“We need to speed up a little”

Explaining the influence of system thinking on the collaboration between different governmental layers within the energy transition

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Summary

Due to climate change an array of consequences is noticeable over the globe. These consequences of climate change are thermal stress, floods and droughts, runoff, air pollution, allergens, sea level rise, increased occurrence of new infectious diseases, biomass reduction and biodiversity loss (Haines & Patz, 2004; Hoegh-Guldberg et al., 2018). Climate change is a wicked problem, interlinked with sustainability and environmental issues (FitzGibbon & Mensah, 2012). One of these issues is the energy sector, which is one of the biggest emitters in the Netherlands (Hoesung & Fatih, 2020). To combat climate change the Dutch government has agreed upon a 95% reduction of greenhouse gas emissions by 2050. Five different governmental levels in the Netherlands have produced climate vision papers focussed on the sustainable energy transition, to help reduce emissions. In this thesis, multiple theories are used to help gain information if these vision documents contain aspects which can influence the collaboration between the levels. Collaboration is needed to create a sustainable energy transition. Scientifically, this research is relevant because the combination of these theories has not been done yet regarding the collaboration between different governmental layers.

In this research the basic premise is that the impact and scale of climate change necessitate collaboration across many social (including cultural, political and economic) and natural (technological and nature) levels (Sharma & Kearins, 2011). As is stated with multilevel governance this collaboration is not only necessary between different social and natural levels, but also between different governmental layers (Maldonado, Maitland, & Tapia, 2010). Also needed for proper collaboration is an integrated view. Therefore, system thinking is analysed to uncover if and how the many social and natural aspects are present in the vision documents, written by multiple governmental layers, to see whether it influences the collaboration. The data is collected from six vision documents, interviews with ten participants affiliated with the vision documents and literature. To analyse the presence of system thinking and to analyse whether collaborative governance aspects are present, indicating collaboration, a discourse analysis is used.

Findings indicate that system thinking aspects are present in the vision documents. Not all aspects are evenly represented, which could indicate a lack of system thinking. however, the participants stated that the uneven distribution did not influence the collaboration between different governmental layers. Interestingly, there seemed to be discrepancies in certain answers leading to findings that indicate that system thinking could influence collaboration. Answers also indicated that the collaborative relation is complex. Therefore, it is recommended to re-evaluate certain relationships between governmental layers. Also, the discrepancies found need further research to fully understand whether system thinking has influence on collaboration.

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1 INTRODUCTION

Due to climate change an array of consequences is noticeable over the globe. These consequences of climate change are thermal stress, floods and droughts, runoff, air pollution, allergens, sea level rise, increased occurrence of new infectious diseases, biomass reduction and biodiversity loss (Haines & Patz, 2004; Hoegh-Guldberg et al., 2018). These effects are noticeable all around the globe; it effects people's health (McMichael & Haines, 1997), crop production (Aydinalp, Cresser, & Sciences, 2008) and ecosystems (Leemans & Eickhout, 2004). To reduce the negative effects of climate change we must reduce greenhouse gas emissions. Basic premise here is that the impact and scale of climate change necessitate collaboration across many social (including cultural, political and economic) and natural (technological and nature) levels (Sharma & Kearins, 2011).

For the Netherlands it is especially important to change our path and avoid these consequences. Just like other countries, including small island states, it is a country primarily below sea level and therefore extremely vulnerable for the effects of climate change (Botzen & Van Den Bergh, 2008). Facing and dealing with climate change in the Netherlands is therefore also inevitable. Major contributors to climate change in the Netherlands are the energy sector and the Petro-chemical industry sector (which is dependent on the energy sector) (van Ruijven, De Cian, & Wing, 2019): both are still heavily reliant on fossil fuels, both reliant on unsustainable forms of energy consumption, both are hard to decarbonize and both are slow in reducing emissions (IEA, 2020). As is known, the total energy sector accounts for two-thirds of the global greenhouse gas emission (Hoesung & Fatih, 2020). Therefore, the energy sector and more specifically the energy transition in the Netherlands is researched.

To combat climate change the Dutch government has agreed upon a 95% reduction of greenhouse gas emissions by 2050 (Kelfkens, Ruyssenaars, & van der Ree, 2021). Due to decentralization, creating and implementing climate policies has fallen upon smaller governmental levels (en Milieu, 2011). In effect designating provinces and municipalities as crucial actors in the process of decarbonization. A direct consequence of this decentralization is the production climate vision documents by these governmental layers (provinces, regions, and municipalities): what and how can local and regional areas contribute to the goals set in the climate act. These vision documents are a direct basis for policies to be established on. The national government told all layers to make such a vision document which could help the decentralized entities to work together in meeting the overall goals. It should be noted that, although the production of these vision document is compulsory, the implementation is not (Engels, 2021)

The rest of the introduction will provide a problem statement, literature review, societal relevance, scientific relevance, information on the internship and a reading guide for the rest of the thesis.

1.1 PROBLEM STATEMENT

Climate change is a wicked problem, interlinked with sustainability and environmental issues (FitzGibbon & Mensah, 2012). One of these issues is the energy sector, which is one of the biggest emitters in the Netherlands (Hoesung & Fatih, 2020). To create a cleaner energy system the national government of the Netherlands want to transition towards a sustainable energy system. A system is the ensemble of parts that interact with one another to function. However, a system is not the sum of these parts, it is the product of its interactions. If the parts are looked at individually it loses its function (Checkland, 1999). Understanding the possible transition pathways of the energy system requires the integration of new energy technologies, environmental sciences, economics and management (B. Chen, Xiong, Li, Sun, & Yang, 2019). Exploring these pathways requires interdisciplinary knowledge to drive the energy transition. However, the emphasis has been almost solely on $C0_2$ emission reduction. Where land use change, biodiversity and ocean systems are often neglected. Also neglected are social and economic aspects which are coming up as new paradigms to incorporate into the development of new energy frameworks. However, aspects like ethical choice, current and future generations, energy

resource risk, preventing resource use conflict and overall negative impacts on human lives are usually still not discussed. Neither is the incorporation of flexibility in future energy system and resilience in socio-ecological systems incorporated (Child, Koskinen, Linnanen, Breyer, & Reviews, 2018). These all are also important to incorporate to create a sustainable energy transition. The energy transition should not be focussed solely on technologies or studying the isolated components regarded the energy system (Del Granado, Van Nieuwkoop, Kardakos, & Schaffner, 2018). Taking this system approach to address these challenges is gaining increased traction with academics and policymakers alike. The case is made to integrate holistic, integrated, and interdisciplinary thinking that challenges current worldviews. To understand and create the conditions for a sustainable transition to emerge, system thinking is needed (Voulvoulis et al., 2022). System thinking is a field of knowledge which helps understand and change complexity through the analysis of dynamic cause and effect over time (Maani & Cavana, 2007).

Achieving the energy transition not only involves a system approach, but it also involves action taken across governance scales. From municipal authorities to national governments. Often this multi-level nature of energy governance is overlooked. However, embedding this through the energy system is crucial to ensure timely and well-weighted decision (Hofbauer, McDowall, Pye, & Reviews, 2022). To create such a multi-level governance, problems occurring over different levels of government need greater collaboration to respond to issues more adequately and to lift the barriers between levels (Maldonado et al., 2010). So multiple fields of knowledge, governmental layers and policy sectors must collaborate to create a multi-level governance approach (Murray, Haynes, Hudson, & Journal, 2010). In the energy transition the complexity and enormity of the issue also invokes the need for collaboration (Denning, 2009). We should be addressing each level of the concerned system (B. J. E. Chen, Ecology & Environment, 2016; B. J. E. I. Chen, 2015).

To understand collaboration between different governmental layers in the sustainable energy transition, collaborative governance is necessary (Fliervoet, Geerling, Mostert, & Smits, 2016; Van der Heijden, 2014). Collaborative governance is an activity undertaken by multiple actors to shape, regulate and control human behaviour to achieve a collective outcome (Van der Heijden, 2014). It contributes to a more scientific legitimate decision making process (Corburn, 2009) and it can lead to collective thinking and problem solving (Pitt & Congreve, 2017). Therefore, to understand the influence of system thinking on the energy transition, it is best to see its influence on the collaboration within multiple relevant governmental levels. Collaboration and interaction between different entities involved in a transition, show how and if goals can be reached successfully (González-Benito, Muñoz-Gallego, García-Zamora, & Management, 2016) (Ketter, 2015).

However, understanding the influence of system thinking in the reality of collaboration between different governmental levels has yet been scarcely researched and will be the main aim of this master thesis. A system is ever changing so to understand and analyse system thinking and collaborative governance, discourse theory provides insights to analyse both the text and context. It helps us understand that different circumstances (cultural, social etc.) can change the meaning and understanding of what is expressed (Foucault, 1971).

To better understand the processes involved, we will need a better understanding of the context. Who is involved and what framework are they part to understand the systems context? The actors involved in this research are different governmental layers comprised of the municipality of Rotterdam (local level), the Harbour of the city of Rotterdam (local level), the regional energy strategy (RES) region of Rotterdam and The Hague (regional level), the province of South-Holland (provincial level) and the national government of the Netherlands (national level). From the national government the ministries of economic affairs and climate (EZK), of domestic affairs and royal relations (BZK) and of finances are involved in this process. However, the vision document read is from EZK. All layers, including the national government of the Netherlands are part of the energy system and have written a vision document to create this sustainable energy transition.

To do this research the vision documents are analysed, and participants affiliated with the energy vision documents (authors, policy advisors etc.) are interviewed. Different theories and tools of analysis are used in this research. The theories and concepts used are discourse theory, system thinking, collaborative governance, multilevel governance, and transition theory. The methods used are discourse analysis, semi structured interviews, quotation, and literature reviews. Together these will help structure this thesis and answer the main- and sub questions stated in the next section.

1.2 RESEARCH OBJECTIVE AND RESEARCH QUESTIONS

The objective of this research is to enhance our understanding of the effect of system thinking, on the collaboration between different governmental layers; the Rotterdam municipality, Rotterdam Harbour, RES Region Rotterdam the Hague, province South-Holland and the Dutch national government (EZK) regarding the energy transition. To obtain this objective, the following main research question has been formulated:

To what extent and how does the incorporation of system thinking in vision documents, according to involved actors, influence collaboration between government layers in the Netherlands within the energy transition?

To help answer this main research question, the following sub-questions have been formulated:

1. How and to what extent do various aspects of system thinking come to expression in the vision documents of five levels of governance in the Netherlands relevant to the energy transition?
2. How do different actors see the relation between system thinking in the vision documents and collaboration between the five government layers in the Netherlands?

1.3 SCIENTIFIC RELEVANCE

When discussing the sustainable energy transition in the Netherlands, the research has mainly focussed on one sector at a time; be it the technological developments (Gallo et al., 2016; Leach, 1992), reduction of CO_2 (Child et al., 2018) or economic viability (Markard, 2018). However as mentioned by (B. Chen et al., 2019; Child et al., 2018; Del Granado et al., 2018) we should not be focussing on one sector within the energy transition but work towards an integrated view and incorporation of all disciplines involved. System thinking in the context of the energy transition is primarily focussed on seeing the need to transition the current energy system (Verbong & Geels, 2007), and surprisingly, less on the concept of system thinking as an important tool in the total landscape of the global energy transition (Kern & Smith, 2008). Therefore system thinking should be incorporated and seen as an aspect/tool which can help create the sustainable energy transition (Voulvoulis et al., 2022).

Regarding collaborative governance and multilevel governance much research has been done explaining the challenges (Huxham, Vangen, Huxham, Eden, & Theory, 2000; Papadopoulos, 2007) and also regarding the energy system (Betsill & Bulkeley, 2006; Sedlacek, Tötzer, & Lund-Durlacher, 2020). However, they have not been researched within the system thinking approach, creating an integral and multi-level collaborative construct researching the energy transition.

Therefore, in this research I will use discourse analysis to search for system thinking. This will help me see if the integrated and interdisciplinary views necessary for an energy transition are present. Focussing on the collaboration between different governmental levels will help me explore the presence of collaborative governance and multilevel governance, needed for the energy transition. In this way the research contributes to the academic body of knowledge, for these different theories will complement each other.

1.4 SOCIETAL RELEVANCE

The societal relevance of this master thesis is focussed on a larger scale and a smaller scale. On the larger scale, the 'wicked problem' entailing sustainability issues like energy, cannot be solved without collaboration between various levels of government (Denning, 2009; Hofbauer et al., 2022). Therefore, researching what influence system thinking can have on the collaboration is deemed necessary. Proper collaboration and a system approach toward the energy transition is needed to create a sustainable energy transition (Kellogg & Management, 2009). On a smaller scale the interviews could give more general context of the levels of government, giving general insights towards the collaboration between the five levels of governance.

1.5 ROTTERDAM INTERNSHIP

For my internship at the municipality of Rotterdam I was part of a team within the urban development department who were working on the energy transition. This team was composed of people from different clusters and with different expertise. The task at hand was twofold; first, the team, needed to determine all important sectors within Rotterdam municipality including industry, whose change is needed most to reach the goal of 95% emission reduction by 2050. Second, the team needed to attach quantities of how much energy (joule) various parts of the energy sector needed. So, we could calculate the amount of joule needed to be gained from sustainable energy resources. Personally, I was primarily working the second part. I calculated the amount of joule necessary for the present, the year 2030 and the year 2050. These calculations show a less optimistic outcome when it comes to available energy and decrease in emissions in 2050. Rotterdam is one of the few municipalities which is intensively working on these calculations and processes themselves. Most municipalities outsource it.

1.6 READING GUIDE

This thesis consists of five chapters. Following this introduction chapter, chapter two provides a theoretical framework consistent of an explanation of the theories used. Chapter three consists of the methodology which entails the research philosophy, sample, data collection, data analysis and research ethics. Chapter four provides the results and analysis which follow from the applied methodology described. Chapter five formulates recommendations and discusses the position of this thesis within the current literature. The analysis uses different theoretical perspectives, and a reflection of the work shall take place. Finally, chapter six offers the conclusions, where the main and sub questions will be answered.

2 THEORETICAL FRAMEWORK

This chapter provides an overview of the theoretical framework, including the conceptual framework, which are used throughout this thesis. This includes discourse theory, collaborative governance, multilevel governance, system thinking and transition literature. Figure one shows how these theories relate to one another, which is not yet the conceptual framework. The important conclusions taken from this figure for the rest of the thesis, is that transition theory and multilevel governance are not used during the analysis. However, they do provide the academic setting in which the energy transition is present.

The first section of this chapter explains all relevant theories while the second section of this chapter operationalizes the theories and presents the conceptual framework.

