Implementation of a legal framework to advance health data exchange: a stakeholder analysis

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ABSTRACT

The Dutch government has initiated the implementation of the Wegiz legal framework to advance health data exchange in the healthcare industry since practitioners often lack the data required to provide the necessary quality of patient care. The legal framework aims to make electronic health data exchange an obligation and to achieve a standardized, interoperable way of exchange. The purpose of this study is to identify the stakeholders in the Dutch healthcare industry and assess their interests in advancing health data exchange and their power to influence the standardization process by conducting a stakeholder analysis. Twenty-five interviews were conducted with stakeholders in the Dutch healthcare industry. Additionally, non-academic sources about health data exchange were consulted to substantiate the qualitative study. The study shows how the support for the implementation of a legal framework is affected by stakeholders’ interests, such as ICT suppliers and care providers, based on their capacities. These findings confirm the value of a stakeholder analysis to facilitate acceptance and effectiveness of law implementation. Furthermore, the results indicate that for considerable health change efforts, like advancing data exchange on a national level, a range of multi-dimensional techniques is needed. The paper examines the criteria for these techniques. Doing so contributes to the understanding of applying a stakeholder analysis to implement a legal framework in the healthcare industry which may help policymakers to manage implementations more effectively.

Keywords: health data exchange, legal framework, stakeholder analysis, policy implementation.
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1. INTRODUCTION

About 30% of the electronic data in the world consists of healthcare data, such as patient information, digital prescription data, and medical images (Brown, 2015; Ministry of Economic Affairs and Climate Policy, 2019). Technologies that facilitate the accessibility of healthcare information are fundamental preconditions for reliable healthcare organizations (Gerrity, 2014). Consequently, organizations are looking to improve their performance and efficiency through data sharing (Gerrity, 2014; Yang & Maxwell, 2011). Access to health data, even when located at various organizations, is essential for healthcare organizations to achieve quality and efficiency gains like preventing medical errors and reducing treatment duration (Kalkman et al., 2019; Ministry of Health, Welfare and Sport, 2021b). The use of IT to exchange health data within the Dutch healthcare industry is substantial, yet successful integration forms a significant problem (Berg & Winthereik, 2005). The lack of effective coordination between and within organizations results in their departments utilizing systems unable to communicate with each other (Berg & Winthereik, 2005; Fältholm & Jansson, 2008). Klein Ikkink (2021) stated: ‘’connections have to be made between systems, instead of everybody replacing their systems. Standardizing those connections is the way to go’’.

The Dutch government proposed a policy to standardize data exchange between care providers (Ministry of Health, Welfare and Sport, 2021b). The policy letter containing the Health Data Sharing legislation (Wegiz) (Wetsvoorstel Elektronische Gegevensuitwisseling in de Zorg [Legislative proposal Electronic Data Interchange in Healthcare]) was sent to the parliament in May 2021 and is still under discussion. The Dutch government initiated Wegiz because practitioners do not always have access to adequate, up-to-date, and uniform health data in the right place at the right time, required to provide the necessary quality of care (House of Representatives, 2021). The purpose of Wegiz is to make electronic data sharing between care providers an obligation and achieve a fully digitalized and structured exchange of data (Ministry of Health, Welfare and Sport, 2021b). Furthermore, data exchange has to become standardized to achieve full interoperability.

The Wegiz is a legal framework that regulates which agreements must be made regarding terminology and technology regarding health data exchange (Ministry of Health, Welfare and Sport, 2021b). The framework will be gradually implemented per type of data exchange in consultation with stakeholders in the Dutch healthcare industry. The Wegiz framework prescribes two tracks of legislation, where 1) the exchange of health data is done electronically in every case, and 2) as of a specific date, it is mandatory to exchange certain health data electronically using predefined standards to achieve full interoperability. According to the second track, four types of health data are prioritized for implementation to make electronic data exchange mandatory: the handover of nursing information, medical image exchange, basic care data, and digital prescription data.
Stakeholders in the Dutch healthcare industry have varying interests in advancing data exchange. Stakeholders’ interests have to be assessed to provide value and assure commitment and positive attitudes to the systems that contribute to the effective adoption of the Wegiz legislation (Van Gemert-Pijnen et al., 2011; Whitten & Mackert, 2005). Alongside their interests, stakeholders may possess the capacity to influence the standardization process (Shirey, 2012). Designation of data exchange under Wegiz requires careful preparation since implementation projects in the healthcare industry are usually complex (Boonstra & Govers, 2009; Ministry of Health, Welfare and Sport, 2021b). Furthermore, potential barriers to advanced data exchange should be identified since information system implementations have often been plagued with user resistance and failures (Hall et al., 2015; Kim & Kankanhalli, 2009; Lyytinen, 1988).

The implementation of the Wegiz and, subsequently, the identification and analysis of stakeholders’ interests in the advancement of health data exchange is the motivation for this study. The following research question is addressed to explore this: *What are the interests of stakeholders in advancing health data exchange, and how may these affect the implementation of a legal framework?*

This study contributes to the literature on data exchange in the healthcare industry (Alkraiji et al., 2011; Berg & Winthereik, 2005; Boonstra et al., 2008; Boonstra & de Vries, 2005;), because it provides insight into the interests of stakeholders in the advancement of extra organizational health data exchange and how their role may influence the standardization protocol. Additionally, a theoretical contribution is made by identifying prevalent impediments and applying the existing stakeholder theory to law implementation. Although studies have analyzed stakeholders regarding health implementation projects (Boonstra, 2006; Boonstra et al., 2008; Pouloudi & Whitley, 1997; Pouloudi et al., 2016; Shirey, 2012), no research has applied a stakeholder analysis to how the interests of stakeholders affect law implementation in the Dutch healthcare industry. The existing stakeholder theory may need to be further developed to account for requirements to implement a law while facilitating stakeholders’ support for this application. These insights may also provide theoretical implications for law implementation projects in healthcare industries other than the Netherlands.

Practically, with the implementation of the Wegiz, the challenge arises that stakeholders might have divergent interests in the advancement of health data exchange. These must be understood and aligned to encourage sustainable acceptance of health data exchange standards (Boonstra et al., 2008; Van Gemert-Pijnen et al., 2011). While policy implementation within the healthcare industry has been studied before, this study contributes practically by providing insights into the barriers related to health data sharing by critically assessing a stakeholder analysis specifically to the domain of Wegiz. The aim is to contribute to understanding the stakeholder landscape and the role stakeholders play in
the Dutch healthcare system, which is yet to be fully explored. The application of a stakeholder analysis may help legal experts and policymakers implement information system policies in the healthcare industry more effectively. Consequently, the implications of this study will form the basis for guidelines for policy implementation projects within the Dutch healthcare industry.

The study starts by discussing literature related to health data exchange and stakeholder theory. Furthermore, various stakeholder mapping techniques for stakeholder analysis are addressed alongside criteria to substantiate the decision for the research instrument. Next, the methods for data collection and the qualitative research analysis are specified. Thenceforth, the Wegiz legal framework context is described, and the stakeholders are identified for analysis according to the research instrument. This study concludes with implications for policymakers implementing a law in the healthcare industry and recommendations for future research.

2. LITERATURE REVIEW

2.1. Health data exchange

According to Kern et al. (2012) “health information exchange involves the electronic sharing of clinical data, including sharing of clinical data across healthcare providers caring for the same patient” (p. 198). Interorganizational exchanges of health data using an information system are becoming increasingly common, but uncertainty remains about the impact of inter-system communication (Boonstra et al., 2008; Health Quality Ontario, 2013). Therefore, health data standards are vital to exchange health data, but adoption of these standards remains low (Alkraiji et al., 2011). Care providers often use their own distinct terminology, resulting in a lack of unity of language and a lack of mutual understanding (Nictiz, 2021). A reference terminology is needed to provide a foundation for healthcare organizations, ICT suppliers, insurance companies, the government, and others to aggregate and analyze data for healthcare improvement (Spackman et al., 1997).

Classification systems are used to automate the retrieval and analysis of healthcare data from individual patient records and groups information into categories applicable to definite functions (Aschman, 2003). Within healthcare, systems utilize several applications to collect, store and process distinct or structured data (Perez-de-Viñaspre & Oronoz, 2015). Standardizing terminologies is essential to achieve interoperability for a nationwide health information network. They may enable providers with immediate access to resources and decision-support tools when delivering patient care. Furthermore, implementing an interoperable system could be improved if organizations were required to use the system. Therefore, implementing Wegiz could create a centralized unity of language and technology through standardization of health data exchange.
2.2. Stakeholder theory

The prominence of stakeholder theories has increased since 1995, with Edward Freeman being seen as the author to fully articulate the stakeholder framework (Laplume et al., 2008). Freeman (2010) proposes three levels of analysis to enhance stakeholder management capacities. First, the stakeholders and their perceived interests have to be identified. Regarding this study, a stakeholder is any group or individual who can affect or is affected by the legal framework to advance health data exchange (Freeman, 2010, p.46). Second, the processes used to implicitly or explicitly manage relationships with stakeholders and how these fit with a map of the stakeholder landscape are analyzed. Third, the transactions between stakeholders must be understood in relation to the stakeholder map and the processes identified at the first and second levels.

A stakeholder analysis is used to identify those who can affect or will be affected by the change (Dezsca et al., 2019). Varvasovszky and Brugha (2000) define a stakeholder analysis ‘for generating knowledge about actors - individuals and organizations - so as to understand their behavior, intentions, interrelations and interests; and for assessing the influence and resources they bring to bear on decision-making or implementation processes’ (p. 338). The analysis provides an approach to assess interests with a specific focus on policymakers (Brugha & Varvasovskzy, 2000). Furthermore, it can help understand the feasibility of future policy directions and facilitate implementation while managing stakeholders (Varvasovszky & Brugha, 2000). Accordingly, stakeholders must be identified to understand their interests in advancing health data exchange.

