval): -	
Student number: 5695252	Medisign	
	HPM	

SUPERVISORY TEAM

Fill in the required information of supervisory team members. If applicable, company mentor is added as 2nd mentor.

Chair	Marijke Melles	dept./section	[REDACTED]	<p>! Ensure a heterogeneous team. In case you wish to include team members from the same section, explain why.</p> <p>! Chair should request the IDE Board of Examiners for approval when a non-IDE mentor is proposed. Include CV and motivation letter.</p> <p>! 2nd mentor only applies when a client is involved.</p>
mentor	Fredrik Karlsson	dept./section	[REDACTED]	
2nd mentor:	Martijn Mes			
client:	PricewaterhouseCoopers			
city:	[REDACTED]	country:	The Netherlands	
optional comments				

APPROVAL OF CHAIR on PROJECT PROPOSAL / PROJECT BRIEF-> to be filled in by the Chair of the supervisory team

Sign for approval (Chair)

Name: **Marijke Melles**

Date: **14-05-2024**

Signature: [REDACTED]

CHECK ON STUDY PROGRESST

obe filled in by SSC E&SA (Shared Service Centre, Education & Student Affairs), after approval of the project brief by the chair. The study progress will be checked for a 2nd time just before the green light meeting.

Master electives no. of EC accumulated in total _____ EC

Of which, taking conditional requirements into account, can be part of the exam programme _____ EC

	YES	all 1st year master courses passed
X	NO	missing 1st year courses

Comments:

first year course
ID4340 (Strategic Value of Design)
not yet completed

Sign for approval (SSC E&SA)

Name

[Redacted]

Date 16-05-2024

Signature

[Redacted]

APPROVAL OF BOARD OF EXAMINERS IDE on SUPERVISORY TEAM -> to be checked and filled in by IDE's Board of Examiners

Does the composition of the Supervisory Team comply with regulations?

YES	v	Supervisory Team approved
NO		Supervisory Team not approved

Comments:

Based on study progress, students is ...

V	ALLOWEDto start the graduation project
	NOT allowed to start the graduation project

Comments:

- the above mentioned missing course should be finished before the green light meeting

Sign for approval (BoEx)

Name

[Redacted]

Date 16/5/2024

Signature

[Redacted]

Personal Project Brief –IDE Master Graduation

Problem Definition

What problem do you want to solve in the context described in the introduction, and within the available time frame of 100 working days? (= Master Graduation Project of 30 EC). What opportunities do you see to create added value for the described stakeholders? Substantiate your choice.
(max 200 words)

Human-centered design offers a promising approach to alleviate the limitations that health policymakers encounter. Yet, the literature on guiding the integration of human-centered design into health policy formulation is sparse, while the distinct natures of the design and healthcare sectors complicates this integration. For instance, the design sector's qualitative research methods and small-scale user studies strongly differ from the healthcare sector's clinical trials and evidence-based approaches (Melles et al., 2020). Therefore, a strategic approach is essential to merge these distinct sectors, empowering organizations like PricewaterhouseCoopers to take the lead in incorporating human-centered design into the formulation of health policies. This will enable them to formulate health policies that are not only support based and sustainable, but also reflect the genuine human needs and are capable of restoring trust in government and institutions.

Assignment

This is the most important part of the project brief because it will give a clear direction of what you are heading for. Formulate an assignment to yourself regarding what you expect to deliver as result at the end of your project. (1 sentence)
As you graduate as an industrial design engineer, your assignment will start with a verb (Design/Investigate/Validate/Create), and you may use the green text format:

Create a new strategic approach that integrates the elements of a Human-Centered Design in the formulation of health policies.

Then explain your project approach to carrying out your graduation project and what research and design methods you plan to use to generate your design solution (max 150 words)

The research begins with a literature review to establish a clear understanding of the concept of 'Health Policy' and the elements of Human-Centered Design. It then explores the limitations faced by health policy makers and how these limitations can be addressed through HCD.