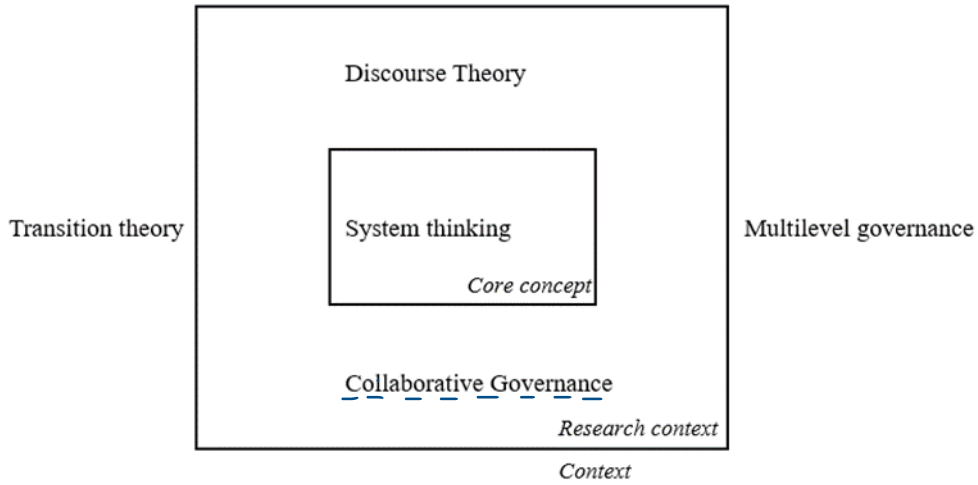

Figure 1 Theories relating toward each other (Bosch, 2022)

2.1 TRANSITION THEORY

Transitions refer to a large-scale transformation within a system, this can be the entirety of society or an important subsystem, in which the structure of society changes fundamentally. This transition is a shift, in a shorter period, from a stable system to a fundamentally different system which is irreversible. The system will then reach an equilibrium. Three main characteristics show whether a change is a transition (Loorbach, Van der Brugge, Taanman, & Management, 2008).

- It involves a large-scale development that influence each other within the technological, economical, ecological, socio-cultural, and institutional realms.
- The process takes at least one generation.
- Interaction takes place between different levels (Loorbach et al., 2008).

Transition theory is grounded within cases and approaches about the behaviour and context of complex adaptive systems. These systems are a set of nonlinear and dynamic systems which have become a major focus in the interdisciplinary research (Lansing, 2003). Many components are involved which adapt or learn when they interact (J. H. J. J. o. s. s. Holland & complexity, 2006). An important understanding within the transition theory is that understanding the dynamics of a complex adaptive system like a societal system, provides new insights for governance. The energy system is defined as one of these complex adaptive systems and to understand the dynamics of this system and the circumstances under which a transition could take place, the system should be understood from an integrated analysis. By

using a multi-level perspective and an integrated view like system thinking, the process can be understood (Loorbach et al., 2008).

2.2 MULTILEVEL GOVERNANCE

Coined by Gary Marks (1992), the term multilevel governance describes a number of institutional and political transformations (Piattoni, 2009). The two parts of this theory, multilevel and governance, both help explain the context in which the energy transition is found. Governance withing multilevel governance encompasses the sum of regulations, programs, policies and decisions brought about by actors whom try to solve public problems through a shared course (Enderlein, Walti, & Zurn, 2010). Public problem references to a public good which is loosely defined as goods and services which the market has as little influence on as possible, which does not exclude certain people and which is preferably non-rivalrous (Morrell, 2009). Energy in this thesis is defined as such a public good. The actors involved generally argue in the name of the common good (energy), which distinguishes it from pure market transactions (Enderlein et al., 2010).

Multi-level entails a continuous give-and-take between different autonomous sovereign entities. These levels are formally independent but in reality interdependent entities which are entangled in a complex relation who keep redefining their relation through negotiations and coordination (Piattoni, 2009). Specifically when environmental and sustainable issues occur (like the energy transition), multiple levels of government come into play and multilevel governance is a necessary theory to help understand the process (Enderlein et al., 2010).

Multilevel governance has also helped reconnect the political science and public policy, the interface on which the energy transition operates, among others. Which is also happening with the relation in the Netherlands regarding the energy transition.

2.3 DISCOURSE THEORY

Discourse knows many definitions (Fairclough & society, 1992; Foucault, 1971; Hajer, Versteeg, & planning, 2005). In this thesis the definition of (Hajer et al., 2005) will be used, stating that 'Discourse is defined as an ensemble of ideas, concepts and categories through which meaning is given to social and physical phenomena, and which is produced and reproduced through an identifiable set of practices.' According to (Fairclough & society, 1992), discourse theory provides insights to analyse both the text and context. It helps us understand that different circumstances (cultural, social etc.) can change the meaning and understanding of what is expressed.

Discourse theory and discourse analysis have received ever-growing interest within the social sciences. It first emerged in the late 1970's as a response to the mainstream theories at the time. Discourse theory did not claim to be a new theory. Instead it was predominantly brought to life as an analytical perspective which focused on meaning and rules of social, political and cultural identity (Howarth & Torfing, 2004). Michel Foucault, the founding father of discourse theory, believes that all practices have discursive aspects and are shaped and vary in time and space (Foucault, 1971). According to Foucault, the truth of actual statements is not interesting; however, the discursive conditions and possibilities are. In his later work Foucault pays more attention to the power relations which form certain discursive formations (Torfing, 2005).

According to Whisnant (2012), discourses operate in three basic ways. First, *Discourse creates a world.* Our world is socially constructed through complex social setting like education system, upbringing, and worldly experiences. Discourses are a chain of language and context formed through these systems and form the system; they play a key role in our construction of reality. Second, *Discourses say something about the people who speak it.* By analysing discourse, a researcher can learn a lot about the speakers' position, opinions or ethnicity, relationship towards people around them or the project they are working on. The user of the written or spoken word is usually not aware of this influence (Whisnant, 2012).

Third, *Discourse and power*. Discourses can be embedded in networks of power. Some discourse enables people to speak a 'truth' which gives them a certain social, cultural, and even political power, like a doctor or a politician. Speaking within this certain 'truth' gives them the authority to take a certain type of action which other people usually follow.

2.4 SYSTEM THINKING

System thinking emerged as a reaction to the reductionist approach of scientific research which was the main approach until the 1950. Reductionism was not able to deal with the complexity inherently present in biological and social domains (M. C. Jackson, 2016). A system is the ensemble of parts that interact with one another to function. However, a system is not the sum of these parts, it is the product of its interactions. If these parts are looked at individually they do not have the same function as they have within the system (Checkland, 1999). System thinking is a field of knowledge to understand and change complexity through the analysis of dynamic cause and effect over time (Maani & Cavana, 2007).

To better understand the importance of system thinking, the following arguments are presented.

First, system thinking puts emphasis on the process as well as the structure. A predefined blueprint of how to design a system is not always the best option. System thinking allows a process to take place which can lead to innovations which were not perceived before embarking on the process (M. C. Jackson, 2016). In other words, creating space for system thinking in the thought process and plans can lead to innovations. Innovations which cannot occur if the plan is rigid throughout the process.

Second, the trans disciplinarity and integrational approach of system thinking. System thinking draws insights and concepts from different disciplines, draws from their strengths and integrates them into new insights and concepts (Cabrera, Colosi, Lobdell, & planning, 2008). There is a need for integrated thinking in addressing problems. Organizations are complex and the relationships between the parts are crucial (M. C. Jackson, 2016).

Third, in comparison to other theories system thinking has a better grip on real-world practice (M. C. J. S. R. Jackson & Research, 2006). In contrast to critical thinking, system thinking is more interdisciplinary (Cabrera et al., 2008) and helps create an environment in which innovation can occur (M. C. Jackson, 2016). In contrast to institutional thinking, where individuals draw upon their institutional commitments to give them correct solutions, lacking the ability to deal with the diversity a human activity system has (Young & Society, 1996), system thinking creates an environment where conflicts of worldviews and values are incorporated into the process (Zexian, Xuhui, & Research, 2010).

To better understand how and to what extent system thinking is present within the written and spoken language, the concept will be analysed including the following principles: these principles can be indicators for system thinking in the text and are therefore analysed linguistically.

First, the universal principal states that an existing problem is always part of a larger force and entails multiple interactions. Second, short- term solutions can have long- term effects. Third, a system is more than what can be measured by certain indicators. So called soft indicators can have major influence on a system like confidence of people, capacity for learning, morale and commitment (Maani & Cavana, 2007). Fourthly, unintended consequences can occur when a solution implemented for an earlier issue, causes new problems (Anderson & Johnson, 1997). Fifthly, cause and effect are often not close in time and space. This causes masked cause- effect relationships which can give a distraught view of the system. Sixth, a symptom is often misinterpreted as a cause. Within the complexity of a system, it is often difficult to see what a cause is and what is merely a symptom, symptoms are therefore often treated as cause which does not solve the problem. Finding this distinction is important. Sixth, complex problems are often seen as either-or choices. You can either do this or that to solve the problem, however there are multiple causes and multiple effects so it should not be an either-or choice (Maani & Cavana, 2007). Seventh, other aspects of system thinking are the ability to identify a multitude of smaller

elements in a system, widening you focus making it more likely to find an effective solution (Anderson & Johnson, 1997). Eighthly, the recognition that complex systems are always open systems and that perceived boundaries of a complex system, like temporal and spatial boundaries, are always disputable. So, the question what needs to be included in a complex system approach and what does not need to be included is always highly relevant. Ninth, the complex system always consists of several subsystems, which often again are complex systems in themselves, which then again consist of again multiple subsystems. Tenth, it is important to identify major and minor influencing and impacting elements in a system. Are people involved in a building process, how are these people involved. Will this influence how and when they do a job? Eleventh, identifying certain patterns so it is easier what is needed to change. And finally certain feedback needs to be identified, how will the process influence things in the future (Evagorou, Korfiatis, Nicolaou, & Constantinou, 2009).

These indicators are a starting point, however as the theory of system thinking itself explains, understanding a system is a process in which constant inquiry is done which can uncover new parts of a system or a whole other system (Zexian et al., 2010). To stay true to system thinking these are the indicators at the start but throughout the process more shall be uncovered.

2.5 COLLABORATIVE GOVERNANCE

Governance is not the same as government. Governance includes the action of the state and includes actors like communities, businesses, and NGO's. It is shaped through nonorganizational institutional mechanisms which means everyone could be included (Lemos, Agrawal, & resources, 2006). To create good governance, interaction and collaboration between these various sections is needed, thus creating collaborative governance (Rothstein, 2012). Collaboration is a relational system in which first, a group compiled of individuals share a mutual goal and are defined within the same conceptual framework. Second, working towards a common goal individuals are characterized by the realisation of their motives toward each other and by caring or having concern for one another (Appley & Winder, 1977). Third, realising that knowledge cannot be reduced to the individual but it is shared, shared views construct of new knowledge (John-Steiner, Weber, & Minnis, 1998). And finally, collaboration can create incentives for better business performance and innovations (Huang-Lachmann & Lovett, 2016). Collaboration is increasingly necessary due to decentralisation to reach the goal of emission reduction by 2050 (Zeppel, 2012). A single governmental layer has limited resources but through proper collaboration financial support, information and power can be present to reach certain goals (Fliervoet et al., 2016). Collaboration can also help to feel shared responsibility for the outcomes of policies and tools developed to reduce environmental problems (Van der Heijden, 2014). To ensure all these previously mentioned benefits, it is important to strive for consensus amongst parties involved in the collaboration (Bodin, 2017).

Integrating the concepts of governance and collaboration, collaborative governance is an activity undertaken by multiple actors to shape, regulate and control human behaviour to achieve a collective outcome (Van der Heijden, 2014). It brings many stakeholders and actors together and aims for consensus oriented decision making (Ansell, Gash, & theory, 2008). The need for collaborative governance is present because our knowledge has become more specialized, and the institutional infrastructures have become more complex and independent. More problems, just like the energy transition, need a diverse pool of knowledge and specializations.

To support the definition by van der Heijden, the following aspects are all distinguishing factors for collaborative governance. These help create a broader understanding of the theory.

- *The discussion is initiated by agencies and actors*.
- *Preferably a Bottom-up approach than a top-down approach.* This has been stimulated by the government because 'Lower' agencies and governments have a better understanding of the local impact and perhaps solutions of environmental problems (Bingham, 2011).

- *Participants include non-state actors (however this differs per definition).* Reading (Ansell et al., 2008) shows the importance of including non-state actors, which according to (Emerson & Nabatchi, 2015) also includes multiparter governance. Multiparter governance entails a partnership between state, private sector, civil society, and community.
- *Consensus is searched for within the governmental levels and their constituents.*
- *The focus of the collaboration lays within public policy*. However, one large differentiation between definitions of collaborative governance lays with the persons or groups involved. Some definitions tend more toward the need for citizen involvement as individuals and other find groups of individuals or organizations (Ansell et al., 2008).
- *Collaborative governance highlights the need for a two way street in communication*; there should be equal opportunity to influence the decision and there needs to be the belief that your opinion impacts the problem (Johnston, Hicks, Nan, Auer, & Theory, 2011).
- *Formal collaboration,* informal collaboration would entail meeting within interest groups or smaller entities not necessarily trying to change any policy.
- *Collaborative governance supposes joint activities, joint structure and shared resources* (Ansell et al., 2008).

Besides understanding a set of distinguishing factors, underlying interacting aspects can also show the presence of collaborative governance. Figure 2 shows how the aspects of collaborative governance influence each other which can lead to collaboration (Ansell et al., 2008). In the following paragraph the interactions will be explained more thoroughly.

- *Power-resource-knowledge asymmetries*. The starting conditions are power-resource-knowledge asymmetries, incentives for and constraints on participation and prehistory of cooperation or conflict. Inequality between different actors or stakeholders may cause them to start on an uneven foot (asymmetries). The collaborative governance process is subsequently prone to manipulation by stronger actors. Some people might for example have less knowledge to go into discussion, others may not have the time or possibilities to go into long term discussions.
- *Incentives to participate*. It is equally important to understand what incentives trigger people to join in collaboration. These incentives can include the expectation that the collaborative process will yield the wanted results. Incentives increase if participants have the feeling their words and actions are taken seriously.
- *Prehistory of antagonism and cooperation.* If there is a history of animosity the future collaboration will be difficult. But if there has been trust and proper collaboration in the past, it is more likely that there will proper collaboration in the future.
- *Other conditions*:
    - *Facilitative leadership*. Proper leadership is needed to steer the stakeholders and bring them together during the collaborative process, especially when things get difficult. Leadership needs to facilitate ground rules, creating equal dialogue and exploring mutual gains.
    - *Institutional design.* Certain basic aspects are necessary for collaboration. Access to the process is a first necessity, a broad spectrum of stakeholders is needed, and alternative groups and collaborations need to seem less attractive than the current one. Transparency and ground rules are also important and setting deadlines can be useful if the time set for the meetings is realistic.
    - *The collaborative process.* Usually, the collaborative process takes place in three broad steps. The first is problem setting/preparation, the second is direction setting/policy development and the third is implementation/decision making. Per step two quite broad terms to show that a process can be quite different in different settings but there are usually important steps to come full circle with a collaboration.

- *Face to face dialogue.* Face to face communication helps with the collaborative process because it helps reduce certain stereotypes and other barriers, it helps for building trust, understanding and commitment.
- *Trust building.* Another important aspect of collaborative governance. It is at the starting point of any good collaboration, if there is no trust achieving progress will be extremely difficult. Trust must be built among stakeholders, or they are at risk of manipulation, but it is a time-consuming process, especially if there had been animosity in the past.
- *Commitment to the process*. Commitments is a vital variable in the collaborative process. Committing to the process means that there is a shared belief that working together in the determined setting will yield the best outcome. There needs to be a belief that you cannot do it alone. And at the end of the process the stakeholders, to a certain point, need to own the outcome and feel that this is best.
- *Shared understanding*. The persons involved in the process need to determine what their shared understanding is so they can set a mutual goal for the collaborative process.
- *Intermediate outcomes*. This entails that seeing small wins during the process can help people believe and be committed more to the process (Ansell et al., 2008).