2.3. Stakeholder identification

Each stakeholder is interested in the analyzed phenomenon (Reed et al., 2009). To proactively manage stakeholders, stakeholders have to be understood beyond their interests, and their power strategies have to be predicted (Laplume et al., 2008). Stakeholders affected by Wegiz have to be identified, understood, and managed (Dezsca et al., 2019; Hall et al., 2015). Given the complex policy context, many actors have to be considered (Varvasovszky & Brugha, 2000). The five principles of Pouloudi et al. (2016) elaborated in Table 1 are used to serve as theoretical anchor points to understand stakeholders, their roles, interests, and interrelations in the context of complex information system projects. Based on these principles, stakeholders are identified and analyzed to understand better the various stakeholders based on their interests in the advancement of health data exchange.
Table 1. Stakeholder identification principles (Poulouli et al., 2016)

<table>
<thead>
<tr>
<th>Stakeholder principles</th>
<th>Elaboration and directions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The set and number of stakeholders are context and time-dependent.</td>
<td>Stakeholders, interventions, and issues can interact and change over time (Reed et al., 2009). Stakeholders change in salience and are the most salient when they have power (i.e. possess valuable resources), are considered legitimate (i.e. socially accepted) and can mobilize urgency (i.e. have critical claims) (Aaitonen et al., 2008; Laplume et al., 2008). Stakeholders require divergent attention dependent on the salience of their attributes (Mitchell et al., 1997). By conducting the stakeholder salience theory, the behavior of stakeholders can be analyzed while involved in dynamic social and political processes (Boonstra, 2006).</td>
</tr>
<tr>
<td>2. Stakeholders may have multiple roles.</td>
<td>Rowley and Moldoveanu (2003) argue “an individual who belongs to multiple stakeholder groups with vastly diverging interest is not likely to justify participation in any given stakeholder action” (p. 213). Consequently, collective action costs are substantial on a stakeholder level when its members belong to other groups with conflicting stakes.</td>
</tr>
<tr>
<td>3. Different stakeholders may have different values and perspectives, which may be explicit, implicit or hidden.</td>
<td>Stakeholders may have divergent goals, interests or hidden agendas constraining information system development (Fedorowicz et al., 2010; Myers &amp; Young, 1997). A stakeholder might covertly oppose a policy while expressing support for the policy overtly (Varvasovskzy &amp; Brugha, 2000). Political constraints are often less visible but should be considered to explain and anticipate changes in stakeholder status and behavior (Poulouli &amp; Whiteley, 1997).</td>
</tr>
<tr>
<td>4. Stakeholder roles, perspectives, and alliances may change over time.</td>
<td>According to Varvasovskzy and Brugha (2000): “the political context of policy-making is frequently unstable ... and can be subject to sudden, unexpected transformations” (p. 345). Consequently, the stakeholder landscape, stakeholder interest, positions, alliances and power change over time (Varvasovskzy &amp; Brugha, 2000), since they are associated with dynamic and possible unstable interactions (Eden &amp; Ackermann, 1998). A stakeholder might react to changes in the stakeholder landscape and adjust its interests (Alkonen &amp; Kujala, 2016; Olander &amp; Landin, 2019; Poulouli and Whiteley, 1997). Hence, investigating changes in a stakeholder’s interests over time might guide future scenarios.</td>
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<tr>
<td>5. Stakeholders relations and power matter in the shifts in their roles, perceptions, and alliances.</td>
<td>System development is a dynamic social process where stakeholders negotiate their interests and fight for their positions to form the application. When implemented, it yields changes in the workflows of stakeholders, professional hierarchies and institutional boundaries (Berg &amp; Winthereik, 2003; Pettigrew, 1987). Stakeholder conflicts must be resolved by countering exploitation of the political process to appropriate value for themselves and control the value created for others (Freeman et al, 2004; Poulouli et al., 2016).</td>
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</table>

2.4. Stakeholder mapping

A stakeholder analysis can be used to map stakeholders’ positions concerning the policy issues and each other (Varvasovskzy and Brugha, 2000; Shirey, 2012). The map is used to assess stakeholders and display the strength of relationships between stakeholders and the potential to form a coalition (Brugha and Varvasovskzy, 2000; Mehrizi et al., 2009). The aim is to obtain a complete overview of the landscape, stakeholder interests, power, and the resources available for implementation (Varvasovskzy & Brugha, 2000).

In policy studies attributes often used to map stakeholders are power and interests (Boonstra et al., 2008; Bryson, 2004; Eden & Ackermann, 1998; Franco-Trigo et al., 2020; Murray-Webster & Simon, 2006; Reed et al., 2009). However, stakeholder literature offers a variety of techniques to map
stakeholders. Stakeholders may be mapped based on their engagement and perceptions (Pouloudi et al., 2016), their legitimacy, urgency and power (Boonstra, 2006; Boonstra & Govers, 2009; Mitchell et al., 1997; Neville et al., 2001), their potential acceptance or resistance behavior (Nutt and Backoff, 1992; van Offenbeek et al., 2013), or their support for a policy proposal (Bryson, 2004). These techniques are selected for consideration related to the objective to assess the interest of stakeholders in advancing health data exchange and how these may affect the implementation of a legal framework. The pros and cons of the techniques were analyzed related to the study’s objective to obtain criteria to select the research instrument. As a result, the research instrument to analyze stakeholders should meet the following criteria:

1. Depict the inter-relations of stakeholders and their relation to the objective;
2. Attributes to map stakeholders are applicable regarding the objective;
3. Classification of stakeholders is clearly defined;
4. Offers a detailed focus on the stakeholder landscape;
5. Concrete steps are provided to establish the stakeholder map;
6. Accounts for dynamic stakeholders’ roles that may change over time.

The selected stakeholder mapping techniques are presented in Table 2 to examine the most congruent approach to map stakeholders regarding the advancement of health data exchange.

2.5. Research instrument

The analysis techniques vary in their fit with the criteria, as concluded in Table 3. All techniques propose a map to portrait stakeholders, their inter-relations, and their relation to the change project. The power-interest grid of Freeman (2010) seems too simplistic and lacks a clear focus. Accordingly, the power-interest grid could be used with a complementary method to guarantee a comprehensive analysis. Mapping stakeholders based on the engagement and perceptions variables like Pouloudi et al. (2016) do is too broad in its focus. Additionally, considering the similarities of Pouloudi et al.’s (2016) study with analyzing the implementation of a legal framework, it seems fair to conclude to opt for a research instrument that circumvents these challenges. Furthermore, the attributes used by Van Offenbeek et al. (2013) on the continua to map stakeholders are not relevant concerning implementing a legal framework. To assess the advancement of health data exchange, the research instrument is required to elucidate the capacity to achieve policy implementation and stakeholder power and interests. The behavior-oriented framework lacks the required instrument to study the employment of standardization norms. Additionally, these three techniques disregard concrete steps to establish the stakeholder map.
<table>
<thead>
<tr>
<th>ANALYSIS TECHNIQUE</th>
<th>ATTRIBUTES</th>
<th>DEFINITION</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freeman’s Power-interest grid</td>
<td>Power</td>
<td>The ability to use resources to actualize an event</td>
<td>Prioritizing stakeholder according to their power and interest is seen as the simplest and most coherent approach (Wagner Mainardes et al., 2012). Even though simplicity is seen as a benefit, its simplicity can also be seen as a drawback. Freeman’s (2010) theory pays scarce attention to assessing the complete stakeholder landscape and does not explain the process adequately to establish the stakeholder map (Pouloudi et al., 2016). Implementations in the healthcare industry are sophisticated (Boonstra &amp; Govers, 2009). Hence, simply mapping stakeholders according to their power and interest, may lack a thorough understanding of the stakeholder landscape and concrete actions that have to be taken to meet the needs of those stakeholders.</td>
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<td></td>
<td>Interest</td>
<td>Multi-dimensional based on the perceived interests of stakeholders</td>
<td></td>
</tr>
<tr>
<td>Pouloudi et al.’s Entangled stakeholder roles and perception</td>
<td>Engagement</td>
<td>The extent to which stakeholders are involved in the process of implementation</td>
<td>Pouloudi et al.’s (2016) model indicate the complex power relations between stakeholders, which may be subject to change. Pouloudi et al. (2016) state how their stakeholder mapping theory looks beyond the narrow focus of single stakeholders and includes various stakeholders with inverse agendas. However, taking a broad focus consequently proposes challenges in identifying stakeholders and the complex relationships in the landscape. According to Pouloudi et al. (2016), these limitations are present in their study analyzing a nationwide government-led initiative involving multiple stakeholders in a healthcare setting. Pouloudi et al. (2016) lack a proposition for concrete steps to establish a stakeholder map in similar contexts.</td>
</tr>
<tr>
<td></td>
<td>Perceptions</td>
<td>The extent to which stakeholders were favourably or unfavourably disposed towards the implementation</td>
<td></td>
</tr>
<tr>
<td>Van Offenbeek et al.’s framework to link acceptance and resistance</td>
<td>Acceptance</td>
<td>The user’s employment of a system to perform a task</td>
<td>Van Offenbeek et al. (2013) suggest using a behavior-oriented framework to categorize stakeholders according to their reactions towards information system implementation. The framework is thorough in its depiction of the behavioral reactions to information system implementation. However, to map stakeholders and their relations regarding the standardization of data exchange, the research instrument should go beyond behavioral reactions. The scope should be extended in addition to user adoption of an information system.</td>
</tr>
<tr>
<td></td>
<td>Resistance</td>
<td>Expression of reservations on implementations conflicting the status quo</td>
<td></td>
</tr>
<tr>
<td><strong>Mitchell et al.’s stakeholder salience theory</strong></td>
<td><strong>Power</strong></td>
<td>Degree of access to coercive, utilitarian or normative means to impose a will</td>
<td>Mitchell et al. (1997) stress how stakeholders can gain or lose salience, since their attributes are dynamic, socially constructed, and might unconsciously possess an attribute. According to Wagner et al. (2012), the model has its advantages in being political by considering conflicting and unequal interests, operationally practical by qualifying the stakeholders and dynamic by considering changes in stakeholder interests. On the contrary, Wagner et al. (2012) argue how there seems to be a lack of scale in determining whether or not a stakeholder effectively possesses one or a combination of the attributes. Additionally, Neville et al. (2011) claim Mitchell et al.’s (1997) model should be revised. They substantiate their claim by arguing that urgency is not relevant to the identification of stakeholders, the role of legitimacy is vague and should be reassessed, and that only the absence or presence of the attributes is considered.</td>
</tr>
<tr>
<td><strong>Legitimacy</strong></td>
<td>Actions are perceived as desirable and appropriate with a socially constructed system</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Urgency</strong></td>
<td>Degree to which claims call for immediate attention</td>
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</table>

| **Brysons’ Policy Implementation Strategy Development Grid** | **Bases of power-directions of interest diagrams** | Provides information about interests and how power may advance the common good |
| **Problem-frame stakeholder map** | Based on the amount of support for the process to implement the policy and the ability to exert power over the proposal |
| **Policy attractiveness versus stakeholder capacities grid** | Assess the attractiveness of policy proposals against stakeholder capacities to implement them |

The policy implementation strategy development (PISD) grid is used to clarify the requirements for policy implementation and to establish action plans which tap into stakeholder interests and their resources (Bryson, 2004). According to Bryson (2004) a range of techniques is needed throughout the process of a stakeholder analysis. Appropriately, the PISD grid builds on multiple techniques, to account for the interests, resources, support and probability of participation and influence of stakeholders. Additionally, stakeholder role plays are used to assess the political viability of the policy (Eden & Ackermann, 1998).