In the second part of the research, semi-structured interviews will be conducted with individuals who have played a role in the 'Policy preparation' stage of health policy formulation. The purpose of these interviews is to understand the current policy development approach and to evaluate how this approach differs from Human-Centered Design. Additionally, the interviews aim to identify potential challenges that could obstruct the integration of HCD in the formulation of health policies. These topics will be addressed directly with the participants and will also be analyzed through coding, allowing for an in-depth understanding of the complexities and potential barriers within the policy formulation landscape.

Following the analysis of the interviews, a co-creation workshop will be organized with a small group of health policy makers. The goal of this workshop is to collaboratively develop a strategic approach that integrates the principles of HCD into the formulation of health policies in which the earlier analyzed challenges will be solved.

Once the strategic approach is developed, it will be evaluated within an old health policy case for the development of the 'Law enforcement and care' where health policy makers need to use the strategic approach to formulate a new health policy. The aim of this evaluation is to gather feedback on the effectiveness and applicability of the approach in order to make a necessary iterations.

Finally, the newly developed strategic approach will be linked to existing literature in the discussion section of the research, bridging the theoretical constructs and the practical application.

introduction (continued)

The healthcare consultancy team of PricewaterhouseCoopers aims to apply human-centered design in health policy formulation to better meet the needs of individuals and stakeholders and to create effective and sustainable policies. The primary stakeholders in this scenario encompass health policymakers in the second stage of policy formulation 'Policy preparation'. These policy makers encompass policy makers at the Dutch Ministry of Health, Welfare and Sport, local government authorities, and additional health entities such as the Regional Public Health Service (GGD) or a hospital. Furthermore, this group includes consultancy teams that provide advice to these policymakers.



Illustration 1: Policy formulation cycle (Rijksoverheid, n.d.)

Project planning and key moments

To make visible how you plan to spend your time, you must make a planning for the full project. You are advised to use a Gantt chart format to show the different phases of your project, deliverables you have in mind, meetings and in-between deadlines.

Keep in mind that all activities should fit within the given run time of 100 working days. Your planning should include a kick-off meeting, mid-term evaluation meeting, green light meeting and graduation ceremony. Please indicate periods of part-time activities and/or periods of not spending time on your graduation project, if any (for instance because of holidays or parallel course activities).

Make sure to attach the full plan to this project brief.

The four key moment dates must be filled in below

Kick off meeting	<u>25-04-2024</u>
Mid-term evaluation	<u>11-06-2024</u>
Green light meeting	<u>03-09-2024</u>
Graduation ceremony	<u>26-09-2024</u>

In exceptional cases (part of) the Graduation Project may need to be scheduled part-time. Indicate here if such applies to your project

Part of project scheduled part-time	
For how many project weeks	
Number of project days per week	

Comments:

I have three weeks of vacation during the graduation project. The total duration is therefore 23 weeks.

Motivation and personal ambitions

Explain why you wish to start this project, what competencies you want to prove or develop (e.g. competencies acquired in your MSc programme, electives, extra-curricular activities or other).

Optionally, describe whether you have some personal learning ambitions which you explicitly want to address in this project, on top of the learning objectives of the Graduation Project itself. You might think of e.g. acquiring in depth knowledge on a specific subject, broadening your competencies or experimenting with a specific tool or methodology. Personal learning ambitions are limited to a maximum number of five.

(200 words max)

Being raised in a healthcare family, made me familiar with the challenges of the Dutch healthcare system from a young age. This sparked my passion for healthcare, but also showed me how often health policies fail to align with the real-world experiences of individuals and stakeholders. My determination to address this issues is what inspired me to specialize in 'Medisign' during my Master's program and to seek an internship in the field of Health Policy.

Currently, the Dutch healthcare system is facing major challenges such as the rising healthcare costs and an aging population. I am convinced that the application of design principles can help us to ensure that we are solving the right problem in the right way. It can help us to get a better understanding of the complex issues that we face and enable us to develop solutions that are both effective and aligned with the needs of citizens and stakeholders.

At this moment, integrating design into the health and policy sectors still presents many challenges. During my graduation project I aim to overcome these challenges and show the health and policy sectors what design can do.

Personal learning ambitions

1. To get a better understanding of the (health) policy environment.
2. To learn how I can integrate my learned design skills in a corporate/governmental context.
3. To evaluate whether I want to see myself working in a corporate health policy environment.
4. To guide my first own professional co-creation session.