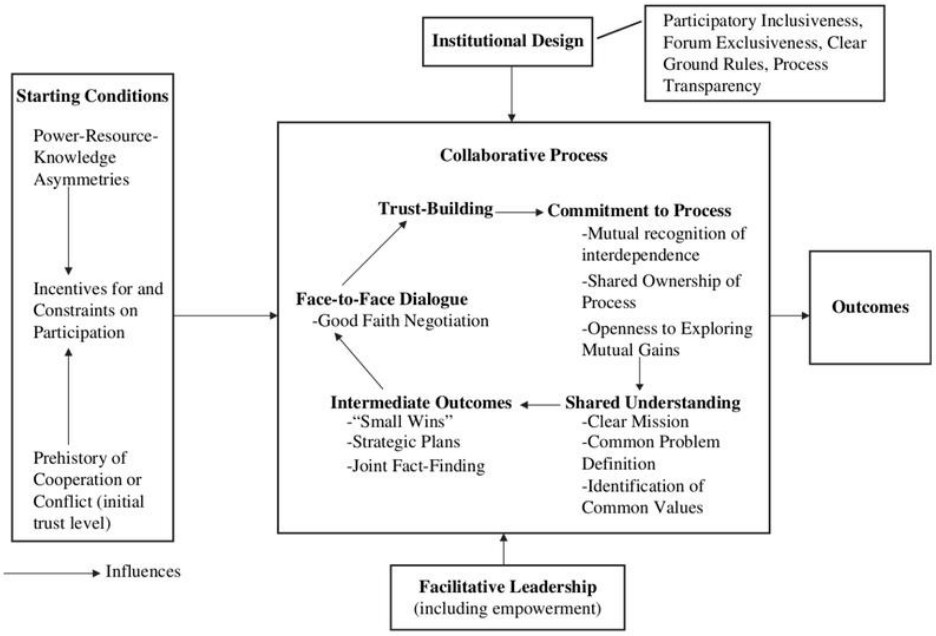

Figure 2 collaborative governance (Ansell et al., 2008); pg. 550)

2.6 CONCEPTUAL FRAMEWORK

In this section the concepts and theories described are operationalized into a conceptual framework and described as shown in figure 3. All theories in a research need to be conceptualized to ensure that the findings can be interpreted (Saunders, Lewis, & Thornhill, 2007). System thinking, discourse theory and collaborative governance are made operational because they can help to analyse the data. Multilevel governance and transition theory are, as explained at the beginning of this chapter, not operationalized because they provide the academic setting in which the energy transition is present. They are not used for the analysis. Therefore, the conceptual framework will exclude the latter two theories.

As introduced in chapter 1, the thesis will answer the following research question: To what extent and how does the incorporation of system thinking in vision documents, according to involved actors, influence collaboration between government layers in the Netherlands within the energy transition?

To help answer this main research question, the following sub-questions have been formulated:

1. How and to what extent do various aspects of system thinking come to expression in the vision documents of five levels of governance in the Netherlands relevant to the energy transition?
2. How do different actors see the relation between system thinking in the vision documents and collaboration between the five government layers in the Netherlands?

Figure 4 shows the conceptual framework. The arrows depict the influence the factors have one another. The numbers show the relevance towards the first and second sub question, for they are both analysed with a different focus. The hooked arrows show a few of the aspects showing system thinking and collaborative governance.

To answer sub question one, I will use discourse theory to help understand that different circumstances (cultural, social etc.) can change the meaning and understanding of how and to what extent system thinking is expressed in both text and context. The text being the vision documents are elaborated on in chapter three. Discourse theory allows me to look through the veil of pure textual analysis towards a more interpretive analysis in which more aspects can be considered. Through discourse theory the aspects which interpret system thinking are divided into two sections. Linguistic aspects and interdisciplinary characteristics. The former is focussed on the linguistics while the latter if focussed more on the context, two sides to the same coin 'system thinking' to help understand the concept from different viewpoints. The aspects are elaborated on in chapter 3.2.1 and depicted in figure 7.

To answer sub question two, I will use the outcomes of sub question one in the interviews. When analysing the interviews discourse theory is used again to help understand the context of system thinking, but it also provides an insight into the presence of collaborative governance. Here discourse theory is used to look through the veil of pure textual analysis towards a more interpretive analysis in which more aspects of collaborative governance can be considered. These aspects are shown elaborately in figure 3. Discourse theory provide the means to analyse the way system thinking is present in the vision documents and collaborative governance provides means to analyse whether system thinking has influence on the collaboration.

Analysing system thinking and collaborative governance through discourse theory allows me to advice the five involved governmental layers on the influence system thinking has on the collaboration. Establishing the influence could increase effectiveness in their collaboration and create a better understanding of system thinking. This conceptual model will help me interpret the data correctly while providing structure to help answer my research questions. The theories provided in this chapter will be analysed through different methods, shown in chapter three. The results are presented in chapter four, whereafter chapter five discusses the outcomes.

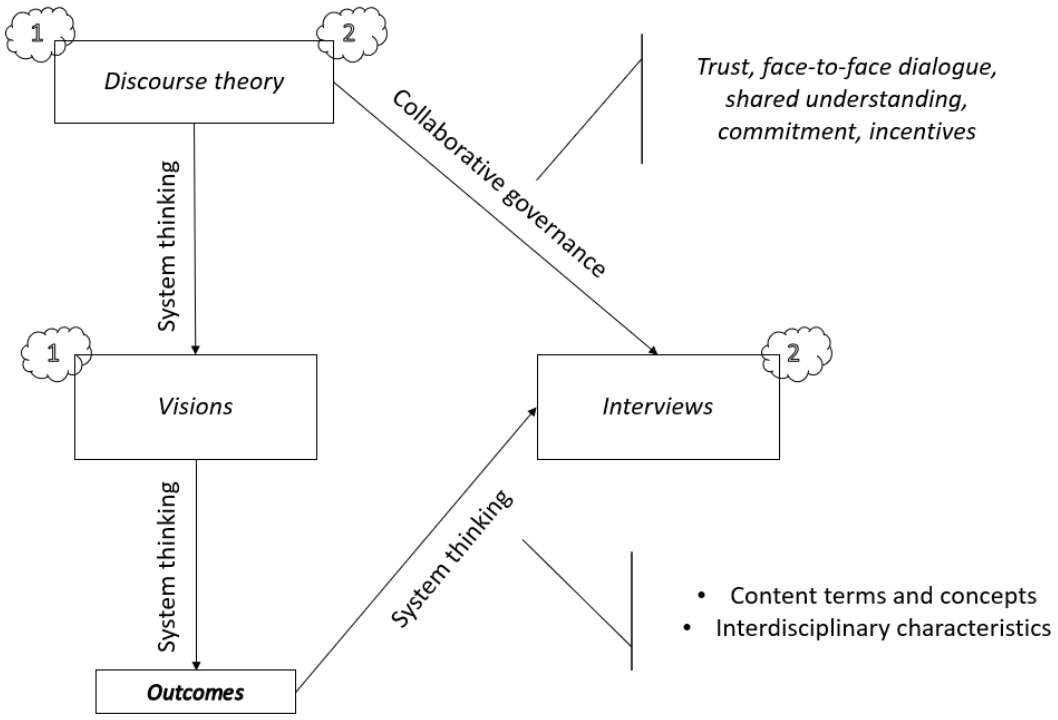

Figure 4 Conceptual framework (Bosch, 2022)

3 METHODS

3.1 RESEARCH PHILOSOPHY

Our own beliefs and assumptions affect the decisions we make in every aspect of our lives, whether we are aware of them or not. Therefore, they are also present when conducting research. These assumptions include ontological, epistemological, and methodological questions. The ontological question focusses on what is 'reality;' to what extent is reality real and what can we know about it? Epistemology indicates the question on knowledge, which knowledge does the researcher deem acceptable and relevant. What is the relationship between the person researching and the information? (Saunders, Lewis, & Thornhill, 2009). Methodology indicated questions on how the researcher approach the problem he or she thinks can be known (Guba & Lincoln, 1994).

Using ontology, epistemology, and methodology together with the table shown below, basic beliefs (metaphysics) of Alternative Inquiry Paradigms by Guba & Lincoln, can help understand the researcher's philosophy better. To state it like Guba & Lincoln: the answers given through this combination are in all cases human constructions.

Item	Positivism	Postpositivism	Critical Theory and Related Ideological Positions	Constructivism
Ontology	Naïve realism – "real" reality but apprehendable	Critical realism – "real" reality but only imperfectly and probabilistically apprehendable	Historical realism – virtual reality shaped by social, political, cultural, economic, ethnic, and gender values; crystalized over time	Relativism – local and specific constructed realities
Epistemology	Dualist/objectivist; findings true	Modified dualist/objectivist; critical tradition/community; findings probably true	Transactional/subjectivist; value-mediated findings	Transactional/subjectivist; created findings
Methodology	Experimental/manipulative; verification of hypotheses; chiefly quantitative methods	Modified experimental/manipulative; critical multiplism; falsification of hypotheses; may include qualitative methods	Dialogic/dialectical	Hermeneutical/dialectical

Figure 5 Basis beliefs (Guba & Lincoln, 1994), pg. 109)

In this research different assumptions are made which influence the research design and methodology as a whole. The main aim of this research is to understand if and how system thinking influences the collaboration between government layers. In this thesis it is assumed that reality is relative to a specific person's perspective. It is formed through different constructed realities which indicates a constructivist ontology. These constructions are not definitely true or false but are altered per place, time, person, and culture. The epistemology would be described as transactional and subjectivist which means the reality between researcher and participants and the surroundings is interactively linked. The values are influenced by each other and created as the research proceeds. Therefore, it is important to study the interaction between people and governmental levels but also take the (more rigid and written down) vision document into account. The methodology is constructivists. Discourse analysis is used to analyse the data. Discourse analysis is used to find hidden meaning of language in text or in the spoken word (Guba & Lincoln, 1994; K. Moon & Blackman, 2014). In the following section the research will be discussed including the various data sources like vision document, interviews, and literature. They are primarily qualitative methods, based on the previous mentioned ontology and epistemology. The methodology consists of a sample explanation, data collection, data analysis and research ethics.

3.2 DESCRIPTION SAMPLE VISION DOCUMENTS AND INTERVIEWS

As shown previously, the research consists of two interlinked analyses. First the vision documents are analysed and with the outcomes from this analysis, the interviews are analysed. Both the vision documents and interviewees are from five governmental layers. The Municipality of Rotterdam, the harbour of Rotterdam, the RES region Rotterdam- the Hague, the province South-Holland, and the national government of the Netherlands (specifically BZK). These specific layers were chosen because first, the energy transition is a national (even international) issue for which the collaboration between only local governmental layers did not seem extensive enough. Second, I worked for the municipality of Rotterdam and the most profound collaborative relationships are between these five layers. And, because these layers are all legitimized in a certain policy area and act within a degree of autonomy and the actors within these levels serve a common good (In this case energy). However, they are also interdependent of each other. Their collaboration is necessary due to the common goal of the climate act which cannot be solved within one level (Enderlein et al., 2010).

3.2.1 Vision documents

For the first part of the analysis six vision documents were analysed.

- Municipality of Rotterdam two vision document were analysed.
  - Rotterdam energysystem vision 80% (Rotterdamse Energiesysteemvisie 80% versie)
  - Clean energy strategy (Schone Energie Strategie)
- Harbour of Rotterdam.
  - Harbour vision (Havenvisie)
- RES region Rotterdam and The Hague.
  - RES 1.0- regional energystrategy Rotterdam the Hague (RES 1.0 – Regionale Energiestrategie Rotterdam Den Haag)
- Province of South-Holland.
  - Clean energy for everyone (Schone energie voor iedereen)
- National government of the Netherlands.
  - Energy report transition to sustainability (Energierapport Transitie naar duurzaam)

These vision documents describe the pathway towards a more sustainable energy system, where GHG emissions are reduced by 95% by 2050. Creating a vision document is mandatory for many governmental levels, however there is no sanction if the activity is not fulfilled. Within these six documents two apparent differences should be noted. First, the vision document of South-Holland has a timeline till 2030, instead of 2050 “because incumbent governmental officials do not want to rule beyond their grave” (Ms, G). Second, for the municipality of Rotterdam two vision documents were chosen because the most recent vision of the municipality of Rotterdam is not finished, which diminishes accuracy (M. D. J. J. o. E. N. Moon, 2019), therefore a second earlier vision was chosen to increase the legitimacy.

The six vision documents were chosen due to their recent, detailed, and inclusive nature which should mean that most aspects regarding the energy transition are mentioned. The oldest document analysed is from 2016, the newest should have been finished in 2021, however it is still in progress. One document consists of ‘just’ 32 pages and another of 207 pages. However, the basis of all the vision document is the same, envisioning a flexible pathway towards a sustainable energy transition while being as inclusive as possible regarding diverse kinds of green energy excluding nuclear energy. Because the focus of the research is to analyse how and to what extent system thinking is present, it is

important to analyse documents which, as a starting point, are from different governmental levels and describe the energy transition as integrated as possible (Enderlein et al., 2010; Loorbach et al., 2008).

As previously mentioned, the governmental layers consist of the harbour of Rotterdam, the municipality of Rotterdam, the RES region Rotterdam- The Hague, the province South- Holland and the national government of the Netherlands. Multiple levels have been chosen due to the cross-boundary nature of the energy transition. The European Union and the UN are also part of this system however the choice has been to stay within the Dutch border due to time constraint, language barriers and to keep a clear overview in the research.

The vision documents are all freely accessible, except for the vision of the municipality of Rotterdam which is not finished yet. However, the vision will become accessible once it is finished. The internship supervisor from the municipality of Rotterdam helped find multiple vision document from the harbour and the municipality, a colleague from BZK (ministry of internal affairs) helped with the national vision document and the other vision document were found through google. The legitimacy of the vision documents was verified with the workers from diverse levels during the interview. All vision documents are written in Dutch and were not translated to avoid loss of meaning and context. Also, my first language is Dutch, so my understanding of the language is more proficient than English. The results and findings, however, will be translated to English, which could give some translation errors but will be minor in comparison.

3.2.2 Interviewees

For the second part of the research a total of twenty people were approached to be interviewed who were found by searching the vision documents for people who have contributed to the document. They all hold a position within one of the governmental levels and work within the energy transition. Of these persons approached, around twelve responded and ten were chosen. Two people were not chosen for this would mean the number of persons per government level would be uneven and could cause a slight overrepresentation of one level. Moreover, time would not permit more interviews. Of the ten persons interviewed eight were male and two were female. In figure 6 a more elaborate scheme is shown of all the participants.

The main method of data collection for part two involved conducting 10 semi-structured interviews (+/- 60 minutes) via zoom in the month of august and beginning of September 2021 in the Netherlands. All interviews were conducted and transcribed in Dutch, even though the thesis is in English. The interviews were not translated because sometimes meaning and context can get lost in translation. A semi-structured approach was chosen because it allows the interviewees to respond more freely and more flexible yet in a controlled setting (Bauer & Gaskell, 2000). The interview differentiated between generic opinions on the collaboration between levels and more specified questions obtained from the vision document analysis.