Table 2. Overview of stakeholder analysis techniques
The stakeholder classification of Mitchell et al. (1997) lacks a scale to determine the possession of attributions. Given the number of stakeholders in the healthcare field, it is not clear cut to use this classification to differentiate between the possession of the attributes legitimacy, urgency, and power. Due to these limitations for clearly defining the classification of stakeholders, a detailed analysis of the stakeholder landscape might be compromised. The policy implementation strategy development (PISD) grid includes the power bases and interest directions of stakeholders, their degree of support or opposition for the policy implementation, and their capacities to implement the policy in relation to the attractiveness of the policy. Additionally, stakeholders take on roles of other stakeholders to perceive their point of view. The PISD grid provides the most precise analysis technique for policy implementation, despite not accounting for dynamic stakeholder roles being a limitation.

The PISD grid depicted in Table 4 is used to assess how stakeholders’ interests affect the standardization process and to provide implications accordingly. These implications may provide value for policymakers when implementing a legal framework. The information in each column of the PISD grid is assembled using a bases of power-directions of interest diagram, stakeholder support versus opposition grid, stakeholder role plays and policy attractiveness versus stakeholder capacity grid. The following sections explain these means to establish the PISD grid in more detail.
Table 4. Policy implementation development grid (Bryson, 2004)

<table>
<thead>
<tr>
<th>Stakeholders</th>
<th>Stake or Interest</th>
<th>Resources</th>
<th>Action Channels Open to Stakeholder</th>
<th>Probability of Participation and Manner of Doing So</th>
<th>Influence - as a Product of Resources and Participation</th>
<th>Implications for Implementation Strategy</th>
<th>Action Plan Elements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supportive</td>
<td>Stakeholders</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Opposing</td>
<td>Stakeholders</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

2.5.1. Bases of power-directions of interest diagrams

The bases of power-directions of interests diagram (Figure 1) builds on the power versus interest grid and inspects stakeholders more precisely (Bryson, 2004). The diagram is created for each stakeholder to help find common ground in terms of interest across all stakeholders (Bryson et al., 2002; Bryson, 2004). The diagram provides information about stakeholder interests and how their power may advance the common good. Bases of power-directions of interests diagrams illustrate common themes of interest, called supra-interests (Bryson, 2004). By constructing persuasive arguments supporting policy implementation, stakeholders’ interests can be increased to forge a coalition needed to adopt and implement the policy. The information assembled using the bases of power-directions of interest diagrams are the basis for the Stake or Interest, Action Channels Open to Stakeholder and Influence - as a Product of and Participation columns in the PISD grid.

Figure 1. Bases of power-directions of interest diagram (Bryson, 2004)
2.5.2. Problem-frame stakeholder map

Nutt and Backoff (1992) propose a support-opposition grid to assess specific proposals regarding stakeholder support, opposition, and importance (Figure 2). Stakeholders are mapped based on their support for the policy proposal, which is also based on the amount of support for the process to implement the policy and the conditions imposed, and their ability to exert power over the proposal. The map demonstrates the viability of the policy proposal (Bryson, 2004). Attention should be devoted to the more powerful stakeholders. Ideally, to form a coalition, the number of strong supporters for the policy proposal increases, while the number of strong opponents is reduced. The information used to establish the problem-frame stakeholder map forms the basis for the Probability of Participation and Manner of Doing so column and adds to the Influence - as a Product of Resources and Participation column in the PISD grid.

2.5.3. Stakeholder role plays

Eden and Ackermann (1998) argue how role plays, where stakeholders take on the role of a different stakeholder, may be beneficial to fathom the interests of other stakeholders. While taking on a different role, the stakeholder should try to acknowledge the view of other stakeholders in supporting or opposing the political viability of the policy. Role plays may inform the search for solutions and problem-formulation processes. Stakeholder role plays is not a mapping method in itself but supports as a process approach in creating the components of the PISD grid. Role plays reconstruct information from the aforementioned bases of power-directions of interest diagrams and the problem-frame stakeholder map.

![Figure 2. Problem-frame stakeholder map (Bryson, 2004)](image-url)
2.5.4. Policy attractiveness versus stakeholder capacities grid

Bryson (2004) assesses the attractiveness of policy proposals against stakeholder capacities to implement them using a grid (Figure 3). Attractive proposals that match stakeholder capacities are likely to be implemented successfully, while proposals that do not match stakeholder capacities are likely to fail. Therefore, proposals high in attractiveness and capacity should be pursued, while stakeholders require additional capacity to implement attractive proposals that do not match their capacity. Unattractive proposals should not be part of the agenda altogether. The information applied to establish the policy attractiveness versus stakeholder capacities grid forms the basis for the Resources column and adds to the Probability of Participation and Manner of Doing so column in the PISD grid.

The next chapter explains the empirical context and the qualitative measures used to collect and analyze the data to assess the interests and roles of stakeholders relating to the advancement of health data exchange through the implementation of the Wegiz legal framework.

Figure 3. Policy attractiveness versus stakeholder capacities grid (Bryson, 2004)
3. METHODOLOGY

This study aims to qualitatively assess the interests of stakeholders in advancing health data exchange and how these may affect implementing the Wegiz legal framework. In this study, stakeholders are identified as the unit of analysis to examine their interests, support, and the power and capacities they might have in advancing health data exchange. A stakeholder analysis is conducted to categorize current stakeholders since these are context and time-dependent and might change (Pouloudi et al., 2016). Stakeholders are analyzed by creating a bases of power-directions of interest diagram (Figure 1), a problem-frame stakeholder map (Figure 2), and a policy attractiveness versus stakeholder capacities grid (Figure 3). These analysis methods are used to establish the PISD grid (Table 4) based on stakeholders’ interest, resources, action channels, probability of participation, and influence to identify implications for an implementation strategy and action plan. A qualitative study is conducted because research is lacking on the application of stakeholder theory analyzing how stakeholders’ interests affect law implementation in the Dutch healthcare industry. Qualitative data is helpful in the context of this study because it facilitates the development of health knowledge while working with complex phenomena (Ellen et al., 2019). Hence, qualitative research is conducted using data collection methods to come to insights comparing data sources to realize method triangulation (Johnson et al., 2006). The empirical setting is explained in more detail before the data collection and analysis methods are addressed in the following sections.

3.1. Empirical context of the Wegiz legal framework

In 2011 a national electronic health record (EHR) was unanimously out-voted. It was considered too risky to build an infrastructure or junction as a single point of failure. The healthcare industry took the lead, and the government withdrew (House of Representatives, 2021). The current market forces came into existence and in 2014 the Information Council (IC) facilitated by the Ministry of Health, Welfare and Sport was founded. In the IC, the government and stakeholders work together to create a way basis in which health data can be exchanged safely and reliably (Ministry of Health, Welfare and Sport, 2021c & Ministry of Health, Welfare and Sport, 2021d). In 2018, there was a call from the healthcare industry and the House of Representatives for more public direction from the government (House of Representatives, 2021). Consequently, the political basis was established for the Wegiz legal framework as a closing piece. Wegiz provides a legal framework for what the stakeholders in the healthcare field could not bring to a satisfactory conclusion. Wegiz will not ensure that non-electronic data exchange will suddenly be done electronically, but that if the stakeholders in the healthcare industry reach a consensus, electronic data exchange will be done and must be done.
3.1.1 Norms and standards

The stakeholders may be part of a norm committee supervised by NEN to ensure that the support base is as large as possible (Egiz, 2021b). Participation is possible through branch and overarching organizations and is free of charge. Stakeholders can register for participation when a new process is started (Egiz, 2021a). Currently, there are six active working groups, being the four prioritized types of health data exchange alongside logging and generic functions (NEN-Egiz, 2021). Periodically, the roadmap for Wegiz is updated and new data exchanges can be added (Egiz, 2021a). There are multiple types of data exchange on the list which are still under investigation (Egiz, 2021b). There is no need to redesign these types completely, as several care information building blocks, called zib’s, can be reused for different types of data exchange. Herewith, the process to accomplish these types may be accelerated.

Wegiz refers to quality standards and NEN norms, and there is a reference to standards from these norms (Table 5). Quality standards are used based on their familiarity and stability and their tripartite involvement by the stakeholders involved in health data exchange (Ministry of Health, Welfare and Sport, 2021a & House of Representatives, 2021). An overarching standard is lacking in centralizing all initiatives. Rather than building a new infrastructure, the current standards and initiatives should be connected through Wegiz. When quality standards, norms and information standards are well aligned, care providers get the correct information at the right time and place. Wegiz establishes an obligation to certify ICT systems (Egiz, 2021b). Healthcare providers are required to use these certified systems. The norms themselves are no guarantee of compliance. Certification demonstrates compliance with the language and technical requirements established in the NEN norms. Requirements for the approval of norms are established in certification schemes (Egiz, 2021a). These schemes assess whether ICT systems meet the NEN norms. Certification ensures systems of software suppliers are assessed the same, so that the norms are complied with. Suppliers may be fined when they offer products that do not comply with the appropriate certification (Barkhuysen, 2021).

<table>
<thead>
<tr>
<th><strong>NEN norms</strong></th>
<th><strong>Description</strong></th>
<th><strong>Involvement</strong></th>
<th><strong>Guiding institute</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality</td>
<td>Requirements for language and technology that systems of ICT suppliers must meet plus requirements for care providers. May refer to existing standards.</td>
<td>Care providers, patients and ICT suppliers, among others.</td>
<td>NEN</td>
</tr>
<tr>
<td>standards</td>
<td>Agreements about what constitutes good care and when certain kind of data must be exchanged.</td>
<td>Care providers, patients and insurers.</td>
<td>Zorginstituut Nederland (ZIN)</td>
</tr>
<tr>
<td>(Information)</td>
<td>Agreements that ensure information is recorded, retrieved and shared correctly. Are derived from NEN norms.</td>
<td>Several stakeholders in the healthcare industry.</td>
<td>Nictiz</td>
</tr>
<tr>
<td>standards</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 5. Establishment of norms and standards
<table>
<thead>
<tr>
<th>CODE</th>
<th>REFERENCE</th>
<th>TYPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>REF15</td>
<td>Patientenfederatie (2021). Position paper knelpunten en behoeften bij de uitwisseling van medische gegevens Retrieved December 16, 2021, from <a href="https://www.patientenfederatie.nl/dodlink/position-paper-uitwisseling-medische-gegevens/10eXAI0JKV1QCLCJ0hG0dG0311J11J99.ehJ3dwLI0JwJU13NPQdlvbi1WXYBId11aXR3aXNZZWxpbcmbt1WVWxKx1NjZgUXZVnZXZ0bMLCJpXQOJE2MzQwMzA2MDY8miV4cIC6MTY2NDEXnZnW0N0-VPvzn7R7GkEi_WQ2Z56hDqR1P2dP8PsRvPSV1sf6Fnrw">https://www.patientenfederatie.nl/dodlink/position-paper-uitwisseling-medische-gegevens/10eXAI0JKV1QCLCJ0hG0dG0311J11J99.ehJ3dwLI0JwJU13NPQdlvbi1WXYBId11aXR3aXNZZWxpbcmbt1WVWxKx1NjZgUXZVnZXZ0bMLCJpXQOJE2MzQwMzA2MDY8miV4cIC6MTY2NDEXnZnW0N0-VPvzn7R7GkEi_WQ2Z56hDqR1P2dP8PsRvPSV1sf6Fnrw</a></td>
<td>Policy letter</td>
</tr>
</tbody>
</table>

**Table 6. Overview non-academic sources**
3.2. Data collection

The data is collected qualitatively in the form of online individual semi-structured interviews. Individual in-depth interviews are a widely used qualitative analysis method in healthcare since they co-create meaning with practitioners by reconstructing their perceptions (DiCicco-Bloom & Crabtree, 2006). Furthermore, conducting interviews with multiple healthcare organizations at a national level may achieve comprehensive results across different contexts in the healthcare industry (Forman et al., 2008). Besides individual interviews, multiple stakeholders are interviewed online through a group discussion (Varvasovszky and Brugha, 2000). Given the topicality of the subject of data exchange in healthcare, data can be found that may contribute to in-depth interviews to achieve theoretical saturation (Patricia & Lawrence, 2015). Hence, data from non-academic sources in the form of (news) reports, policy letters, policy documents, webinars, websites, and a manifest on the topic of health data exchange are analyzed to substantiate the analysis (Table 6). The analysis of non-academic data offers a better understanding of the Dutch healthcare industry and the interests of its stakeholders regarding health data exchange.