Before conducting the interviews, the participants were asked to sign a consent form. This form stated that the interviewees agree to participate voluntarily, the interviews are anonymized, and the interview would be recorded and transcribed. The consent form is added in appendix 1.

The participants were identified by non-probability sampling called judgement or purposive sampling and slightly through snowball sampling. The researcher chooses a representative sample to suit the needs of the research and participants with certain characteristics or affiliations were asked. However, two people were found through snowball sampling which entails asking existing subjects to nominate further subjects known to them so the sample size increases with less researchers bias ("Methods of sampling from a population," 2020). Conducting interviews is a primary data source due to the reflective and actual time narrative of the people working and experiencing the researched phenomena (Gioia, Corley, & Hamilton, 2013).

Municipality of Rotterdam	Mr. A, process manager innovation. Working for information management at IIFO, within the strategy and advice department, 7 years.
	Mr. B, Head of the Strategy Department and Team Leader of the Incoming Contribution Team, 5 years.
Harbour of Rotterdam	Mr. C, director new business development. That position has officially existed for a year and a half however the total time is about 12 years.
	Mr. D, the strategy department, officially called Strategy and Analysis, of the Port of Rotterdam Authority. Working for 30 years at the Port Authority and the last 8 years in that strategy position in various business functions
RES- Region the Hague Rotterdam	Mr. E, Alderman with portfolio energy transition, employed for a longer period.
	Mr. F, programme manager RES, 4 years.
Province South- Holland	Ms G, coordinator of the regional energy strategies deployment in South Holland, approximately 3 years.
	Ms H, Employed in the province in an energy team and politically active at municipal level, 6 years.
National government of the Netherlands	Mr. I, program secretary at NP RES since 2020.
	Mr. J, Environmental manager environmental advisor, RVO (National Office for Entrepreneurial Netherlands), energy transition. About 6 years.

Figure 6 List of participants

3.3 DATA ANALYSIS

This study was designed to provide new insights into the influence system thinking has on the collaboration between government layers within the energy sector of the Dutch system. To explore and understand the complexity of this research, discourse analysis was used. The discourse analysis was used on two data sources, vision documents and interviews. Using multiple data sources is necessary in good qualitative research, to gain different insights (Gioia et al., 2013).

3.3.1 Discourse Analysis

In the previous chapter discourse theory is discussed. In this chapter discourse analysis is described. In the next section, the implementation of discourse analysis is described for the vision documents and interviews. Discourse analysis (DA) is an approach to the analysis of language (speech and writing) within their social and cultural context (Gill & sound, 2000). There is no single type of discourse analysis, it can be seen in different styles and in different researches (Gill & sound, 2000). Discourse analysis entails a variety of different approaches to the study of texts. They have developed from different disciplinary locations and traditions. There is not one set discourse analysis, however the shared understanding is that language and therefore text is never neutral (Gill & sound, 2000). For this thesis the approaches described by (Fairclough & society, 1992) and (Wodak, 1990) are fitting. Fairclough 1992 states, among other things, that detailed textual analysis will always strengthen discourse analysis. And Wodak 1990 states, that it is striking and fitting that a discourse can be both linguistic and social in its orientation, which represents this thesis well.

Another important aspect of discourse analysis is keeping context in mind. Context should not be seen as an objective condition but as a subjective construct, this means that people involved in the situation are continuously changing the context with their intercommunication in a group. Discourse is shaped by language, but language is also shaped by discourse; words spoken in a certain setting can be written down and these writings can form the words for a next meeting. The beauty of words and language lays within this dynamic and therefore researching both aspects is important (Paltridge, 2021).

Language is not only in texts but can also be found in photo's, music, architecture, and clothes. Discourses are ideas, ways of talking, views that influence other patterns of language. Many things can

be seen as discourse but in this research the discourse is used to show that context in text matters (Johnstone, 2017). The phenomenon intertextuality describes the connection of these different forms of communication well. Texts can refer to other texts or cite certain words and sentences, therefore these texts share a connection (Paltridge, 2021). Which has happened to form the vision documents and the interviews. Discourse analysis can be used to answer many different questions. These questions can be about linguistic structure, about language change, about meaning, about power relations, inequality, communication, and identity. To see the structure and underlying foundation and surroundings of text. It may also involve the less literal meaning (Johnstone, 2017).

As mentioned, this thesis seeks to understand the influence of system thinking on the collaboration between governmental levels. This is done via a discourse analysis. It is of utmost importance that the meaning, phrasing and contextualization of words is clear for both the writer and the reader (Whisnant, 2012). Discrepancies between what language is used, and what is actually meant and brought into action can lead to a wide scope of problems, adding to the complexity of the issue at hand (Devitt & Sterelny, 1999). Which adds to complexity in communication, causing delay in movement while urgency is felt, and action is needed.

3.3.1.1 Vision documents

In this research, discourse analysis is concerned with showing the discursive environment people inhabit. It tries to identify the discursive construction used by the text and participants of the research. To identify this construction a discursive object needs to be chosen; in this case "System thinking." The analysis can be identified through a multitude of steps. These steps are all laid down using the software of Atlas.Ti. Beginning with the selection of a text, then systematic research for subjects and objects constructed in these texts, followed by an examination how the discourses reproduce certain outcomes (Willig, 2003).

More specifically first, all documents are read multiple times to get a general feeling of the data. Second, the documents are read thoroughly, word by word, to determine a set of codes. The words marked capture key concepts and thoughts of system thinking. Third, the texts are read again while making notes of initial thoughts and impressions for an initial analysis. From this point codes will start to form where multiple earlier determined thoughts can be merged under one code. The codes were all written and thought of in English, so they are easier to describe in the thesis. After carefully determining codes after three vision documents an initial set seems to be made and a new code will emerge when it does not fit into an existing one. After reading all six vision documents a first coding scheme has developed. In this analysis the first coding scheme entails more than 230 codes. These codes are, fourthly, merged into multiple groups because distinct groups of codes were necessary. The group system thinking, consisting of two groups; linguistic aspects and interdisciplinary characteristics. Finally, within the groups categories were formed which were fused into clusters or because categories were split into new cluster. All to ensure the proper code lays within the proper cluster. For the group of linguistic aspects 26 cluster was the final amount and for the interdisciplinary characteristics 11 clusters were finalized. After this process definitions for each code, category, group and cluster were made to be able to report the findings in a concise manner (Hsieh & Shannon, 2005).

To be able to reduce 200 codes into 26 (for linguistic aspects), most of the codes were merged. This is a function within Atlas.ti. The codes were aggregated by merging and then renaming them to a higher abstraction level suiting the new combination. Or codes can be merged when they have the same meaning, within these 200 codes this happened about 20 times. The group interdisciplinary characteristics had 16 codes to begin with, which was then brought down to 11 by merging. After thoroughly going through every code, it was determined no more merging could take place. The level of abstraction per code would become too high (Lindgren, Lundman, & Graneheim, 2020). The two groups with codes are shown in figure 7. All documents have a different number of pages, so to make sure the number of codes found were comparable, the number of codes per document are normalized.

After coding the vision documents two main groups both part of system thinking; linguistic aspects and interdisciplinary characteristics, were analysed. The analysis is presented in chapter 4. However, it is important to elaborate on the difference between the two groups and the necessity to include them both.

System thinking	
Linguistic aspects	**Interdisciplinary Characteristics**
Balance	Economic
Circular	Digital
Common goal	Just
Dependency	Law and regulation
Keeping current	Nature
Local importance	Safety
Potential	Societal
Previous and current situations	Spatial
Realisation impact of choices	Technical
Research and information	Employment
Support	Societal cost
Transparent/communication	
Worldwide	
Adaptive	
Anticipate	
Collaboration	
Complexity	
Efficiency	
Energy mix	
Innovations	
Integral, inclusive & divers	
Long term	
Questioning things	
Realisation change needed	
Resilient	
Seeing options	

Figure 7 Two sides of System thinking

Linguistic aspects are the overall name given to the codes derived from the visions which show different smaller aspects of system thinking. These categories within linguistic aspects show how the language reflects system thinking. It is born specifically from a curiosity towards language and meaning of words. This is a very linguistic approach. The terms themselves are partly derived from Checkland, 1999 and the researchers own understanding of system thinking using the context of the documents. Interdisciplinary characteristics show a different side of system thinking. Which is related to real life policy sectors. In our society we have set up many different sectors because they are all necessary to create a well-balanced and integrated society. So, to address the wicked problem at hand all these policy sectors should be included to realize a proper transition. To question if the vision is more economical, technical, spatial, nature, societal, law, safety, digital and just, is important to establish system thinking. Linguistic aspects help establish system thinking within the document while interdisciplinary characteristics show a slightly more helicopter view of system thinking in the vision documents. It is important to keep in mind that even though the concepts are categorized in two different sets. They both belong to the discourse system thinking. They are two sides of the same coin and should be thought of as such.

All vision documents were analysed using discourse analysis (DA). All vision documents were inserted into the program Atlas.ti which was the tool used for the analysis of all documents.

3.3.1.2 Interviews

The interviews were recorded using the phone of the researcher during the zoom calls and transcribed via Microsoft word 365 online and imported into Atlas.ti. From this point the interviews were first read thoroughly, searching for statements highlighting the answer to the question and statements giving a stronger outlier. After searching these initial statements, quotes were selected. The quotes need to have an intended purpose, certain style, fitting with the theme and clear. In this case the intent of the quotes is to show the conceptualization of a phenomenon through real life experiences of the interviewee. Quotes stand as more personal an individual and real-life evidence. For the intent of these quotes the type of standardized quotations is used, the emotional and distinctive speech patterns used in the preservationist approach are not necessary. However, lightly should be treaded not to simplify a quote too much to a point where the essence is lost (Sandelowski & health, 1994). Using quotes increases the legitimacy because they are bound to a set of guidelines which need to be followed for them to be authentic. The quote needs to be illustrative, the point the author is trying to make with the quote should be clear, it should also be clear how the quote is adding to answering the research question. The quote should be concise and represent patterns in the data. The quote however is preferred to be more explicit and therefore longer, meaning and use of the quote is more important than conciseness. In this thesis it has been chosen to leave out certain filler words in the quotes like ah/uhm/like and words that are sometimes said double are also left out. For the goal of this research these filler words do not take away any of the meaning from the quote. Another valuable point to take into account is that some quotes can be identifiable for the person who said it, and thus possibly cause a breach in anonymity (Lingard, 2019).

These quotes were categorized to keep an overview and so they would be more easily comparable. The categories were divided in two, the first one contained the questions focussing on the results of the vision documents. Whether the interviewees agreed or disagreed if the results found had any influence on the collaboration. The second set of questions were more general about what proper collaboration entails and how the general collaboration between different governmental layers is. These categories were made so they could be cross referenced in code-document tables and co-occurrence tables and analysed. In figure 8 the overall methodology is visualized.

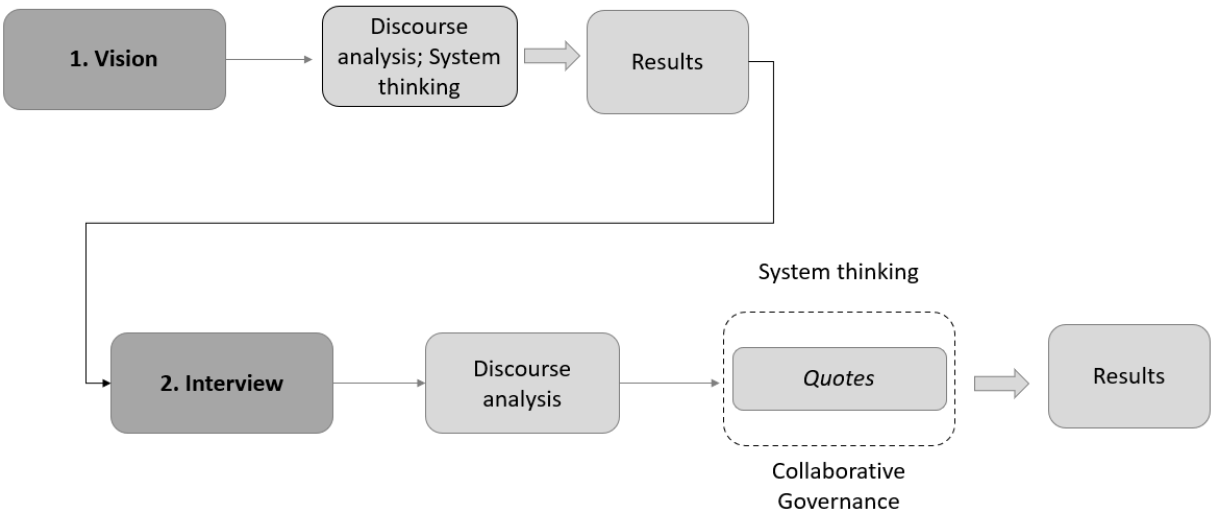

Figure 8 Methodology

3.4 RESEARCH ETHICS

"Thinking about ethics is fundamental to good research design and practice" (Farrimond, 2012). There is not one right way to be ethical, just like our norms and values differ, what one person may find ethical can differ from another. However, six main areas regarding ethical principles can be found as guidelines, which are (Farrimond, 2012):

- *Respect for persons – autonomy*
- *Beneficence – benefits to whom*
- *Nonmaleficence – do no harm*
- *Justice – who takes the risk*
- *Fidelity – honesty, integrity, and trust*
- *Academic freedom*

First, individuals should be able to make the decisions how they are involved in the research and vulnerable subjects in this matter should be protected. In this research individuals are given consent forms with information on what will happen with the interview, how long it will be saved and the insurance they will be anonymised. Also, the persons were told beforehand how long the interview would take, so they could question whether they had this time. And once the interviews were analysed the persons were asked if the description of the person was anonymous enough and if the quotes used were all right (for the people who requested to see the quotes). In this research no vulnerable subjects were identified so no special protection seemed necessary. Second, beneficence is the need to have some type of benefits either it be for the participants or for society. In this case the benefit will be an increase of knowledge where society and the participants will both benefit from. Third, nonmaleficence or the do no harm ethics guideline. It simply yet importantly states that the researcher and research should not actively inflict any harm. However, the balance can be difficult and conflicting with beneficence. In this research the conflict is also present and seen in the level of anonymity, some people wanted too much of their job description taken out which would cripple their legitimacy in his field, therefore, I have asked to keep the description, for the benefit of the research and the same can happen with the quotes. Also, the conclusion of this research cannot be to every participant's liking, but it is an honest

representation from the interpretation of the data. Fourth, justice, one must always consider their participants position and their own position and determine the possibility of uneven power relations. By asking the question if the research would put the risk more with the participants than the researcher. In this research this does not seem to be the case for all persons are not dependent on this research or the researcher in any way. Fifthly, fidelity, where the participants expect the researcher to be honest about the reason and the outcome of the research. This ethical principal has been upheld. Finally, academic freedom should be ensured which entails the guarantee that commercial companies, governments and pressure of the university do not interfere with the research except for guidance (Farrimond, 2012). This is the case in this research.

The above applies primarily to the second part of the research which involved interviews and thus participants. The first part of the research brings less ethical dilemmas, however, there is something that should be mentioned. The vision of Rotterdam, which is not yet finished, has been allowed to take into this research. This needs to be handled with the utmost care and responsibility. Also working for the municipality of Rotterdam can bring about the ethical dilemma of commenting on the vision prematurely and making it more ‘fitting’ to the research.