3.2.1 Interviews with stakeholders

Twenty-five semi-structured, open-ended interviews are conducted between approximately 30 to 60 minutes. The respondents are listed in Table 7. The interviews are conducted online through Google Meet or Microsoft Teams unless the respondent preferred an in-person interview. The interviews are recorded unobtrusively to accomplish validity and reliability in processing the data (Rutakumwa et al., 2019). A respondent might be limited in discussing specific experiences because the interview is recorded. Hence, the recording software is used in an unobtrusive manner using a separate online program to diminish the curtailment of the answers given by the respondents. The interview is solely used for this research and will not be shared. The recording is deleted once the interview is transcribed to account for privacy. Furthermore, as also indicated at the commencement of the interview, the respondents are pseudonymized to provide protection and confidentiality. The research methods are clarified at the start of the interview before the respondent agrees to the terms. The interview protocol, including example questions, is depicted in Appendix 1.

The interview consists of five parts. First, the topic and the motivation for the study are explained. Second, open-ended questions are asked about the current state of health data exchange, followed by specific questions about Wegiz. Third, the identification of stakeholders based on Pouloudi et al.’s (2016) principles is addressed. The respondents are asked “With regards to your position in the healthcare industry, would you consider yourself a separate actor, part of a group or part of a larger collective such as a company or society?” to categorize the respondents as stakeholders. Additionally,
respondents are asked to identify other stakeholder categories that stakeholders may be part of in the Dutch healthcare industry. The identification of stakeholders is an iterative process to identify other important stakeholders in the healthcare industry until no additional distinct stakeholders are identified. Fourth, questions to assess stakeholders’ interests regarding advancing health data exchange and Wegiz are discussed, which are based on the techniques used to complete the PISD grid of Bryson (2004). These items are used to understand the different stakeholders and their interests, power, support, and capacities relevant to this study. Apart from their role, the respondents are asked to acknowledge the role of other stakeholders (Bryson, 2004). Fifth, to conclude the interview, a snowball technique is used where respondents are asked if they can identify other stakeholders that may be open to an interview. The interviews are analyzed as explained in the next section.

<table>
<thead>
<tr>
<th>CODE</th>
<th>STAKEHOLDER</th>
<th>DATE</th>
<th>DURATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>GOV1</td>
<td>Government</td>
<td>27/10/2021</td>
<td>47 minutes</td>
</tr>
<tr>
<td>GOV2</td>
<td>Government</td>
<td>27/10/2021</td>
<td>47 minutes</td>
</tr>
<tr>
<td>CAR1</td>
<td>Care providers</td>
<td>10/11/2021</td>
<td>41 minutes</td>
</tr>
<tr>
<td>CAR2</td>
<td>Care providers</td>
<td>11/11/2021</td>
<td>37 minutes</td>
</tr>
<tr>
<td>CAR3</td>
<td>Care providers</td>
<td>11/11/2021</td>
<td>48 minutes</td>
</tr>
<tr>
<td>CAR4</td>
<td>Care providers</td>
<td>11/11/2021</td>
<td>48 minutes</td>
</tr>
<tr>
<td>CAR5</td>
<td>Care providers</td>
<td>09/12/2021</td>
<td>52 minutes</td>
</tr>
<tr>
<td>INS1</td>
<td>Health insurance providers</td>
<td>15/11/2021</td>
<td>52 minutes</td>
</tr>
<tr>
<td>INS2</td>
<td>Health insurance providers</td>
<td>15/11/2021</td>
<td>52 minutes</td>
</tr>
<tr>
<td>NOR1</td>
<td>Normalization and standardization institutes</td>
<td>20/10/2021</td>
<td>44 minutes</td>
</tr>
<tr>
<td>NOR2</td>
<td>Normalization and standardization institutes</td>
<td>22/10/2021</td>
<td>32 minutes</td>
</tr>
<tr>
<td>NOR3</td>
<td>Normalization and standardization institutes</td>
<td>24/11/2021</td>
<td>42 minutes</td>
</tr>
<tr>
<td>NOR4</td>
<td>Normalization and standardization institutes</td>
<td>24/11/2021</td>
<td>42 minutes</td>
</tr>
<tr>
<td>PRA1</td>
<td>Practitioners</td>
<td>28/10/2021</td>
<td>27 minutes</td>
</tr>
<tr>
<td>PRA2</td>
<td>Practitioners</td>
<td>31/10/2021</td>
<td>50 minutes</td>
</tr>
<tr>
<td>PRA3</td>
<td>Practitioners</td>
<td>03/11/2021</td>
<td>30 minutes</td>
</tr>
<tr>
<td>PRA4</td>
<td>Practitioners</td>
<td>18/11/2021</td>
<td>44 minutes</td>
</tr>
<tr>
<td>PRA5</td>
<td>Practitioners</td>
<td>19/11/2021</td>
<td>31 minutes</td>
</tr>
<tr>
<td>PRA6</td>
<td>Practitioners</td>
<td>19/11/2021</td>
<td>37 minutes</td>
</tr>
<tr>
<td>PRA7</td>
<td>Practitioners</td>
<td>24/11/2021</td>
<td>39 minutes</td>
</tr>
<tr>
<td>PAT1</td>
<td>Patients</td>
<td>22/10/2021</td>
<td>28 minutes</td>
</tr>
<tr>
<td>PAT2</td>
<td>Patients</td>
<td>09/12/2021</td>
<td>52 minutes</td>
</tr>
<tr>
<td>ICT1</td>
<td>ICT suppliers</td>
<td>04/11/2021</td>
<td>53 minutes</td>
</tr>
<tr>
<td>ICT2</td>
<td>ICT suppliers</td>
<td>09/11/2021</td>
<td>50 minutes</td>
</tr>
<tr>
<td>ICT3</td>
<td>ICT suppliers</td>
<td>01/12/2021</td>
<td>54 minutes</td>
</tr>
</tbody>
</table>

Table 7. Overview of respondents’ interviews
3.3. Data analysis

The data is analyzed in four stages once theoretical saturation is reached using the data collection methods. First, raw data is studied by listening to the recordings of the interviews while transcribing the text and reading notes taken during the interviews to familiarize with the data (Pope et al., 2020). Second, key concepts are identified to label the data in chunks for further exploration. The data of each interview is coded deductively and inductively. Deductive sub-categories are based on the interview protocol. Examples of deductive sub-categories are “support” and “capacities”. Inductive codes identify categories as they emerge from the data (Pope et al., 2020). These inductive codes are gradually obtained to substantiate sub-categories with codes like “bureaucracy” and “costs of care”.

Third, segments are tagged and sorted into categories with similar content to distillate into the categories for each stakeholder, policy plans and proposals and the sub-categories interests, power, support, attractiveness, and capacities associated with each category (Bryson, 2004; DiCicco-Bloom & Crabtree, 2006). Fourth, to create a codebook in Excel, representative quotations are systematically indexed and chartered to construct the data in the results chapter (Pope et al., 2020). Quotes made by respondents are indicated in the analysis section by stating the respondent’s code as displayed in Table 7.

Data concerning stakeholders from (news) reports, policy letters, policy documents, webinars, websites, and a manifest matching the categories is added to the codebook or directly to the paper. These references to non-academic sources, shown in Table 6, are numbered (REF1) to (REF19) in the results section. A final assessment was made for the chosen PISD grid based on the codebook. The analysis method was compared with the previously mentioned stakeholder mapping techniques and criteria to find the optimal fit with the data. After the comparison, the chosen PISD grid appeared to fit the data best. The data is analyzed in the next chapter to identify the stakeholders and establish the PISD grid.

4. RESULTS

This chapter starts by identifying the stakeholders, which form the analysis’s basis, by addressing the five principles for stakeholder identification. The three techniques to establish the PISD grid are used to analyze the identified stakeholders. First, for each stakeholder, a bases of power-directions of interests diagram (Figure 4 to Figure 10) is created to identify common themes of interest. Second, the stakeholders are mapped in the support-opposition grid (Figure 11). Finally, the most prominent policies, plans, or proposals are assessed against stakeholder capacities to implement them in the attractiveness-capacities grid (Figure 12). Based on these techniques, the PISD grid is constructed to summarize the analysis results (Table 9).
4.1. Stakeholder identification

Several stakeholders are involved in establishing norms and standards, as mentioned in chapter 3.1.1. Conjointly, stakeholders have been identified and were confirmed by respondents during the interviews. The stakeholders identified are shown in Table 8 and have been affected since the emergence of Wegiz or will be affected by the standardization of health data exchange in the future and hence have a clear interest. Stakeholders may be part of multiple groups, in which their roles may change over time. However, the stakeholders allocated to each identified stakeholder category have relatively consistent perceptions regarding their interest in the context of Wegiz, notwithstanding some variability. These stakeholders are analyzed in the next section to assess their interests, power, support, and capacities in implementing standards to advance health data exchange.

4.2. Bases of power-directions of interest diagrams

The identified stakeholders are analyzed more closely by creating a bases of power-directions of interest diagram for each stakeholder. In each diagram, directions of interest are displayed above and bases of power below the dotted line (Figure 4 to Figure 10). Commonalities across stakeholders are identified based on the directions of interests related to the standardization of health data exchange. The first common theme identified, or supra-interest, is efficiency. Standardized data exchange could improve the efficiency of care by decreasing the administrative burden of data registration, reducing the number of double treatments that have to be done, and better informing practitioners on the patients’ records. However, achieving effortless exchange is dependent on the second supra-interests; resources. The diagrams for each identified stakeholder are explained in more detail.