4 RESULTS AND ANALYSIS

In this chapter, the results of this research are presented. First, the nature of the relationship between the five governmental layers are explained. Secondly, the results of how and to what extent system thinking is present in the vision documents are given. This is based on the six vision documents coded in Atlas.ti. Third, the results of how the different participants see the relation between system thinking in the vision documents and collaboration between government layers are described. Finally, the final conclusions are presented.

4.1 RELATIONS BETWEEN GOVERNMENTAL LAYERS

Before we can understand if system thinking influences the collaborative dynamics, we will first need to understand the individual layers and their relationship better. Certain aspects can and will influence the collaboration, therefore context is needed.

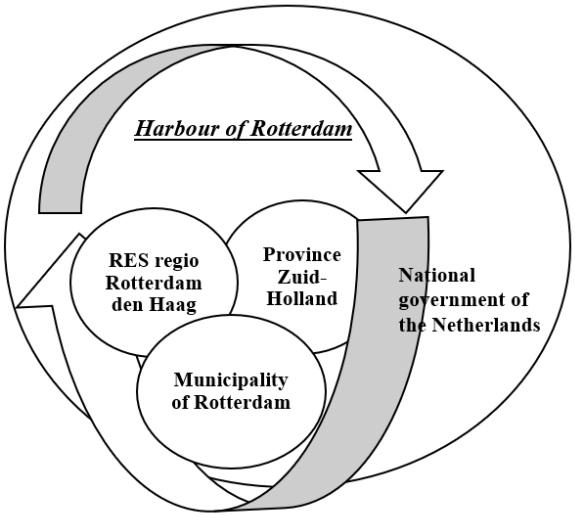

Figure 9 Relations between governmental layers (Bosch, 2021)

In figure 9 the relations between the governmental layers are graphicly depicted. The national government of the Netherlands has final accountability and is therefore the overarching government body. The harbour of Rotterdam is a separate entity; however, it is still under the umbrella of the national government. The municipality of Rotterdam and the province South-Holland are executive governmental authorities. The RES region Rotterdam the Hague is an entity involving representatives of different governmental entities, trying to help the collaborative process.

First, the municipality of Rotterdam. It is the second to first largest municipality in the Netherlands with its 656.050 thousand inhabitants. In the coalition agreement, Rotterdam mentions the energy transition separately where they state that they want to obtain the goal of a 55% CO2 reduction in 2030. They state that more measures need to be taken to reach this goal. The energy transition reaches all sectors in Rotterdam including the harbour. However a distinction is made between the responsibility the harbour, the municipality and the national government have (Rotterdam, 2022).

Second, the harbour of Rotterdam. The harbour has a special relationship towards the other governmental entities, especially with the municipality of Rotterdam and the national government of the Netherlands. The harbour of Rotterdam is a non-listed public limited company (niet beursgenoteerd naamloos vennootschap (NV)), this means the "company" only has shareholders and these shareholders are the municipality of Rotterdam for 70% and the national government of the Netherlands for 30%. The municipality and national government only have power in their function as shareholders which makes it a complicated relationship because the entities themselves also need to collaborate as equals. Getting approval from their shareholders is only necessary when a project exceeds a certain sum of money. Other than that, the harbour is seen and behaves as a very detached entity. Since 2004 the staff contain no more council members or any other type of politicians, only people from the business community. Due to this difference between the harbour of Rotterdam and the municipality of Rotterdam a demarcation line was set years ago and even though they both belong to Rotterdam; in policies they are seen as two different entities as they are in this research.

Third, the RES region Rotterdam the Hague. The RES region Rotterdam- the Hague is made up of 28 parties including the province, water boards and municipalities. Formally this collaborative entity was

founded in 2018. All 28 entities are working together to form shared ambition for a sustainable energy transition, matching with the goals of the climate act. The RES region however is not a set governmental body, they do not exist in that sense. They only exist if people want to collaborate and they do not make laws and regulations like the other entities do, this could give more insecurity (Mr. E and Mr. F).

Fourthly, the province of South-Holland. The province is the most densely populated province in the Netherlands with its 3.5 million inhabitants. The province, like the national government, has steered towards more local initiative. Stating: 'do what can be done locally, only do what must be done provincially' (P. Z. Holland, 2010). The province of South-Holland's focus lays with spatial panning in which they have a reserved spatial policy (Ms H).

Finally, the national government of the Netherlands. The national government has the highest authority and is accountable for the outcome of the goal needed to be reached according to the climate act (government, 2019). However, the national government tried a top-down approach for years which caused a considerable number of problems. Therefore, the choice was made to adopt a bottom-up approach by decentralizing many responsibilities and decisions within the energy transition towards municipalities, provinces, and other governmental entities.

Even though the responsibilities are decentralized, the energy transition; a wicked problem, is not. The energy transition is a national (actually international) problem. Therefore it is necessary that all above mentioned government layers must work together as integrally as possible (Murray et al., 2010).

4.2 RESULTS AND ANALYSIS VISION DOCUMENTS

In this chapter the results of the coding of the vision documents will be presented. The results of the linguistic aspects and of interdisciplinary characteristics will be presented separately. However, they both show how and to what extent system thinking is present in the vision documents.

4.2.1 Linguistic aspects (CTC)

The following table explains the meaning per code group.

Linguistic aspects	
Balance	Describing a need for balance whether about political views at the table, about different interdisciplinary characteristics being involved, about evenly distributed hours per project.
Circular	Re-using any type of older installation or material for new projects.
Common goal	Realising a sustainable energy transition is a common goal for all involved.
Dependency	Realisation the necessity to work together because all entities are somehow dependent on each other.
Keeping current	Talking to new experts, doing new research, realising the world and ideas are changing and these need to be considered to fully understand a system.
Local importance	Some problems need a more bottom-up approach and some a more top-down one, but always keep both local and global importance in mind.
Potential	Seeing potential in certain new energy technologies, social developments and taking this into account.
Previous and current situations	Learn from the past and learn from the now, a system is built up from the past as well and living in a system now. Therefore, they need to be kept in mind. Just like history.
Realisation impact of choices	When a choice is made, unintended consequences can occur. In a system this can develop in a different area than expected.

Research and information	To create new plans information and research needs to be done, as up to date as possible.
Support	If problems occur, or if solutions need to be implemented, support is needed from all angles to do this properly.
Transparent/communication	To understand a system all information and new developments need to be known, transparency and communication is needed for this to occur.
Worldwide	Some problems need a more bottom-up approach and some a more top-down one, but always keep both local and global importance in mind.
Adaptive	As stated, the energy system is a complex adaptive system. Realizing something is adaptive therefore we need to be too, is important to not make too rigid decisions and realize information or consequences can change the system.
Anticipate	Being adaptive when change is imminent is good, but it is also good to anticipate certain changes or developments so adapting is easier when the time comes.
Collaboration	A system is built from many different components and involves many entities, it is vital all realise they are part of a system and collaborate. With one component missing the system cannot be fully understood.
Complexity	As stated, the energy system is a complex adaptive system. This complexity needs to be realised otherwise the system is not seen for what it is.
Efficiency	Shows that thoughts and plans are not only end of pipe means. Plans should also look if energy use can be reduced or saved.
Energy mix	A system can always change; or weather, unintended consequences depletion of resources can happen. An energy mix shows that this is thought of.
Innovations	With new knowledge, innovative technology, and new collaborations the system can be understood even better.
Integral, inclusive & divers	All sectors, humans, views, and animals need to be considered when changing something in a system.
Long term	Change in a transition happens at least over one generation, therefore it is of utmost importance long term visions are thought out
Questioning things	Systems develop and people change, once a decision is made it can be questioned to see if it is the best way for the entire system.
Realisation change needed	Continuing this path is depleting our resources and not taking the entire system into account. Change is needed to reach a sustainable transition throughout the entire system.
Resilient	Questioning the resilience of certain areas when changes are made show regard for the system.
Seeing options	In a complex system there is never just one correct answer.

Figure 10 Descriptions linguistic aspects

After coding all the vision documents 7548 codes related to the CTC group were found. Figure 11 shows the relative amounts per code group per document.

	Havenvisie	Rotterdam	Rotterdams	RES	Zuid-Holland	Nationaal	Totals
Balance	17	35	22	23	17	23	138
Circular	94	106	22	12	57	10	301
Common goal	17	12	15	2	0	0	46
Dependency	7	71	0	23	0	19	120
Keeping current	31	30	46	38	26	46	216
Local importance	10	35	13	35	22	43	158
Potential	0	83	0	6	0	22	111
Previous and current situations	10	59	30	47	39	36	222
Realisation impact of choices	125	94	104	165	78	177	744
Research and information	45	89	20	96	91	43	383
Support	10	12	2	4	52	2	83
Transparent/communication	3	0	15	16	39	15	88
Worldwide	76	12	2	4	4	61	160
Adaptive	45	0	154	30	13	48	290
Anticipate	14	41	54	24	22	41	196
Collaboration	187	47	141	231	266	129	1001
Complexity	17	0	13	4	0	4	39
Efficiency	69	100	147	77	109	74	577
Energie mix	0	18	26	13	9	11	77
Innovations	69	24	15	7	91	96	302
Integral, inclusive & divers	187	148	163	222	170	147	1036
Long term	45	35	41	39	26	65	251
Questioning things	7	18	22	25	13	9	94
Realisation change needed	104	142	115	35	30	65	491
Resilient	35	0	35	16	52	9	147
Seeing options	31	47	41	64	30	63	277
Totals	1258	1258	1258	1258	1258	1258	7548

Figure 11 Relative Linguistic aspects per document

Some code groups were found more often than others like realisation impact of choices, collaboration, integral, inclusive, and diverse. Some aspects were found little like, common goal, complexity, and energy mix. Common goal has limited number of codes allocated to them per document. South-Holland and National government even have zero codes and the RES only two. Common is hardly mentioned by any vision documents, even though common goal is found to be an important aspect of system thinking. Using an energy mix is also mentioned little. Realisation of impact and choices is high for it is a particularly important aspects of making choices, especially future ones where not everything is known yet. Collaboration is mentioned extensively, especially in the vision document of South-Holland, which shows how much is thought of needing collaboration for a complex problem like the energy transition. Collaboration is a main concept of this thesis and the amount it is mentioned just shows how important it is to all entities involved in this transition. For system thinking collaboration is an important aspect, we cannot do it alone we need to work together and exchange knowledge. Integral, inclusive, and diverse is mentioned the highest amount which is not strange when looking for system thinking because taking all views, knowledge from all different people who take something else into account is the heart of system thinking. Relatively speaking the documents of Rotterdam municipality, the left one of the two mentioned in the table and National government vision document have the most evenly distributed aspects of linguistic aspects. This could indicate having a more evenly distributed integrated view, therefore having better all-round system thinking.

4.2.2 Interdisciplinary characteristics

The second aspects of the discourse system thinking looked for in the vision documents are the interdisciplinary characteristics. These characteristics are more easily mirrored to ‘real-life’ sectors

within the energy transition. Many governmental layers have interdisciplinary characteristics which are more focussed on economics, climate, law and regulation, urban development, nature etc. For the energy transition all these sectors need to be involved to have the most integrated view to produce a true transition as mentioned earlier (Del Granado et al., 2018). In figure 12 the interdisciplinary aspects are shown.

	Havenvisie	Rotterdam af	Rotterdam	RES	Zuid-Holland	Nationaal	Totals
Digital	64	26	100	0	0	2	193
Economic	318	97	118	218	343	333	1427
Employment	60	0	0	8	28	6	102
Just	58	35	97	43	49	37	320
Law and regulation	21	9	19	84	28	21	181
Nature	21	9	3	58	49	19	158
Safety	27	0	3	23	0	40	93
Societal	77	44	103	67	49	56	396
Societal cost	2	0	16	11	0	10	39
Spatial	75	115	193	147	154	82	765
Technical	52	441	125	117	77	171	982
Totals	776	776	776	776	776	776	4656

Figure 12 Relative Interdisciplinary characteristics per document

As can be seen in figure 12 the number of interdisciplinary characteristics per document differs substantially. The technical, spatial, and especially economic aspects are represented far more than other interdisciplinary aspects. A spatial viewpoint is incorporated a lot, especially by the province of South-Holland and the municipality of Rotterdam. In the vision document of the municipality of Rotterdam, the technical aspect is mentioned extremely often in comparison to the other vision documents. This is probably because the vision documents is very focussed on new innovations. However, most mentioned are the economic aspects. In our capitalistic society most things are compared to how much they cost. Every change cost a certain amount of money and our society deems it highly necessary to question if the cost is worth it. Hardly mentioned are nature and safety. In almost all documents the economic aspects are mentioned the most. Therefore, it cannot be stated that one document has a more even

4.3 RESULTS AND ANALYSIS INTERVIEWS

In this chapter the results of the interview are presented. For the interviews, the results from the vision documents were questioned. The questions per governmental layer can be found in appendix 2. In general, the interviews can be defined as three sections. First, how do the participants, in general, view the relationship between different governmental layers. Second, do participants think that the differences found in the vision documents influence the collaboration. Finally, what do the participants, in general, think is needed for proper collaboration. The results of these questions will be presented through this same structure. Figure 13, containing the description of the participants and the different layers is again presented here.

Municipality of Rotterdam	Mr. A, process manager innovation. Working for information management at IIFO, within the strategy and advice department, 7 years.
	Mr. B, Head of the Strategy Department and Team Leader of the Incoming Contribution Team, 5 years.
Harbour of Rotterdam	Mr. C, director new business development. That position has officially existed for a year and a half however the total time is about 12 years.
	Mr. D, the strategy department, officially called Strategy and Analysis, of the Port of Rotterdam Authority. Working for 30 years at the Port Authority and the last 8 years in that strategy position in various business functions
RES- Region the Hague Rotterdam	Mr. E, Alderman with portfolio energy transition, employed for a longer period.
	Mr. F, programme manager RES, 4 years.

Province South- Holland	Ms G, coordinator of the regional energy strategies deployment in South Holland, approximately 3 years.
	Ms H, Employed in the province in an energy team and politically active at municipal level, 6 years.
National government of the Netherlands	Mr. I, program secretary at NP RES since 2020.
	Mr. J, Environmental manager environmental advisor, RVO (National Office for Entrepreneurial Netherlands), energy transition. About 6 years.

Figure 13 participants' interview

4.3.1 Part one

	Municipality-RES region	Municipality - Rijk	Municipality -South-Holland	Harbour-RES Regio.	Harbour – National government	Harbour - South-Holland	Harbour - Municipality	RES region-National government	RES region-South-Holland	South-Holland-National government
Question one	23	11	19	19	30	24	35	16	21	14

Figure 14 Amount of Quotes question one

The general question on collaboration between governmental layers is asked to create a baseline, this is needed because a baseline is the core work for prospective and follow-up studies (Tsugane & Sobue, 2001). The answers given to question one, and all remarks about the general collaboration were coded into quotes as to not lose any context. With a code co-occurrence table, the answers to question one are cross referenced with the different layers mentioned and then analysed. In figure 14 the number of quotes given about the general collaboration between different governmental layers are presented. Below results of the answers given by the participants about the general collaboration are presented.