<table>
<thead>
<tr>
<th>Stakeholder</th>
<th>Role</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government</td>
<td>Advancing electronic data exchange between care providers</td>
</tr>
<tr>
<td></td>
<td>Involving stakeholders in developing the framework law</td>
</tr>
<tr>
<td>Care providers</td>
<td>Apply healthcare standards in the organization</td>
</tr>
<tr>
<td></td>
<td>Obligated to meet policy requirements for ICT systems</td>
</tr>
<tr>
<td>Health insurers</td>
<td>Finance and conclude contracts with care providers which may contain</td>
</tr>
<tr>
<td></td>
<td>requirements for health data exchange</td>
</tr>
<tr>
<td>Normalization and standardiz</td>
<td></td>
</tr>
<tr>
<td>ization institutes</td>
<td>Independent implementers</td>
</tr>
<tr>
<td></td>
<td>Provide expertise and knowledge to manage and create norms and standards</td>
</tr>
<tr>
<td>Practitioners</td>
<td>Exchange health data with a digital system established by care providers</td>
</tr>
<tr>
<td>Patients</td>
<td>Move through the healthcare system requiring optimal care</td>
</tr>
<tr>
<td>ICT suppliers</td>
<td>Incorporate healthcare standards</td>
</tr>
</tbody>
</table>

Table 8. Roles of the identified stakeholders
4.2.1. Government

The governments’ main interest and responsibility is making sure that a broad representation of the healthcare industry is involved in establishing quality standards and NEN-norms. The right stakeholders must be on board to represent their interests. Over the past years, the government took less control over the advancement of data exchange, but the healthcare industry could not achieve the desired results themselves, as CAR2 indicated:

“Yet to force the entire healthcare industry to do this, the intrinsic motivation within the healthcare industry is not great enough to be able to bring this about. If you just leave it to the industry and do nothing as a government, not much will change.”

Hence, the government decided to take more control by setting the basis for implementing the legislation; they are seen as the most powerful stakeholder because they are the decisive factor. In addition, the industry requests more control, supervision, and regulation of the parties involved. The government has ensured a framework and empowers the industry to set the norms to ensure more significant support. At the same time, multiple respondents indicate that the healthcare industry was never involved in drafting the legislation itself, including the detailed standardization process for several types of data exchange. According to those respondents, not every type of data exchange requires standardization through NEN-norms and may be possible to achieve without such a process, which could, on the contrary, complicate achieving interoperability because of the details.

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**Figure 4. Bases of power-directions of interests diagram of the government**

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23
4.2.2. Care providers

Ensuring that the correct data is available in the right place at the right moment is complex. Currently, there is no single infrastructure in which data can easily be sent from one institution to another. The current systems used differ from each other and are not interconnected. There is too little intrinsic motivation for care providers to build a solid system, as the costs to rebuild the current system are high. For that reason, care providers resort to using, for example, fax machines and DVDs to exchange data because there is no better alternative. On the other hand, care providers may also benefit from not being able to exchange data, as NOR3 indicates:

“Yes, the additional misery of this story is when the fax or the DVD is not available, we'll just do an examination again. Yes, of course, that makes care unnecessarily expensive and care providers will undoubtedly make money by doing these examinations.’’

Although redoing an examination may cost time, a care provider benefits by generating income. In the end, the care providers are private organizations financed by the government but allowed to make independent choices as long as they comply with quality standards. Care providers have a say by being part of the IC and NEN workgroups and their addition to criticism through a policy letter but may lack the knowledge about IT implementations. Multiple respondents, however, indicate how care providers are dependent on ICT suppliers for providing the tools to establish data exchange. Each hospital must conclude a contract with a supplier and have few options for customization. Hence, the care providers could unite against ICT suppliers, and Wegiz may support this by establishing a uniform standard for data exchange. Considering their involvement in the IC and NEN workgroups and ability to make independent choices, they are considered a powerful stakeholder. However, care providers are considered less powerful than the largest suppliers and insurers due to the nature of their relationship and the negotiations involved.

![Figure 5. Bases of power-directions of interests diagram of the care providers](image-url)
4.2.3. Healthcare insurers

Healthcare insurance providers are responsible for the funding of treatments. The healthcare insurer is interested in limiting health risks to make healthcare costs more sustainable. Furthermore, when information is available in the right place at the right time for practitioners, examinations do not have to be repeated, which could bring about a reduction in costs and make healthcare more efficient. When healthcare becomes more efficient by exchanging patient data seamlessly across organizations, care will become more cost-effective for insurers and maintain affordable premiums for patients. However, this should not be at the expense of the quality of care. The total societal benefits of implementation and transfer of medical information, for example, are higher than the societal costs. However, to achieve these effects, practitioners have to follow the set guidelines and agreements, IT systems have to function correctly and patients have to permit to share their medical data (REF7).

Apart from being part of the IC and NEN workgroups, the insurers were also the primary stakeholder expressing their reservations through a letter directed to the House of Representatives. Furthermore, they may set requirements for data exchange in the contracts they conclude with care providers, which may be stimulating to make data exchange more efficient. Insures are also investing in programs to accelerate health data exchange, which is already the basis for steering to advance data exchange. As a result of their involvement in the IC and NEN workgroups, their contribution to the discussion of the legislative proposal and the contractual negotiations, insurers are regarded as a powerful stakeholder.

Figure 6. Bases of power-directions of interests diagram of the healthcare insurers
4.2.4. Normalization and standardization institutes

Normalization and standardization institutes are independent actors. They have a part in uniting stakeholders in the healthcare industry to reach a consensus and provide expertise, for example, on the implementation process or based on data exchange. They investigate who the stakeholders are, what standards exist, and what has already been done (on an international level).

Normalization and standardization institutes must ensure that what is being developed will be used in practice and meets the requirements. However, creating norms and certification schemes is part of their business, making it a commercial interest. Although they do not have an explicit stance on the legal framework, they are financed by the government for their expertise and part in creating the norms and standards. As a result of the independent, advising role standardization and normalization institutes have, while not exerting power, they are regarded as a weak stakeholder.

4.2.5. Practitioners

Practitioners have several interests in the availability of patient data through an EHR. The data overview for the practitioners has to provide the patient's medical record while being relevant, up-to-date, and user-friendly. Practitioners would benefit from having access to the correct information at the right place at the right time to, for example, avoid examining a patient twice because the correct data is not available and because there is less room for errors when transcribing data (REF5). Furthermore a practitioner would be better informed about a patient’s record through improved data exchange, improving the quality of consultation while decreasing the duration. Standardization of health data exchange would most likely also require practitioners to register data so that it is exchangeable.
In implementing standards, it is essential that registering in a standardized way does not interfere with a practitioner's professional autonomy. In the end, practitioners must be relieved, and any data exchange must reduce administrative burdens and increase the quality of care (REF17). The reuse of healthcare data may accelerate examination. Therefore, practitioners should decide which data should be exchanged because they know about the data they require to perform.

Overarching organizations representing the interests of medical specialists are also part of both the IC and NEN workgroups. The stakeholders are represented in these groups with a lobby towards politics. However, because of a one-person-one-vote principle in these groups, they are considered less powerful than the well-represented care providers. Depending on the occasion of the meeting, they represent a common interest or their own. Moreover, they have also contributed to input with criticism on the proposal of the legislation. Likewise, practitioners are considered a stronger stakeholder than the smaller suppliers and standardization and normalization institutions but considered less powerful than the remaining stakeholders.

4.2.6. Patients

Patients can access their data and appointments online through their Personal Healthcare Environment (PHE), in which the medical reports have to be as understandable as possible. When medical terminology is used, not all parts of the medical reports are understandable by a patient without pre-acquired knowledge. Patients should ideally be in charge of their data and, therefore, data exchange with the patient is an essential point of attention. However, currently, Wegiz does not explicitly prescribe data exchange with patients. Nonetheless, patients also benefit when effortless data exchange is achieved between practitioners. Practitioners have to be well informed about, for example, medication use in determining a diagnosis or carrying out treatment.
Just as practitioners, overarching organizations also represent the interests of patients. Patients are part of both the IC and NEN workgroups, and contributed input on the proposal of the legislation. They are considered as powerful as the practitioners since they can exert their influence through the same means.

4.2.7. ICT suppliers

For suppliers meeting the NEN-norms and their requirements to certificate may create a burden. ICT suppliers already have to meet many requirements (REF5). Currently, the assignments from the various care providers are not unambiguous. Several different projects and initiatives exist to exchange health data with different priorities and goals. Furthermore, when the requirements become too specific for the Dutch healthcare market, these could not be attractive for international suppliers to meet since the Dutch healthcare market is small compared to other markets. Hence, entering the Dutch healthcare market is a considerable risk for the effort required to meet the specific demands. Instead, international standards should be considered to make those applicable for implementation in the Dutch healthcare system. There is quite a difference between suppliers from different industries. The smaller and some more prominent suppliers benefit from open standards. The systems where important data is stored must be linked to other platforms to make the data available using standards. Nevertheless, the biggest EHR suppliers, like Epic and Chipsoft, prefer to keep their systems closed from a commercial point of view.

ICT suppliers are not directly part of the IC. However, they are included in creating the information standards since they know the details needed for exchanging data. Being part of the NEN workgroups
costs resources, precisely time and financial means, to have staff of the organization present. For this reason, it is difficult for smaller ICT suppliers to join the working groups, while this is less of an issue for bigger parties. As ICT1 indicates:

“'As long as we manage to give the market enough room in the working groups, I don't see a problem even in the current situation. The moment that you run the risk of not everyone participating in the working groups and therefore getting ideal standards, then you run a greater risk of it not being practicable, perhaps especially for the somewhat smaller organizations. In that case, the financial strength of such an organization will determine its continued existence. Because the moment you have to invest too much and it is not feasible, you will probably leave the Dutch market. So then it means that you will be left with a dominant position where maybe two big players will remain. Yes, that's what other domains suffer from, that was more or less the reason to start Wegiz in the first place.'”

The market does not function properly when the smaller players cannot participate in these working groups because they lack the capacities. Additionally, the ICT market is insufficiently transparent and competitive (REF9). The current systems have become too specific and complex, leaving a couple of suppliers to supply the ICT. These suppliers have the power to decide to cooperate in making adjustments to the current system or not. Switching to another system is complicated due to the sunk costs and adjusting to a new practitioner system (REF15). Due to the dissimilarity in power between the largest suppliers and the smaller suppliers, they are considered separately in the further course of the study. Therefore, the largest suppliers are seen as a strong stakeholder, while the smaller suppliers are classified as a weak stakeholder.

![Diagram of ICT suppliers' interests and power](image.png)

**Figure 10. Bases of power-directions of interests diagram of the ICT suppliers**
4.3. Problem-frame stakeholder map

The government initiated Wegiz because the developments in the healthcare industry regarding data exchange are too decentralized. The healthcare industry’s fragmented IT systems and initiatives should instead be connected, which the government supports substantially. Apart from providing their expertise, the normalization and standardization institutes are independent and do not share an outspoken opinion on Wegiz; hence they are not seen as either a supporter or opposer. Although the other stakeholders are critical of parts of Wegiz, the end goal to reach interoperability is one every stakeholder supports.