Municipality of Rotterdam – RES region Rotterdam the Hague

Mr B. states that some drivers within the municipality do not think they have to relate to the region to accomplish their goals. The question about legitimacy of the collaboration is also raised by Mr b. because the outcome of a RES is not something a council member has to follow. Also, Mr B. is unsure if the word collaboration is applicable to this situation. Because the municipality is paid by the national government to take this region into account. Mr A. is especially concerned with the amount of people involved in this collaboration that the responsibility is not clear. This can create lack of collaborative movement and thus results. It must be clear who has what responsibility and what resources are available.

Mr C. says that the municipality is one of 28 entities they collaborate with. The RES region however has no authority, so they are dependent of all 28 entities' willingness to reach any goal. The municipality of Rotterdam has set an ambitious goal which overlaps perfectly with the ambitions of the RES, which makes collaboration quite good. However, because Rotterdam has a lot of their own knowledge and expertise and are more likely to take the lead. This can cause friction with smaller municipalities because Rotterdam has the capacity to go through with their plans, leaving the smaller municipalities 'behind.' Mr D. agrees with Mr C. He did emphasise a lot on the equality they strive toward in the RES region between all 28 entities. However, Rotterdam can take the lead more easily due to their knowledge and informal lines with other governmental layers.

Municipality of Rotterdam – Zuid-Holland

Ms G states that in terms of energy, there is a lesser degree of cooperation, but it is reasonable regarding the heat dossier. Rotterdam is busy with solar panels but for this the collaboration is not necessary, because Rotterdam can use subsidies to organise it themselves.

Ms H states that the province cooperates well with the municipality. But there is little continuity in officials, which makes it more difficult. And the municipality can do it all itself, they are a large entity with many resources. This does cause the province to let the municipality go a bit more, even though Ms H. thinks the province could be more critical. The province does feel the urgency to collaborate and wants to do something for the energy transition.

Mr A. says that the province finds Rotterdam annoying, and the municipality finds the province annoying, which has to do with earlier political discussions about the design of the city-province. Both the municipality and province are slightly scared to step outside the lines of their own policy-related boxes. But they get along well on the subject infrastructural responsibilities and the accompanying digital aspects.

Mr B. states that the province has about twenty fewer people than Rotterdam, so they are a more framework-driven than executive entity, which makes them unequal organisations. This influences the collaboration because the municipality usually just reflects on decisions. The province will only use instruments that are good for the entire territory and not individual projects, they will always look internally at the provincial interest.

Municipality of Rotterdam – National government the Netherlands

Mr A. states the system used to be that the national government came up with things and they went to the executive authorities. But that has completely run aground. Now the national government comes to the municipality to ask what is happening on the 'lower' levels. And the national government has created space for other layers to experiment more with ideas. Mr B. can only elaborate on more specific relations with BZK is more open and substantive and is preparing to involve the municipality. EZK (economic affairs and climate) is quite different; they are a coordinating ministry and do not really need the municipality.

Mr I. did not know anything about the relation between the municipality and the national government. Mr J. says that the relationship is not difficult on a personal level, however on a governmental level it is. This is because the layers are very independent of each other. He even stated that if the municipality does not think we can offer them anything, then we should all just go on with the tasks at hand. Rotterdam has a powerful lobby and do not need the state as a knowledge partner.

The harbour of Rotterdam – Municipality of Rotterdam

Mr A. says the relation is slightly complicated because the harbour used to be a part of the municipality. And now the municipality is the sole shareholder of the harbour. Daily this means that the shareholder (municipality) wants the company (harbour) to make money. Especially the urban development sector in the municipality finds this difficult because the lines are blurred, both geographical and responsibility wise. Which part is governmental and which part is business? There is an imbalance in the collaboration. They do try to collaborate, but they also speak quite different languages. Mr B. corroborates this by saying that the harbour has its own assignment, which they try to achieve on their own terms. Due to the municipality's role, they are not able to comment on the contents of the plan by the harbour, they can only share information. The created situation enables the municipality to have their own initiative, but they cannot influence the harbours choices. However. Mr B. does imply that the municipality is quite content giving the harbour this responsibility and seeing what the outcome is.

Mr C. states the collaboration went quite well, however some points were difficult. This is mostly because the responsibility can be quite unclear; who pays for what? Due to these issues, and the large amount of people involved, collaboration can take a lot of time. Mr D. says the collaboration primarily started in 2008 when they started working on a large project together. Which is special because they became a business in 2004, with the municipality (70%) and the national government (30%) shareholders. The harbour is a partner of their shareholders, but they have their own responsibilities,

their own sector. So, collaboration is fine, but it is a shareholders business relationship. There is no structural collaboration, but they know where to find each other.

The harbour of Rotterdam – RES region Rotterdam the Hague

According to Mr C. there is not a lot of collaboration because the size of the task is not equal. The energy system of the port is many times larger than that of the region. But of course, they coordinate and look at each other. And if the region says they need so much heat, then the harbour tries to come up with a project. The harbour is fine with the small amount of collaboration present. Mr D. corroborates this by saying that the priorities of the RES do not play a part in the choices of the harbour. He thinks it is better to keep the harbour and the RES separate.

Mr F. says the harbour and the RES are two separate entities. They are within the geographical sphere but have not been included in the RES. This is because the harbour deals with vastly different players, international players. But the RES does need the harbour sometimes to share information and share deadlines. Mr E. agrees that the harbour has a different position. They found it too complicated to involve the harbour in the RES, and the harbour already had its own plans. The people from the port have been involved officially, so they are informed and know what you can ask and expect from each other. The RES region does not need more collaboration because we know too little about the port. The harbour does everything themselves and we can use the information they give us.

The harbour of Rotterdam – South-Holland

Mr C. says the relationship between the harbour and the province is complex. He feels they should only work together if the province can bring something to the table, like resources and information. The province is responsible for spatial planning, so they could add something there. However, policy developments are developed with the municipality and the national government, so the province is less useful. The province want involvement in the heat transition, so there is more collaboration there. Mr D. corroborates that the province and harbour have more collaboration in the heat transition and the province finds the hydrogen transition important like the harbour, which helps the collaboration.

Ms G. thinks there is proper collaboration between the harbour and the province. The province sees the economic importance of the harbour and she says that this underlines the importance of helping the harbour reach their goals. Ms H. says the cooperation is quite sectoral. The relationship is complicated because the harbour is a market party, even though they are a 100% state owned. The economic interests are massive which makes the harbour an important partner, but the province is left out of most decisions. However, the province does not know enough about the technical aspect to really get involved. Another aspect which makes the relationship complicated is the focus of both parties. The provinces' focus is on reducing emissions while the harbour invokes economic growth. These are diametrically opposed which makes collaboration difficult. The harbour also gets a preferential position because of their economic importance, which makes being critical difficult.

The harbour of Rotterdam – National government the Netherlands

Mr C. says the relationship between the harbour and the national government is intensive. Partly because the government (Ministry of Financial Affairs) is also a main stakeholder. The harbour also works closely with the Ministry of EZK and INW (infrastructure and water). The harbour and the national government have similar focus which makes it logical and necessary to work together. There are some downsides in the collaboration. The harbour needs a lot of money to become the hydrogen hub which the national government wants them to become. However, the funds to do so are not given which causes constraints on the relation. Also, because time pressure the harbour has, does not seem to be noticed by the national government. Mr D. says the collaboration is not always there. Their relationship is more economically driven, and the harbour tries to advise the national government and hopes the national

government takes it. But because the national government is a stakeholder for the harbour, the relationship is fragile. The national government is scared to be accused of state aid towards the harbour.

Mr I. says the relationship is primarily economical. He does not have a lot of extra information in this subject. Mr J. says the harbour has direct lines with the national government which makes their relationship easier. He says that the harbour realises how important they are which makes them a very separate entity, also by choice.

RES region Rotterdam the Hague – South-Holland

Mr F. tells me the collaboration is quite like the collaboration with the municipality. The province is also quite independent and have a lot of influence. The province has started to sit at the table in a different way. And there is a lot of will on the part of the province. But they are less used to acting as equals in these kinds of processes. In the past, the province would have said: you can say that, but the provincial councils say that we are just going to do it this way. Now it is much less so, they do want to give it a go and they're handling it well. Mr E. says on a personal level, cooperation is going well. Only the systems sometimes clash. The province must deal with several RESs and that creates two potential conflicts: how do those RESs relate to each other, how does the province view them?

Ms G. thinks the collaboration is good, but it did have a few kinks. The province has a strictly restrained spatial policy and this has caused tension between the province and various districts, although in Rotterdam and The Hague it was not so bad. We can talk to each other, but that cautious policy does create some tension. Ms H. says the collaboration is a bit of a hybrid partnership. The province is the competent authority for wind farms and solar parks but also wanted to act as a partner in the RES. The province wants to help find a solution, but it is also the one that is going to test it, so it is administratively complicated. But there is a common enemy now, which makes cooperation easier. The province has main spatial authority and exceeds the RES if they want to. The province finds heat demand important and therefore they like to cooperate with the RES. So, the collaboration sems to be more the choice of South-Holland.

RES region Rotterdam the Hague – National government the Netherlands

Mr E. says the RES came to existence by going to the national government and asked if more local government could help with some big themes. The national government agreed reluctantly but surprisingly enough the RES seems to create good outcomes. However, the RES region cannot create certain opportunities without the national government as back-up. But this is something the national government is hesitant to do because they do not want to repeat the mistakes of the past by creating a top-down approach. This lack of back-up causes friction between the RES and the national government. Mr F. says the national government is not present enough. The government is an important player, but it is difficult if it does not listen. There is a lot of shouting but not prioritising, "maybe we can do something later on?" (Mr F.) and that makes it harder to get other governments to move until the government says it must. On a personal note, there are officials who are interested and get involved in discussions. The Ministry of Economic Affairs has been asked to join many times, but it never comes.

Mr I. says the collaboration is very good. They have proper collaboration with the RES coordinator. But he cannot state any more specific examples. Mr J. thinks the RES region and the national government have made some good headway together. He believes that there is a collective problem and people in this collaboration are working on in together.

Zuid-Holland – National government the Netherlands

Ms G. says the national government has presented itself with caution to prevent causing a top-down approach. The national government has facilitated other governmental layers economically. Before the collaboration began this was the approach of the national government so according to Ms G. de collaboration went well. However, in hindsight the national government could have directed a bit more.

Ms H. says the national government is difficult to reach. She says all governmental layers would like some more direction from the national government but they do not adhere to this request. And she says that within the national government the structure is very sectoral, there is not a lot of collaboration within the national government which makes collaboration between layers more difficult.

Mr I. says they do not really have a collaboration with the province. But they do have a collaboration with the IPO, which is all provinces together. He says they wanted a new kind of collaboration where the municipality, province and national government are equal. That plans are made together and not judged in hindsight. So, the province needed to adopt to a different role which they found difficult and there have been some issues. The province, instead of collaborating equally, said that they would yet again see what the outcomes are. Mr J. says the province, like the municipality, is a large layer with a lot of in-house people. Which makes them more individualistic. But the relations are okay with the already existing policy.

4.3.2 Part two

The second part of the interview focussed on questioning the results found in the vision document. Did the participants think the differences or similarities would influence collaboration? For this analysis, the interviews were coded with quotes. The participants were asked specifically about the difference and similarities about system thinking in the vision documents which stood out. Questioning all aspects separately would take up too much time. The specific aspects questioned of the interdisciplinary characteristics were digital, societal (also societal cost), economics, employment, nature, technical and spatial. These are most of the interdisciplinary characteristics because there was more difference between them, it was more understandable to answer for the participants and it gave a better general insight in system thinking differences. The aspects questioned of the linguistic aspects were efficiency and integral. Below the answers given by the participants are summarized per aspect.

First the linguistic aspects are described per aspect. These aspects did have little traction with the participants.

Efficiency: Mr E. says that there is no difference in reality between the municipality and the RES regions view on efficiency. Mr A. explicitly told me that I was almost naïve in thinking that the written documents had anything to do with reality. This answer implies that he does not think a difference in mentioning efficiency has any impact on collaboration.

Integral: Ms H. says it is logical the municipality is more focussed on being integral, because the province used to be an invisible layer. However, she does see that there is a difference, however she cannot say if this influences collaboration. Mr F. says he thinks it is just as important for the municipality as it is for the RES region. Indicating that he does not notice this connection either. Mr E. thinks the RES region could be a bit further along with incorporating integral thinking. But he does not corroborate that this difference influences the collaboration. Finally, Mr I. says that he does see that some layers have less integral thinking than other layers. He has heard that you shouldn't include too many sectors because then nothing will happen. But he does not say if it influences the collaboration.

Next the answers of the participants on the interdisciplinary aspects are presented.

Digital: Mr C says the harbour thinks not talking about digital is a missed change for the RES region and for the province. But does not explicitly say it influences the collaboration. Mr C. does say they are trying to get the municipality to incorporate digitalisation more which implies that they do not. Mr B. says the municipality was quite quick in implementing the need for digitalisation and that the other players (especially the region and province) have only recently joined the game. This means that the agenda has only recently become joint. Which makes it difficult to say anything about collaboration. Ms H. says that it seems more plausible that the governmental layers mentioning digitalisation more have the same writers than that they discuss digitalisation more in practice. So, she does not believe that the text is representative of real-life collaboration. Mr F. does not feel it is needed to mention digitalisation

in the RES at this point. He does not say anything about collaboration. Mr A. says the mention of digitalisation looks good on paper but when you look at the real-life processes, there is not even a test rig for some of the ideas mentioned. So again, the written word is something better than reality. Therefore, het cannot answer the question if it influences the collaboration. Ms G. thinks digitalisation is as important in the province as in any other layer; however, she does not think there are any conversations about this. Mr J. does not think there is any conflict in reality because of the differences. Mr D. does not understand why the RES region does not mention digitalisation, but he does not think there is any influence on collaboration. Mr I. does not think it shall influence the collaboration because he thinks both the municipality and the national government are taking digitalisation into account even though it is not mentioned.

Societal: Mr c. states the harbour does cost-benefit analysis and the societal aspects are mentioned here but they do not talk about energy poverty. When asked about the collaboration the answer was: "let's leave it at that observation (Mr C.)."

Economic: Mr B. says the differences in economic aspects between the municipality and province do not influence the collaboration; the collaboration is good. Mr F. says that the RES region does not notice anything in the collaboration with the province. Between the RES region and the national government there is a difference in the vision documents and Mr F. does think it can influence the collaboration. Mr J. thinks the harbour and the national government both have a focus on economical aspect, and they work fine together. But he thinks the municipality finds economical aspects just as important. Indicating that he does not notice it in the collaboration. Mr D. thinks the economic aspects are just as important in the harbour as the municipality because the municipality depends on the harbour. So, they do not notice differences in the collaboration. Mr D. does think the relative same number of economic aspects in the harbour and province could influence the collaboration because they both find is equally important. Also, the harbour and the municipality economy as mutual aspect which is relevant. It is presumed that the collaboration is good due to their mutual interest.

Employment: Ms G. says she does not think a difference between them, and the RES region would influence collaboration, the cause effect relation is not clear enough to state this. Mr C. says the difference in employment mentioning might have influence between them and the municipality, but he thinks the municipality finds this important in 'real life,' so he does not see any real problems.

Nature: Nature is one of the least mentioned interdisciplinary characteristics and therefore seems to be the least important one. this made it interesting to ask the participants about. When asked if it would cause friction between different layers. Mr B responded: "it is not a priority, if there are two options where one causes economic growth, but the bats die or the bats live and there is economical degradation, the question does not even have to answered. "Nature does not carry the same weight as other aspects, but it does have sympathy. So, if there is room, we will take it into consideration." Ms H. says the province is more responsible for nature and it is not the harbours task, this aspect is very sectoral. So, it will not influence collaboration because there is no collaboration. Mr F. says that difference between the RES region and the province could cause trouble. Because taking nature into account can have influence on spatial planning, which is the focus of the province. He also says the municipality and the RES do not have hugely different opinions in 'real life' collaboration situation. Mr C. thinks difference could give friction, but he has not seen it. Ms G. says nature is one of the main focusses of the province, so this explains why they mention it more, but other levels also find it important, especially between municipality and province. So, she does not notice a difference in collaboration. Mr E. does not think a difference is nature aspects influences the collaboration. Mr D and Mr J say that both the harbour as the national government claim that even though nature is not mentioned in the vision documents, it is an important aspect for both and does not cause friction. According to Mr I. the national government requirements need to be met, therefore it is mentioned less and does not influence the collaboration.

Technical: Mr B. does not think the difference in technical aspects will influence the collaboration between them and the harbour. Ms H. thinks the differences between them and the national government show that these levels have different tasks, this will therefore not influence the collaboration. Mr D. does not think a difference between the harbour and municipality will influence the collaboration because they agree with one another.

Spatial: Ms H states that spatial planning by law falls in with the province, they try to do things other governmental levels do not do. But no answer is given on the influence on collaboration. Mr D. says the difference between the harbour and the RES region are not that big, so no real influence is expected in the collaboration. According to Mr I. a difference between the province and the national government, could influencing collaboration. However, the national government finds spatial aspects very important, so this so-called difference does not influence the collaboration.

4.3.3 Part three

This last section was integrated into the interviews later than the previous two parts. This part was added because there seemed to be some discrepancies in the answers the participants gave. On the one hand most participants agreed that collaboration between different governmental layers was usually quite complex. The collaboration is more information based than collaborative. But when the question was asked if the aspects showing system thinking could have any influence on collaboration, most participant stated that it did not influence the collaboration. In fact, even though the vision documents showed significant differences, reality, according to the participants was vastly different. Here they were mostly in sync with one another. So, then the question arose: 'what according to the participants would influence collaboration?' The answers given by the participants were analysed and presented as quotes. In figure 15 the number of quotes on this question per governmental layer is given.

	Gemeente-RES regio	Gemeente-Rijk	Gemeente-Zuid-Holland	Haven-RES Regio	Haven-Rijk	Haven-Zuid-Holland	Haven-Gemeente	RES regio-Rijk	RES regio-Zuid-Holland	Zuid-Holland-Rijk
General	2	2	7	1	2	3	2	2	6	6

Figure 15 Number of quotes general influence collaboration

To understand whether the answers given by the participants could lead to collaboration, the quotes are analysed and compared with aspects from collaborative governance. The answers given by the participants and the comparison to collaborative governance aspects are shown in figure 16.

Statement (quote)	**Frequency**	**Collaborative governance aspects**
Speaking each other's language would increase understanding between parties.	4	shared understanding.
Do not be ashamed of your tasks, show what is important for your level.	1	trust building
Understanding the position your level has in the collaboration.	1	
Show if something is not understood and be present to involve your questions and concerns when the time comes.	3	Collaborative governance highlights the need for a two-way street in communication;

Check whether the focus lays more with one aspect than others.	2	
Be willing to make compromises.	2	Consensus is searched for within the governmental levels and their constituents.
Having a common goal and seeing the need to work together to reach it.	2	shared understanding
Questioning positions: what expertise is there? How large is the entity? What is the quality of the sector?	1	
Subsidies can decide to go a certain way.	3	Collaborative governance supposes joint activities, joint structure, and shared resources
Collaboration is easier when there are less invested parties.	1	
Should be willing to take the extra mile.	1	Commitment to the process
Continuation of personnel can increase ongoing collaboration.	1	trust building
Urgency.	1	shared understanding
Be aware of your own shortcomings and blind spots.	3	
Look for similarities in each other's goals.	2	Consensus is searched for within the governmental levels and their constituents.
Take good care of personnel.	1	trust building
Transparent communication.	1	Institutional design
The national government deciding everything did not work, smaller entities know the situation better.	3	Preferably a Bottom-up approach than a top-down approach.

Figure 16 Statements by participants compared to collaborative governance aspects

Because all participants questioned are working for the government and related to public policy, even though they did not explicitly mention it, the following aspect from collaborative governance is expected to be included. The focus of the collaboration lays within public policy.

Most statements made by the participants can be linked to an aspect within collaborative governance. Which would indicate that the answers given by the participants are indeed aspects which can influence the collaboration.

Something else however, was noticeable in the answers given. Many of the statements also included aspects of system thinking. Like questioning things, transparent/communication, realisation impact of choices, common goals, anticipate, integral and dependency. The statements affiliated with these aspects are underlined. When looking at the system thinking within the vision documents and the interviews there seems to be a gap between what is written and what is said/thought. Throughout the vision

documents system thinking is found more predominately in some documents and less predominantly in others. Due to the theories of system thinking and collaborative governance it would be expected that such differences can influence the collaboration. However, eight out of ten respondents of the organizations who published these vision documents claimed that a difference in the presence of system thinking would not influence collaboration. The slightly unexpected answers given by the respondents prompted another question: 'what, in general, constitutes towards proper collaboration?' When analysing this question, the answers given by the interviewees showed characteristics of system thinking being needed for proper collaboration. This is contradictory to the answers given in part two of the interview. Potential explanations and recommendations on how to see this are given in chapter 6.

5 CONCLUSIONS

In this concluding chapter, the findings of this research are discussed, and the research is concluded. The objective of this research was to enhance our understanding of the effect of system thinking on the collaboration between different governmental layers; Rotterdam municipality, Rotterdam Harbour, Regional energy strategy (RES) Rotterdam Den Haag, province South-Holland and the national government, regarding the energy sector. This objective is reached by using multiple theories/analysis: Discourse theory, multilevel governance, collaborative governance, system thinking, transition theory and discourse analysis. These are all used to help answer the sub and main research questions.

In this chapter the sub questions shall be answered first, after this the main question shall be answered.

1. *How and to what extent do various aspects of system thinking come to expression in the vision documents of five levels of governance in the Netherlands relevant to the energy transition?*

The vision documents were analysed with a discourse analysis. With the help of this analysis two groups were identified which show different sides to system thinking. The first group; linguistic aspects included 26 codes (aspects). This group of codes was formed specifically through linguistic interest. More focussed on specific words and phrases which represent system thinking. The second group; Interdisciplinary characteristics included 11 codes (aspects). This group of codes represented system thinking on a larger scale and was mirrored to real life policy sectors. Analysing these 11 codes helped understand whether certain sectors were more or less prominent, which again shows a level of system thinking. This part concludes how different aspects of system thinking come to expression in the vision document regarding the energy transition of the Netherlands.

The extent to which system thinking is found is shown in figures 17 and 18, previously seen in the results. For linguistic aspects, realisation impact of choices, collaboration and integral, inclusive, and divers are most predominantly present. The least mentioned aspects are common goal and complexity. For interdisciplinary characteristics economic, technical, and spatial were most predominantly present, while the least mentioned aspects are societal cost, safety, and nature.

	Havenvisie	Rotterdam	Rotterdams	RES	Zuid-Holland	Nationaal	Totals
Balance	17	35	22	23	17	23	138
Circular	94	106	22	12	57	10	301
Common goal	17	12	15	2	0	0	46
Dependency	7	71	0	23	0	19	120
Keeping current	31	30	46	38	26	46	216
Local importance	10	35	13	35	22	43	158
Potential	0	83	0	6	0	22	111
Previous and current situations	10	59	30	47	39	36	222
Realisation impact of choices	125	94	104	165	78	177	744
Research and information	45	89	20	96	91	43	383
Support	10	12	2	4	52	2	83
Transparent/communication	3	0	15	16	39	15	88
Worldwide	76	12	2	4	4	61	160
Adaptive	45	0	154	30	13	48	290
Anticipate	14	41	54	24	22	41	196
Collaboration	187	47	141	231	266	129	1001
Complexity	17	0	13	4	0	4	39
Efficiency	69	100	147	77	109	74	577
Energie mix	0	18	26	13	9	11	77
Innovations	69	24	15	7	91	96	302
Integral, inclusive & divers	187	148	163	222	170	147	1036
Long term	45	35	41	39	26	65	251
Questioning things	7	18	22	25	13	9	94
Realisation change needed	104	142	115	35	30	65	491
Resilient	35	0	35	16	52	9	147
Seeing options	31	47	41	64	30	63	277
Totals	1258	1258	1258	1258	1258	1258	7548

Figure 17 Extent to which linguistic aspects are present per vision documents

	Havenvisie	Rotterdam af	Rotterdam	RES	Zuid-Holland	Nationaal	Totals
Digital	64	26	100	0	0	2	193
Economic	318	97	118	218	343	333	1427
Employment	60	0	0	8	28	6	102
Just	58	35	97	43	49	37	320
Law and regulation	21	9	19	84	28	21	181
Nature	21	9	3	58	49	19	158
Safety	27	0	3	23	0	40	93
Societal	77	44	103	67	49	56	396
Societal cost	2	0	16	11	0	10	39
Spatial	75	115	193	147	154	82	765
Technical	52	441	125	117	77	171	982
Totals	776	776	776	776	776	776	4656

Figure 18 Extent to which interdisciplinary characteristics are present per vision document.

2. *How do different actors see the relation between system thinking in the vision documents and collaboration between the five government layers in the Netherlands?*

This question is answered in two-fold. First, participants answered their thoughts on the general collaboration between different governmental layers. Most of the participants stated that in general the collaboration between them and other levels was complex. It seemed that collaboration was sometimes an overstatement, especially the relationships with the harbour can be described more as information exchange than real collaboration. This is mostly since the harbour is seen and behaves as a separate entity, which is probably caused by the harbour becoming a business in 2004. The municipality of Rotterdam also seems to be viewed as an entity which does not need to collaborate with other levels as much as they have so much of their own expertise; they have projects under control, and they have direct

lines with the national government. The RES region Rotterdam the Hague feels the national government is not present enough. The collaboration between the RES region and South-Holland on a personal level is going well. The systems can clash sometimes, which can cause tension, but they do want to collaborate. The National government deems collaboration adequate with the other levels, whereas other levels seem to disagree. Years ago, the national government had a top-down approach in making decisions, which failed. Now, a bottom-up approach is implemented, which can cause other levels to feel slightly left behind, they need support and context.

Second, when asked if the differences in aspects of system thinking found in the document have an influence on the collaboration, most participants say it does not. There were only three participants who mentioned at one point that it could influence collaboration. However, these stated that a similar presence of system thinking aspects would benefit the collaboration positively. Only one person suggested that a difference in the extent in which system thinking is present could influence collaboration. Two participants even stated that it was almost naïve of me to think that the written words in the vision documents, was a reflection on reality. Almost all participants said that in reality (real life collaboration), the different levels usually see eye to eye and don't think that different about all aspects mentioned. This however does not explain why, when asked about the general collaboration, the participants primarily answered that the relationships were complex, and collaboration seems like an overstatement.

Concluding

The main research question of this research was: *To what extent and how does the incorporation of system thinking in vision documents, according to involved actors, influence collaboration between government layers in the Netherlands within the energy transition?*

In the previous chapters, the discourse theory, collaborative governance, multilevel governance, transition theory, system thinking, and discourse analysis have been explained and applied to the vision documents and interviews of different governmental layers of the Netherlands. The results found through vision documents, interviews and literature review have been presented. The research is also reflected one with a discussion, including the limitations. According to the presented results until part three of the interview, the answer to the main research question would be: **it does not**. The extent and how system thinking is present in the vision documents does not influence the collaboration between governmental levels in the energy transition.

However, due to the seemingly contrasting answers given by participants a third line of questioning was added. Asking participants what in general was needed for proper collaboration. The participants answers are analysed to see whether their statements could indeed influence collaboration. The answers given by the participants were analysed by quoting certain statements. In total 18 statements were found (some with a higher or lower frequency) of which 13 could be connected to collaborative governance aspects. This could imply the answers given by the participants lead to collaboration. System thinking aspects were also compared with the statements given by the participants. Of the 18 statements, 9 included aspects found in system thinking. This could imply that system thinking can influence collaboration. Therefore, more research is necessary.

6 REFLECTION AND RECOMMENDATIONS

In this part of the thesis the research will be reflected on, including the theoretical and methodological reflection. The limitations of the research will be discussed and lastly the recommendations will be presented.

6.1 REFLECTION ON THE RESEARCH

In this section the process of the research will be reflected on. Before starting my research, I had quite different expectations of what collaboration between different governmental layers would look like. I thought there would be very clear-cut relations defined and that all governmental layers were inextricably linked and were overseen by the national government of the Netherlands. I did certainly not expect the harbour of Rotterdam to not only be seen as a separate entity but to be split from the municipality of Rotterdam and to be a non-listed public limited company with shareholders. I also expected a more hands on approach by the national government of the Netherlands, however now knowing the problems caused by a top-down approach in the past, a bottom-up approach seems logical. What I did notice quickly during my research was the willingness of the participants to help me by answering my questions. They were all very invested in the energy transition and genuinely wanted to make a change.

Doing my research at the municipality of Rotterdam was interesting. It provided me with an insight into their approach toward the energy transition, it helped me gather information and it helped me understand different concepts better. Being part of the municipality of Rotterdam provided me with the insights to understanding and implementing system thinking. For this Maarten Nypels was especially helpful. Doing the interviews was rewarding, not only because they were forthcoming with their answers. But also, because they helped me understand their reality of collaboration much better. Doing the interviews provided me with valuable communication skills, including active listening. The research process was very enjoyable and applying the theories gave me new insights. The writing process taught me a lot about structuring. The skill sets developed during this thesis will help me with my future career.

6.2 THEORETICAL AND METHODOLOGICAL REFLECTION

The theoretical reflection is based on descriptions made in chapter two. First, system thinking was studied through the aspects described in multiple studies (Evagorou et al., 2009; M. C. Jackson, 2016; Maani & Cavana, 2007). System thinking as explained in chapter 2.4 is a field of knowledge to understand change and complexity through the analysis of dynamic cause and effect over time (Maani & Cavana, 2007). System thinking describes and entails an ensemble of parts that interact with one another to function (Checkland, 1999). System thinking in this research helped understand the complexity of all moving parts necessary to understand such a transition. It helped to state if and how elements were involved which better helped understand if the plans would help understand the wicked problem. However, system thinking has also been criticized for being too subjective and idealistic. That it ignores the objective characteristics of a social system like political power and culture. Others think system thinking cannot deal with social facts like asymmetry of power and conflict. Zhu 2009 says that system thinking lacks an ontological commitment needed as a basis for objective analysis (Zexian & Xuhui, 2010). A few other questions that come to mind when criticizing system thinking: What are the boundaries of a system? How do you know what you are and are not considering properly, what effect can be traced back to what changes in the system? Uncertainty about the possibility to use system thinking was described in the literature as follows; Complex systems are very difficult to comprehend because they are made from multiple interrelated levels that interact in dynamic ways (Assaraf & Orion, 2010). Overall, most critical scholar agree that system thinking lacks objectivity. In this research I have tried to make system thinking more objective by coding through Atlas.ti and rereading the documents on multiple different occasions.