The insurers would propose not implementing Wegiz immediately as a large-scale project but to pilot implementation on a smaller scale first. Wegiz is too detailed and many conditions must be met to comply with the legislation. Diverse data exchanges take place and the question is whether it is necessary to establish NEN norms for each type of exchange. Additionally, according to the insurers, Wegiz may not achieve interoperability (REF18). More is needed, like an API strategy, because it requires less coordination between stakeholders (REF1 & REF14). Despite their support, the insurers are seen as less supportive of Wegiz than the government, care providers, and practitioners. The insurers, among others, are also concerned about the bureaucracy that Wegiz entails. As legislators, the government could have been more prescriptive in the choice of instruments. Adding a quality standard or a norm is not always needed because many resources are spent on implementation. The same applies to ICT suppliers who must comply with certification schemes. As more information standards are incorporated into NEN norms, suppliers will increasingly certify. Smaller suppliers will be particularly affected when they have to comply with certification. Wegiz can incentivize suppliers by opening systems following the applicable standards. In that sense, the fact that systems are open is more important than the accompanying burden of certification.

The level of detail of Wegiz is vital for suppliers, as there are degrees of freedom within each open standard. Interpretation of these standards is essential for international alignment. The more detailed the standards, the more complex and likely they deviate from international standards. If specific Dutch norms are developed, globally operating ICT suppliers will be reluctant to enter the Dutch market. Additionally, there is a risk of stifling innovation because there is no room to deviate from the details. A balance between details and innovation should be found. Hence, smaller suppliers are seen as more supportive than the largest suppliers but less supportive than the remaining stakeholders.

Practitioners support Wegiz as users who know what is needed to provide medical care and who can contribute to the system’s user-friendliness (REF3). However, suppliers often do not consider practitioners’ input (REF4). The systems have to be compiled for practitioners to exchange data well.
In addition, conversion of quality standards into EHR’s will have a delaying effect. Patients do not always have one clinical profile but may have several diseases. Quality standards have to be applicable in the system for their complete profile. However, the basis for registration is a unity of language, where practitioners, patients, and computers assume the exact meaning of a medical concept (REF12), implemented in the entire care industry. For practitioners, achieving data exchange is essential, but the way standardization is achieved is less important, and hence they are seen as strong supporters.

Wegiz can help care providers create the same end goal and have an unambiguous mandate towards the suppliers. Their purchasing power towards suppliers becomes more substantial with a joint assignment to influence the development roadmap of IT systems. According to some care providers, there is little control on how interoperability is achieved. The intention to comply with certain NEN norms is unrealistic because of their feasibility. Apart from their feasibility, practitioners and care providers have much room for interpretation (REF15). As a result, the industry is cautious in interpreting the norms. With Wegiz, expectation management is essential to ensure care providers support Wegiz even further. Wegiz prescribes data exchange between care providers but does not include patients. Health data exchange with patients should also be established as PAT2 indicates:

“It is a pity that it is not made possible to exchange between patients and care providers. We will soon be moving towards personal healthcare environments, which are the successor to the EHR’s. As a patient, if it works out, you will have your health data under your control, and from there, you can decide what you want to share with whom. What things do I measure myself, add and want to share with my practitioner which is relevant in the context of my treatment? That is not possible at the moment. Wegiz only regulates that healthcare providers exchange information digitally with each other.”

Notwithstanding, patients are seen as a support of Wegiz because of all the benefits they experience indirectly through the implementation, but they would be more supportive when included in the actual data exchange process. The amount of support for the policy implementation for each stakeholder is mapped in relation to the bases of power in Figure 11. The map identifies the more powerful stakeholders and strong supporters to facilitate the formation of a winning coalition to advance health data exchange by implementing the Wegiz legal framework.
4.4. Policy attractiveness versus stakeholder capacity grid

Wegiz prescribes two tracks as the main elements of the policy to implement the standardization of health data exchange. With the implementation of track one, the exchange of data is, in any case, done electronically. With the implementation of track two, data is exchanged between information systems in a standardized manner to achieve interoperability. For each track, policy plans are proposed by stakeholders. These are assessed in terms of their attractiveness and the capacities necessary for successful implementation, based on the number of stakeholders explicitly expressing their opinion. The attractiveness of the most prominent policies, plans, or proposals are assessed against stakeholder capacities to implement them in Table 8. Derived from the assessments of the proposals or plans as numbered in Table 8, the policy attractiveness versus stakeholder capacity grid shown in Figure 12 is created. The grid indicates proposals that are likely to be implemented successfully because they match stakeholder capacities and those likely to fail because of a lack of capacity. In the end, the data obtained to compile the policy attractiveness versus stakeholder capacity grid provides use for the identifying resources and the probability of participation and manner of doing so columns of the PISD grid.
<table>
<thead>
<tr>
<th>Number</th>
<th>Policy proposal or plan description</th>
<th>Attractiveness</th>
<th>Capacities required by stakeholders</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Addition of types of data exchange to the multiannual amendment</td>
<td>Need by the industry  &lt;br&gt;Accelerated through re-use of zib's, but the processing time is still long  &lt;br&gt;Lengthens other planned projects</td>
<td>Types of data exchange do not meet the technical conditions  &lt;br&gt;Involves costs, time and bureaucracy  &lt;br&gt;The norms have to be operational in practice  &lt;br&gt;Have to guarantee quality and prompt implementation</td>
</tr>
<tr>
<td>2</td>
<td>Agreements about quality standards containing unity of language and technology</td>
<td>Less administrative burden ultimately  &lt;br&gt;Provide insights of benefits with education  &lt;br&gt;Limitations to recording of data for practitioners  &lt;br&gt;Creates efficiency down the line  &lt;br&gt;System must be feasible in practice</td>
<td>Responsibility for material means used lies with the care providers  &lt;br&gt;Practitioners need to learn to choose from a selection of codes  &lt;br&gt;Habituation and novelty errors when implementing a new way of working  &lt;br&gt;Digital competence</td>
</tr>
<tr>
<td>3</td>
<td>Compliance with requirements: information standards and certification schemes</td>
<td>Creating too many requirements can be counterproductive  &lt;br&gt;ICT suppliers turnover is at stake when qualification trajectory is expensive</td>
<td>A norm may complicate exchange when a system operates properly  &lt;br&gt;Certification costs for ICT suppliers, which will be passed on down the line to care providers  &lt;br&gt;Customization of ICT systems</td>
</tr>
<tr>
<td>4</td>
<td>Participation workgroups to establish NEN norms</td>
<td>Established by reaching a consensus through a broad representation of the industry</td>
<td>Stakeholders need resources, like the devotion of time to participate</td>
</tr>
<tr>
<td>5</td>
<td>Regional scale implementation prior to nationwide implementation</td>
<td>Improve implementation to satisfaction before implementing at a nation level</td>
<td>Pilot implementation regionally first may reduce capacities needed when proved successful</td>
</tr>
<tr>
<td>6</td>
<td>Adaptation of current systems to reach interoperability</td>
<td>Systems chosen at the outset are challenged  &lt;br&gt;Not able to achieve in short notice  &lt;br&gt;Software packages have specific applications  &lt;br&gt;Funding increases costs in premiums</td>
<td>Care providers are responsible for implementation  &lt;br&gt;Technical and financial capacities to implement specific adaptations  &lt;br&gt;Self-employed practitioners need financial support  &lt;br&gt;Capacitates care providers depended on their size</td>
</tr>
<tr>
<td>7</td>
<td>Infrastructure agreements: open standards or API strategy</td>
<td>Choice for network and system  &lt;br&gt;Creates equal chances for ICT suppliers  &lt;br&gt;Benefits efficiency and cost-reduction  &lt;br&gt;Breaks market power suppliers</td>
<td>Coming to an agreement on the API strategy and to open systems with the stakeholders involved</td>
</tr>
<tr>
<td>8</td>
<td>Alignment with international standards</td>
<td>Risk of entering Dutch market with specific requirements  &lt;br&gt;Costs of certification determines involvement in market  &lt;br&gt;Investments have to generate orders</td>
<td>Easier to meet requirements for international suppliers when internationally aligned  &lt;br&gt;Less risk to make a large investment to enter the market</td>
</tr>
</tbody>
</table>

Table 8. Policy proposal or plan attractiveness and required capacities
4.4.1. Track one: electronic data exchange

Electronic exchange can result in working more efficiently, higher quality of care and less susceptibility to errors. However, the government should be aware of the number of regulations the industry must comply with. At the moment, several types of data exchange have been included in the multiannual amendment (REF8). Adding types of data exchange to the multiannual amendment is classified as attractive if there is a need for implementation of these types by the industry to establish electronic data exchange, and consequently, make data exchange more efficient. Although the implementation is accelerated by re-using zib’s, implementing additional types of data exchange requires most stakeholders to apply their capacities to guarantee both quality and prompt implementation.

Establishing agreements containing a unity of language and technology is the basis to exchange data electronically and, consequently, attractive to accomplish. However, these agreements require a different way of data registration by practitioners and material means provided by care providers through ICT suppliers (REF2). In practice, managing these agreements will require high capacities from multiple stakeholders.

Certification ensures that the systems of ICT suppliers are assessed in the same way so that the norms are complied with. However, a simple treatment becomes incredibly expensive when having to meet the high demands to certify for standards when certification results in additional efforts for practitioners and an additional administrative burden (REF6). The moment it is necessary to make a lot of costs and customization of systems and an expensive qualification trajectory is attached, the prices of ICT rise. Ultimately, the suppliers have to make turnover to continue to exist. Although there is a need for certification of ICT systems to ensure compliance with requirements, the proposal requires substantial capacities compared to its attractiveness.

The stakeholders participating in the NEN workgroups decide upon establishing NEN norms for each type of health data exchange by reaching a consensus. The aim is to include a broad representation of stakeholders in establishing these norms. The formation of norms this way is supported, although not all stakeholders have the capacity to join the workgroups. Once established, the norms could be piloted, which may significantly reduce the number of capacities needed to implement the first track when proven to be successful on a regional level first. However, explicit support for this proposal was only indicated by one stakeholder, the healthcare insurers, and is therefore seen as less attractive.
4.4.2. Track two: interoperability

To achieve interoperability, agreements on five levels of the interoperability model have to be aligned: organization, care process, information, application, and IT infrastructure (REF11). Additionally, preconditions for laws and regulations and information security must be met. When hospitals, clinics, and institutions are transformed into one network, the systems chosen at the outset are challenged. Nevertheless, many systems are not set up to communicate with systems from other care providers. The healthcare industry and ICT suppliers are not ready to implement data exchange in the second track in the short term (REF13). There are too many variations in the current systems to share the data effectively. Suppliers do not always have the technical and financial capabilities to implement specific adaptations to current systems. Moreover, a self-employed general practitioner has insufficient capacity and ability to carry out an implementation without a problem; financial support is needed. The costs can be requested from a health insurance company or the government. These costs are, however, added to premiums. Capacities of care providers to meet demands must be considered consciously, depending on their size. Adaptation of current systems is regarded as attractive due to the goal of achieving interoperability, but it would require high capacities.

Complying with norms is not sufficient to reach interoperability. *Agreements have to be made about the infrastructure*, including freedom of choice for a network and system (REF6 & REF9). Open standards are the norm for infrastructures within healthcare to create equal chances for ICT suppliers (REF16). Currently, agreements about open APIs are not included in Wegiz (REF19). APIs may contribute by creating a communication infrastructure alongside the predetermined requirements through norms and standards (REF14). Using an API strategy can be beneficial for efficiency and cost reduction. Furthermore, including an API strategy would be a way to break the market power of suppliers because the interoperability of their systems can be compared more easily (REF1). Thus, the policy proposal is attractive for most stakeholders and may lower the capacities needed to help achieve interoperability.

When standards for Wegiz are developed with specific requirements for the Netherlands, there is a risk of not including international agreements. The Dutch industry is too small to make significant investments. The costs for certification will be determined by ministerial regulation and determine whether ICT suppliers will remain part of the market or continue to serve it after Wegiz takes effect (REF13). Investments must ultimately generate additional orders, which is not guaranteed. Alignment with international standards would not require high capacities when considered at the initial stages of implementation since they are pre-defined. The policy plan is attractive due to its potential effect on the Dutch healthcare ICT market forces, which may indirectly affect other stakeholders.
Building on the information revealed by the previously created bases of power-directions diagrams (Figure 4 to Figure 10), problem-frame stakeholder map (Figure 11), stakeholder role plays, and policy attractiveness versus stakeholder capacities grid (Figure 12), the PISD grid is compiled including data for each stakeholder displayed in Table 9. First, the data assembled from the bases of power-directions of interest diagrams is used as a basis for the Stake or Interest, Action Channels, and Influence columns in the PISD grid. Second, the data used to establish the problem-frame stakeholder map forms the basis for the Probability of Participation and Manner of Doing so column and adds to the Influence column in the PISD grid. Finally, the data applied to establish the policy attractiveness versus stakeholder capacities grid forms the basis for the Resources column and adds to the Probability of Participation and Manner of Doing so column in the PISD grid. The assessment of the techniques above forms the basis for theoretical and practical implications and recommendations for action plans discussed in the next chapter.
<table>
<thead>
<tr>
<th>Stakeholder</th>
<th>Stake or Interest</th>
<th>Resources</th>
<th>Action Channels</th>
<th>Probability of Participation and Manner of Doing So</th>
<th>Influence</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Government</strong></td>
<td>Involving the industry</td>
<td>Funding Guidance</td>
<td>Top-down control, supervision and regulation</td>
<td>Setting the basis Empowering the industry</td>
<td>Strong supporter</td>
</tr>
<tr>
<td><strong>Care providers</strong></td>
<td>Efficient data exchange</td>
<td>Purchasing power</td>
<td>Information council NEN workgroups Policy letters</td>
<td>Active involvement Suggestions for refinements Adjustments ICT systems</td>
<td>Strong supporter</td>
</tr>
<tr>
<td><strong>Health insurers</strong></td>
<td>Healthcare costs Quality and efficiency of care</td>
<td>Funding care Premiums Investments programs</td>
<td>Information council NEN workgroups Policy letters Investment programs Contracts</td>
<td>Active involvement Suggestion for refinements Setting requirements in contracts</td>
<td>Strong supporter</td>
</tr>
<tr>
<td><strong>Normalization and standardization institutes</strong></td>
<td>Uniting stakeholders Commercial Interest</td>
<td>Providing advice and expertise</td>
<td>Independent actor involved in implementation</td>
<td>Guidance in creating norms and standards</td>
<td>Weak supporter</td>
</tr>
<tr>
<td><strong>Practitioners</strong></td>
<td>Overview of patient data Registration of data</td>
<td>Autonomy in processing and retrieval of data</td>
<td>Information council NEN workgroups Policy letters</td>
<td>Strong political lobby Suggestion for refinements Adapting working methods</td>
<td>Strong supporter</td>
</tr>
<tr>
<td><strong>Patients</strong></td>
<td>Quality and efficiency of care Being informed</td>
<td>Public health environment</td>
<td>Information council NEN workgroups Policy letters</td>
<td>Strong political lobby Suggestion for refinements</td>
<td>Strong supporter</td>
</tr>
<tr>
<td><strong>Smaller ICT suppliers</strong></td>
<td>Commercial interest System demands Open standards</td>
<td>Limited resources</td>
<td>NEN workgroups Creation of information standards</td>
<td>Customization of systems Certification of systems Participation in market</td>
<td>Weak supporter</td>
</tr>
<tr>
<td><strong>Biggest ICT suppliers</strong></td>
<td>Commercial interest System demands</td>
<td>Profit from market power</td>
<td>NEN workgroups Creation of information standards</td>
<td>Customization of systems Certification of systems Participation in market</td>
<td>Strong supporter</td>
</tr>
</tbody>
</table>

Table 9. Policy implementation strategy development grid Wegiz
5. DISCUSSION

This paper presents a deeper understanding of stakeholders’ interests in the Dutch healthcare system to advance health data exchange. The identified stakeholders generally support achieving the advancement of health data exchange by implementing the Wegiz legal framework. Standardizing health data exchange may benefit the quality and costs of care by providing the correct information in the right place at the right time, making healthcare more efficient. However, stakeholders need sufficient resources, precisely time and financial means, to exert influence to attain a broad representation of the industry and increase their capacity to accomplish law implementation.

Stakeholders may have the power to affect the implementation process through channels like the NEN workgroups, the Information Council, or publicly through policy letters. Moreover, stakeholders need the capacity to adhere to the legal frameworks’ requirements. ICT suppliers, for example, have to comply with certification schemes for their systems, whereas practitioners have to register data uniformly to sustain both unity of language and technology to standardize health data exchange.

The government, care providers, healthcare insurers, practitioners, patients, and biggest ICT suppliers are classified as strong supportive stakeholders. In contrast the normalization and standardization institutes and smaller ICT suppliers are classified as weak supportive stakeholders of the standardization of health data exchange. The strong supporters may form a strong winning coalition due to their number. However, these stakeholders express their reservations about the implementation process explicitly, which impedes the facilitation of support for the implementation of the legal framework. Consequently, stakeholders propose plans, which may contribute to advancing health data exchange, sustaining support for policy implementation, and increasing the participation of stakeholders. Proposals that match stakeholder capacities and are therefore likely to be implemented successfully should be pursued (Bryson, 2004). Achieving these proposals in addition to the legal framework may, for example, impact the current market forces for ICT suppliers. Capacities should be increased to implement attractive proposals that would otherwise fail.

5.1. Theoretical implications

This study confirms the value of a stakeholder analysis to facilitate acceptance and effectiveness of law implementation, especially in a complex sector like the healthcare industry where system implementations often fail (Berg & Winthereik, 2005; Boonstra & Govers, 2009; Ministry of Health, Welfare and Sport, 2021; Pan et al., 2008). The interests of stakeholders in advancing health data exchange have to be accounted for from the initiation of implementation to increase the support and attractiveness for implementation of a legal framework (Boonstra et al., 2008; Van Gemert-Pijnen et al., 2011). Conducting a stakeholder analysis can identify stakeholders and their inter-relations in law.
implementation to form a winning coalition (Bryson, 2004; Varvasovskzy and Brugha, 2000; Shirey, 2012). Policymakers may therefore benefit from assessing these power relations in the implementation process by using a stakeholder analysis.

The study adds to the current stakeholder theory by showing that linking stakeholder identification and analysis techniques using multiple dimensions should be considered for implementing a legal framework. Analyzing stakeholders based on a two-dimensional approach to establish a stakeholder map may not be sufficient. Complex law enforcement benefits from an approach beyond identifying stakeholders’ interests and power relations. Bryson (2004) indicates how “a variety of stakeholder analyses appear to be very useful tools for improving public and nonprofit management, creating public values and advancing the common good” (p. 47). A stakeholder analyzing technique should account for the capacities required to comply with attractive plans or proposals part of the legislation to sustain support by the industry. The availability of resources plays a decisive factor for stakeholders to affect the process of policy implementation. Access to fewer resources directly affects stakeholders’ means of power and the attractiveness of plans or proposals when they lack the capacity to implement them. For more significant change efforts, like advancing health data exchange on a national level, a range of multi-dimensional techniques is needed at various points throughout the implementation process (Bryson, 2004).

Further, existing stakeholder analysis techniques may need to be adapted to meet the criteria presented in the literature review, like offering a detailed focus of the stakeholder landscape and concrete steps to establish a stakeholder map when implementing a legal framework. Bryson’s (2004) Policy Implementation Strategy Development grid is most congruent with the criteria and appeared to fit the data best. However, the stakeholder analysis technique does not account for dynamic stakeholder roles. The interests of stakeholders in advancing data exchange and their means of power to affect the implementation process could change before the process is concluded. Therefore, the technique should be reinforced by considering the context and time dependency of stakeholder roles (Pouloudi et al., 2016).

5.2. Practical implications

The analyses of the Dutch healthcare industry identified implications for each stakeholder involved in advancing health data exchange by implementing the Wegiz legal framework, as summarized in Table 10. Based on these implications, five practical implications for policy implementations in the Dutch healthcare industry are formed. However, these implications are also conceivable for legal framework implementations in other healthcare industries.
<table>
<thead>
<tr>
<th>Stakeholder</th>
<th>Stake or Interest</th>
<th>Resources</th>
<th>Action Channels</th>
<th>Probability of Participation</th>
<th>Influence</th>
<th>Implications</th>
<th>Action plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government</td>
<td>Involving the industry</td>
<td>Funding, Guidance</td>
<td>Top-down control, supervision and regulation</td>
<td>Strong supporter</td>
<td>More efficient healthcare system, Support of the industry</td>
<td>Create awareness, Provide resources, Broader representation industry, Consider policy proposals</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Affordable healthcare</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Care providers</td>
<td>Efficient data exchange</td>
<td>Purchasing power, Providing material means</td>
<td>Information council, NEN workgroups, Policy letters</td>
<td>Active involvement, Suggestions for refinements, Adjustments ICT systems</td>
<td>Strong supporter</td>
<td>Mandate for ICT system implementation, Need means to implement system</td>
<td>Represent interests, Advance proposals, Apply resources for implementation systems, Support practitioners</td>
</tr>
<tr>
<td></td>
<td>Income</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Health insurers</td>
<td>Healthcare costs</td>
<td>Funding care Premiums, Investments programs</td>
<td>Information council, NEN workgroups, Policy letters, Contracts</td>
<td>Active involvement, Suggestion for refinements, Setting requirements in contracts</td>
<td>Strong supporter</td>
<td>More efficient healthcare system, Cost-efficiency</td>
<td>Represent interests, Advance proposals, Provide resources as an incentive</td>
</tr>
<tr>
<td></td>
<td>Quality and efficiency of care</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Normalization and</td>
<td>Uniting stakeholders</td>
<td>Providing advice and expertise</td>
<td>Independent actor involved in implementation</td>
<td>Guidance in creating norms and standards</td>
<td>Weak supporter</td>
<td>Active guidance to optimize efficiency</td>
<td>Create awareness, Involve and unite stakeholders, Advise on implementation policy proposals</td>
</tr>
<tr>
<td>standardization institutes</td>
<td>Commercial interest</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Practitioners</td>
<td>Overview of patient data</td>
<td>Autonomy in processing and retrieval of data</td>
<td>Information council, NEN workgroups, Policy letters</td>
<td>Strong political lobby, Suggestions for refinements, Adapting working methods</td>
<td>Strong supporter</td>
<td>Implement unity of language, More efficient way of working</td>
<td>Represent interests, Advance proposals, Conform to guidelines and agreements</td>
</tr>
<tr>
<td></td>
<td>Registration of data</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Patients</td>
<td>Quality and efficiency of care</td>
<td>Public health environment</td>
<td>Information council, NEN workgroups, Policy letters</td>
<td>Strong political lobby, Suggestions for refinements</td>
<td>Strong supporter</td>
<td>More efficient treatment</td>
<td>Represent interests, Advance proposals</td>
</tr>
<tr>
<td></td>
<td>Being informed</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Smaller ICT suppliers</td>
<td>Commercial interest</td>
<td>Limited resources</td>
<td>NEN workgroups, Creation of information standards</td>
<td>Weak supporter</td>
<td>Power shift in the market, Costs for certifying</td>
<td>Represent interests, Advance proposals, Monitor market, Conform systems</td>
<td></td>
</tr>
<tr>
<td></td>
<td>System demands</td>
<td></td>
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<td></td>
<td>Open standards</td>
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<td></td>
</tr>
<tr>
<td>Biggest ICT suppliers</td>
<td>Commercial interest</td>
<td>Profit from market power</td>
<td>NEN workgroups, Creation of information standards</td>
<td>Strong supporter</td>
<td>Power shift in the market, Costs for certifying</td>
<td>Represent interests, Advance proposals, Monitor market, Conform systems</td>
<td></td>
</tr>
<tr>
<td></td>
<td>System demands</td>
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</table>

Table 10. Policy implementation strategy development grid Wegiz concluded
First, standardizing health data exchange benefits the healthcare industry by making healthcare more efficient, being the main reason for its initiation. Active guidance is offered by normalization and standardization institutes to reach optimal efficiency. Effective utilization may cause a cost reduction for insurers, and practitioners may provide more efficient treatment for patients. Policy implementations in the healthcare industry should be focused on making healthcare more efficient, as most stakeholders will reap the benefits. However, stakeholders should be aware of the prospect of increasing efficiency to attain support for policy implementation.

Second, with a deeper understanding of stakeholder roles in the landscape, power relations emerge. Care providers are dependent on ICT systems provided by ICT suppliers. However, with the implementation of Wegiz, care providers’ purchasing power may increase due to a uniform mandate towards the ICT suppliers. Additionally, by standardizing health data exchange, a shift in power in the market of ICT suppliers may occur. Therefore, implications for adjustments in power relations in the healthcare industry should be assessed prior to policy implementations.

Third, the implementation of Wegiz has implications for stakeholders for adjusting their systems and the way they are operated. Care providers require means to implement a new system to exchange health data, while ICT suppliers must certify their systems. Moreover, a unity of language is needed among practitioners before interoperability can be achieved. Hence, the capacities of the stakeholders should be considered when implementing a policy in the healthcare industry to assess the feasibility of implementation.

Fourth, possessing resources forms a political barrier in exerting stakeholders’ power and their probability to participate. Attaining a broad representation of the healthcare industry can hence be jeopardized. The costs for allocating staff to be part of an implementation group may be high for smaller stakeholders with fewer resources available. When the capacities of weak, supportive stakeholders are increased, they will become stronger supporters. Consequently, policymakers could consider ways to increase the capacities of weak, supportive stakeholders to strengthen the winning coalition.

Fifth, care providers, healthcare insurers, practitioners, patients, and ICT suppliers explicitly stated their reservations about the policy implementation and proposed plans to advance health data exchange. Implementation of these plans may benefit achieving electronic data exchange and interoperability and thus increase the attractiveness of the policy for stakeholders. Accordingly, policymakers should acknowledge implementing attractive proposals when stakeholders possess the capacity to implement them to gain additional support for the policy.
5.3. Recommendations

In line with the implications, recommendations in the form of an action plan are concluded for each stakeholder, as shown in Table 10. Wegiz is currently still under discussion in the Dutch parliament. Awareness should be created about the policy and its effects on the advancement of health data exchange through, for example, policy documents, news reports, and webinars on the topic of health data exchange to appeal to more stakeholders. By providing resources like financial aid for these stakeholders to be involved in the process, the government can assure a broad representation of the healthcare industry.

Stakeholders in the healthcare industry may continue to represent their interests in implementation groups and exert their influence through the means available. Attractive policy proposals, like aligning standards for health data exchange with existing international standards, should be advanced and considered for implementation. Normalization and standardization institutes may be able to advise and unite the stakeholders on the advancement of these proposals. When policy proposals are more advanced, a concrete estimate of the capacities required can be formulated for involved stakeholders.

Implementers of the systems, being care providers and ICT suppliers, must apply their resources to conform to norms and standards. Likewise, practitioners are required to conform to guidelines and agreements for the registration of patient data. These stakeholders should be supported and incentivized to have the necessary means for implementation. Moreover, ICT suppliers should closely monitor the consequences of the policy implementation on the market forces. The Wegiz legal framework could have implications for systems certification, open standards, or alignment with international standards. These implications could influence whether current suppliers continue to operate or new suppliers enter the Dutch healthcare market. In the end, the best solution could be a compromise. To some extent all stakeholders have to give in to obtain synergies to form an integrated system to advance health data exchange.

5.4. Limitations and further research

The study has analyzed the stakeholder landscape in the Dutch healthcare industry. It shows the advantages of conducting a stakeholder analysis when implementing a complex law involving the diverse interests of stakeholders. However, the study has three limitations that could be addressed in further research. First, the political scope could be seen as a limitation. Implementing the Wegiz legal framework also implies economic and jurisdictional aspects not part of this study, such as patients’ consent to exchange their health data. Second, the study contains little data in relation to the
complexity of the healthcare industry. There might be other means to exert power and policy proposals not included in this study. Third, stakeholder positions, alliances, interests, and power are dynamic and change over time, especially in complex and unstable settings, affecting the current analysis’s strength (Pouloudi et al., 2016; Varvasovszky & Brugha, 2000; Brugha & Varvasovszky, 2000). For that reason, I suggest conducting a longitudinal stakeholder analysis involving alternative scopes and a more extensive representation of the industry to enhance the knowledge of policy implementations in the Dutch healthcare system.
REFERENCES


https://www.government.nl/documents/reports/2019/02/01/dutch-vision-on-data-sharing-between-businesses


https://www.rijksoverheid.nl/documenten/kamerstukken/2021/05/06/beleidsbrief-bij-aanbieding-wetsvoorstel-wegiz


https://doi.org/10.1108/09593849710178225


APPENDICES

APPENDIX 1: INTERVIEW PROTOCOL

Introduction
- Introducing myself, the purpose of the research and interview duration.
- Explain that the outcomes of the interview will solely be used for the purposes of this research and will not be shared with other parties.
- Ask if the respondent agrees with recording the interview so that I can transcribe the answers for analytical purposes.
- Confirm that the outcomes are described and the original recordings will be deleted. Furthermore, confirm that that respondent’s personal information will not be mentioned in the transcriptions and all data will be anonymized.
- Explain that the respondent may stop the interview at any given moment.
- Ask if the respondent has any questions.
- The interview can be started if the respondent agrees with earlier mentioned terms.

Questions about the current state of health data exchange
- Could you please explain what your job entails?
- What is the role of electronically stored health data in your job?
- Is health data shared with other organizations?
  - If yes, which organizations?
  - If yes, how is health data exchanged, are there any standards used for exchanging health data?
  - If not, what is the reason for not exchanging data?
- What has happened during your tenure with regards to the health data exchange (and possibly standardization)?
  - How has this impacted your role and interests?
- Are you aware of Health Data Sharing legislation (Wegiz)?
  - Explain Wegiz and the intention to standardize health data exchange:
    - The Ministry of Health, Welfare and Sport is currently working on a framework Act on Electronic Data Interchange in Healthcare (Wegiz), which will make it compulsory for data to be exchanged electronically between health care providers. The Wegiz provides for the initial exchange of data to at least take place electronically. Secondly, it imposes requirements in terms of language and technology.
  - How would Health Data Sharing legislation impact your current position?
- Why do you think Wegiz is being introduced now and why has this not been done before?

Questions to identify stakeholders according to the principles of Pouloudi et al. (2016)
- With regards to your position in the healthcare industry, would you consider yourself as a separate actor, part of a group or part of a larger collective such as a company or society?
  - Why?
  - If part of a group or collective, are there any other groups you are a member of?
    - If yes, please explain these groups or collectives.
    - If yes, what are the interests of these groups or collectives with regards to health data exchange?
  - For how long have you been in this position or part of this group or collective?
    - Was your position adjusted in this timeframe?
  - Which individuals, groups or collectives have a role or influence in the standardisation of health data exchange?

Questions to address the Policy Implementation Strategy Development Grid of Bryson (2004)
- What is your viewpoint on standardizing health data exchange?
  - Why?
  - What is your opinion on the goal to implement nation-wide norms?
  - Would you say are a supporter or opposer?
  - Who shares or challenges your views?
- What are the interests of the individuals, groups or collective that have a role or influence on the standardization of health data exchange?
  - Why?
  - How do they influence the process?
  - Why would they support or oppose implementation of the policy?
  - Did these roles change during your tenure in your current position?
- What resources would you require to successfully implement the policy?
  - Why?
  - Would you say you possess the capacities that are required to implement the norms and certification schemes?
- What are the main issues with regards to the standardization of health data exchange according to you?
  - Why?
  - Would you consider other individuals, groups or collectives to agree with this view?
    - Who or which groups or collectives and why?
- Could you identify other relevant stakeholders that may be open to an interview?
Why are they considered a stakeholder?
What role do they play?

Closing questions and remarks
- Ask if the respondent has anything to add.
- Thank the respondent for the interview.
- State that the respondent can contact me in case any questions arise about the research (results).