Collaborative governance is, as seen in 2.5 an activity undertaken by multiple actors to shape, regulate and control human behaviour to achieve a collective outcome (Van der Heijden, 2014). The need for collaborative governance has become a necessity because our knowledge has become more specialized and the institutional infrastructures has become more complex and independent (Ansell et al., 2008). However, when searching the literature for criticism on collaborative governance a few authors did offer their thoughts. First (Edwards, Leadbetter, & Leisure, 2016) shared that collaborative governance usually works on larger scale governmental structures, but for smaller entities it can have implementation problems. In this thesis this could be a legitimate critique because collaborative governance aspects are held to the same standards with the municipality as with national government. This should be kept in mind while making the recommendations and formulating a conclusion. One important aspect of collaborative governance which is described plentiful but not incremented well enough, is the inclusion of non-governmental stakeholders. Policy makers try to get these non-governmental stakeholder and civilians involved in the process. But this is not done on a structural bases which could be a point of critique in this thesis and in the vision documents. However, many also mention that too many voices can cause a stand of in collaboration (Pitt & Congreve, 2017).

In this thesis, qualitative methods were applied, including semi-structured interviews and document analysis through coding, and finding quotes. Using qualitative methods to analyse the vision documents allowed me to gain a deeper understanding of the meaning behind the words. However, the lines were more blurred on what was and was not system thinking. For the interviews using qualitative methods also helped me gain an in-depth understanding of the opinions and perspectives of the interviewed people. Time wise it was quite difficult interviewing so many people. I did not realise transcribing the interviews would take as long as it did. During the interviews it was sometimes difficult to keep the participants on track and having them answer the question directly. Especially the more closed questions gave less concise answers. However, having both the document analysis and literature analysis helped me understand the collaborative dynamics better. Using the discourse analysis with system thinking and partly collaborative governance provided a good foundation for this research, even though combining them called for some difficulties. Especially explaining the necessity of also using collaborative governance. But in the end, I do think collaborative governance helped understand and explain collaboration which then again helped to see if system thinking influenced the collaboration.

6.3 LIMITATIONS

First, choosing the Harbour of Rotterdam, the Municipality of Rotterdam, the RES region Rotterdam-Den Haag, the province Zuid-Holland and the national government of the Netherlands can be a limitation in two-fold. First the entire system would and should be used to create a proper energy transition, this would also include the European Union and the United Nations. However, this was not possible due to time restrictions. Second, the researched regions are large and influential in the Netherlands, this could produce a distorted view. Smaller entities with different problems regarding the energy transition could be overlooked. Second, coding was only done by one researcher, and this could cause an unintended bias caused by my research philosophy, beliefs, upbringing etc. It would have been better if multiple researchers had joined in the open coding to create a more objective coding scheme. I tried to avoid this by rereading and even recoding many times on separate occasions. Thirdly, all participants were affiliated with the vision document and already knew a lot about the energy transition, this was a deliberate choice but could also have its limitations. Many of them need to work together which could cause them to answer differently than if they were not to some extent affiliated with each other. Fourthly, one question of the interview was added later. So, the first two participants did not answer it, which could give slightly distorted answers. These limitations were reduced by using triangulation through both coding of documents and doing interviews and research literature. Fifthly, all answers were translated from Dutch to English. This could cause some nuance being lost. Finally, the focus of the research lays with collaboration. It would have been interesting to be present at a few meetings to observe collaboration instead of only hearing from them. This would have been even more time

consuming, and corona did not allow such free roaming the previous years. I was present at multiple meetings in the energy transitions team of Rotterdam, including multiple members from multiple sectors, and learned a lot from these experiences. But no actual interview data was taken from here, only access to one vision of Rotterdam which helped a lot.

6.4 RECOMMENDATIONS

In this last section, I will present general recommendations towards all collaborating governmental layers. In the end I will present some recommendations for further research.

In the vision documents the aspects of system thinking; both linguistic aspects and interdisciplinary characteristics, were not evenly distributed. The end of the analysis showed that there is a possibility that system thinking can influence the collaboration. Therefore, the advice to all governmental layers is to take another look at not only their own vision document but also that of the other layers. See if they can agree with each other's visions because they do have to work together to reach the goal of 2050. And understanding each other is part of having proper collaboration.

If system thinking does influence the collaboration, it would be good for the vision document writers and the people who execute the policy to discuss the definition of system thinking. For proper collaboration shared understanding is necessary which can be accomplished by discussing definitions.

Specifically for the relations between the governmental layers I would recommend taking another look at the current construction set up with the harbour of Rotterdam. The harbour is seen by themselves and most other governmental layers as a separate business entity. The harbour has two shareholders, the municipality or Rotterdam and the national government of the Netherlands: specifically, the ministry of finance. This is said to create a complex situation where the municipality and the national government are treated as shareholders, which means they get informed but cannot necessarily influence the choices of the harbour. Furthermore the harbour is not included in many vision documents because they are seen as a separate entity, even though the harbour is a big emitter (Geerlings, 2019). For collaborative governance and true collaboration there needs to be equality, trust, transparency, two way street communication (Ansell et al., 2008; Johnston et al., 2011). So, I would recommend, at least questioning whether it is good for the collaboration to keep Rotterdam harbour in this position.

For the national government I would recommend re-evaluating their position. According to the participants the old top-down approach did not work. However, the bottom-up approach leaves the other governmental layers without any proper guidance.

Recommendations further research

As seen in the analysis, there were some discrepancies noticeable in the answers given by the participants in the interviews. So, some recommendations on how to limit this in the future are given because the conclusion seems less clear cut because of these discrepancies.

First, the closed questions (about the differences in the extent to which system thinking is present) in the interviews seemed to be where participants struggled the most. This could be caused because the wording is more specific, so the participant realises the impact of their answer better. Realising this impact the participants more likely answer while keeping in mind what their answers would look like toward other entities, which inherently causes a distorted answer (Tannen, 1987). To reduce this effect the researcher could choose to only use open questions. This could reduce the participants realising the impact of their questions. However, it could decrease validity because the results found from the vision documents are not validated by the participants. But I do think it would be a promising idea to try it as open as possible and see what the differences would be.

Second, in the closed question the governmental layers are specifically mentioned and asked about directly. The answers given by participants could be distorted due to previously established (power)

relations. Throughout the research it has become clear that the governmental layers involved have a lot of power and resources. Especially the harbour of Rotterdam is seen by themselves and other entities as self-contained and influential (money and power). The other entities are more interdependent of one another. Power is inevitable in our organizations and plays a key role. It has the potential to influence another's actions and affect outcomes (Tjosvold & Wisse, 2009). This could also partly be prevented by using more open questions.

Other recommendations for future research include the possibility to look at another part of the system. The layers chosen for this thesis are all big players in the field. It would be interesting to see how and to what extent system thinking is found in other, smaller, governmental layers. Where one of the layers is not, like the harbour of Rotterdam, a business with stakeholder. For future research I would also recommend looking at some form of citizen involvement because this is a major aspect in collaborative governance and this part has been missed entirely in the thesis. it could help gain different insights and add an important dimension in the system. Finally, the research was focussed on finding how and to what extent system thinking is present and how this would influence collaboration. However, none of the participants were asked about their definition of system thinking. For future research I would recommend doing so because their definition and their experience could give different outcomes.

Finally, for future research I would also recommend questioning participants from the national government who work either at the ministry of economic affairs and climate (EZK) and someone from the ministry of finances. During the research it became clear that a person connected to one of these ministries would be more legitimate because they are from the national governmental layer with whom the most collaboration takes place in the energy transition.

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8 APPENDIX 1. CONSENT FORM

Toestemmingsformulier: Deelname aan interview

Dit formulier betreft uw deelname aan een interview over samenwerking tussen verschillende overheidslagen, af te nemen door Esmé Bosch in het kader van een masterscriptie waarin onderzoek wordt gedaan naar de invloed van onderliggende beleidssectoren en de incorporatie van systeemdenken op samenwerking. U bent geselecteerd omdat wij geïnteresseerd zijn in uw visie en ervaringen met betrekking tot dit onderwerp.

1. Uw deelname is vrijwillig. U kunt zich op elk moment terugtrekken en uw deelname beëindigen of weigeren een vraag te beantwoorden, zonder dat u daarvoor wordt gestraft. U zult geen (financiële) vergoeding ontvangen voor uw deelname aan dit onderzoek. Resultaten van dit onderzoek kunnen echter op verzoek aan u ter beschikking worden gesteld.
2. Deelname houdt in dat u wordt geïnterviewd door Esmé Bosch van de Radboud Universiteit en dat de volgende onderzoeker(s) ook toegang heeft (hebben) tot de gegevens waar dat nodig is voor onderzoeksdoeleinden: Ingrid Visseren-Hamakers (begeleider).
3. Het interview zal ongeveer 60 minuten duren. Tijdens het interview worden aantekeningen gemaakt, er wordt een geluidsopname van het interview gemaakt en de geluidsopname van het interview wordt getranscribeerd.
4. Om uw privacy te beschermen, zal uw naam niet worden vermeld. Andere mogelijk identificeerbare informatie zal niet worden opgenomen in de transcriptie van de audio-opnamen wanneer deze informatie irrelevant is voor onderzoeksdoeleinden.
5. De onderzoeker zal ervoor zorgen dat u niet identificeerbaar bent in publicaties die volgen op dit interview, door uw naam te veranderen en details die uw identiteit of de identiteit van de mensen over wie u spreekt te verhullen of niet bekend te maken. Vermomde fragmenten uit het interview kunnen in toekomstige publicaties worden geciteerd.
6. U hebt te allen tijde recht op toegang tot de door u verstrekte informatie zolang deze wordt bewaard. Het staat u ook vrij om contact op te nemen met een van de personen die bij het onderzoek betrokken zijn om verdere verduidelijking en informatie te vragen.
7. Dit toestemmingsformulier zal door de onderzoeker die dit interview afneemt worden bewaard zolang er identificeerbare informatie over u in het bestand aanwezig is. De audio-opnames van dit interview zullen door de onderzoeker die het interview uitvoert worden bewaard om ervoor te zorgen dat de waarheidsgetrouwheid van eventuele beweringen op basis van dit interview door een professionele academische instantie kunnen worden geverifieerd, indien nodig. Mocht een dergelijke evaluatie nodig zijn, dan zal contact met u worden opgenomen.
8. Uw toestemming houdt in dat u ten minste 18 jaar oud bent; dat u dit toestemmingsformulier hebt gelezen of aan u hebt laten lezen; dat uw vragen naar uw tevredenheid zijn beantwoord en dat u er vrijwillig mee instemt dat u aan dit onderzoek deelneemt.

Onderzoeker

Ik - als student ingeschreven aan de Masteropleiding Milieu en Maatschappij van de Radboud Universiteit - verplicht mij tot strikte naleving van alle hierboven genoemde punten.

Deelnemer

Als u akkoord gaat, geef dan uw toestemming. Ja, ik geef mijn toestemming

9 APPENDIX 2. INTERVIEW PROTOCOL

INTERVIEW PROTOCOL GEMEENTE ROTTERDAM

NEEM HET GESPREK OP!

Introductie

Beste geïnterviewde,

Allereerst wil ik u bedanken dat u mee wilt doen aan dit interview en daarvoor de tijd vrij heeft gemaakt. Ik wilde u eerst iets over mezelf vertellen en het onderzoek (en de structuur van het interview) en dat u zich daarna voorstelt, deels aan de hand van een paar algemene vragen. Ik ben……Dit onderzoek richt zich op het begrijpen hoe/op welke manier verschillende factoren invloed kunnen hebben op de samenwerking tussen overheidslagen over de energietransitie. Ik wil u vragen om de vragen oprecht te beantwoorden en zo beschrijvend mogelijk te zijn bij het beantwoorden van de vragen. Voelt u zich alstublieft veilig bij het beantwoorden van mijn vragen. Alle interviews worden geanonimiseerd. Heeft u naar aanleiding van deze introductie nog vragen?

Vragen over identiteit (+/- 2 min)

1. Voor welke organisatie werkt u?
2. Wat is uw functie?
    a. *Als niet duidelijk:* wat houdt deze functie precies in?
3. Hoe lang werkt u al in deze functie?

Vragen over samenwerking Gemeente Rotterdam – Haven Rotterdam (+/- 8 min)

1. Zou u mij wat kunnen vertellen over de samenwerking tussen de gemeente Rotterdam en de haven van Rotterdam over de energietransitie?
2. *Stel deze vragen als ze nog niet beantwoord zijn in vraag 1:*
    a. Hoe ervaart u de samenwerking tussen de gemeente Rotterdam en de haven van Rotterdam betreffende de energietransitie? *(positief, negatief, neutraal?)*
    b. Op welke punten gaat de samenwerking goed en waardoor komt dat?
    c. Merkt u problemen met de samenwerking tussen de de gemeente Rotterdam en de haven van Rotterdam betreffende de energietransitie?
        i. Zo ja: wat zijn de grootste struikelblokken bij de samenwerking tussen de gemeente Rotterdam en de haven van Rotterdam betreffende de energietransitie?
3. *Vragen n.a.v. onderzoeksresultaten:*

    d. Digitaal wel veel genoemd in de gemeente en de havenvisie, waardoor komt dit?

    e. In de gemeente wordt werkgelegenheid voor of vanuit de energietransitie niet genoemd. Kan dit invloed hebben op de samenwerking tussen haven en gemeente? (als in de prioriteiten die anders liggen?)

    f. In vergelijking met de havenvisie wordt het belang van technologie betreffende de energietransitie meer genoemd. Kan dit invloed hebben op de samenwerking?---vooral de schone energie strategie bizar hoog

Vragen over samenwerking Gemeente Rotterdam – RES Regio (+/- 15 min)

1. Zou u mij wat kunnen vertellen over de samenwerking tussen de gemeente Rotterdam en de RES Regio betreffende de energietransitie?
2. *Stel deze vragen als ze nog niet beantwoord zijn in vraag 1:*
    a. Hoe ervaart u de samenwerking tussen de gemeente Rotterdam en de RES Regio betreffende de energietransitie? *(positief, negatief, neutraal?)*
    b. Op welke punten gaat de samenwerking goed en waardoor komt dat?
    c. Merkt u problemen met de samenwerking tussen de gemeente Rotterdam en de RES Regio betreffende de energietransitie?
        i. Zo ja: wat zijn de grootste struikelblokken bij de samenwerking tussen de gemeente Rotterdam en de RES Regio betreffende de energietransitie?

Onderzoeksresultaten fase 1: (beschrijf de vergelijkenissen en verschillen in de onderzoeksresultaten van beide gebieden)

3. *Vragen n.a.v. onderzoeksresultaten:*
    d. Komen deze resultaten overeen met uw ervaringen wat betreft de samenwerking tussen de gemeente Rotterdam en de RES Regio ten aanzien van de energietransitie?
    e. Zou u kunnen verklaren waarom de verschillen tussen digitaal en weinig digitaal res wel of niet voor problemen zorgen in de samenwerking?
    f. Zou u kunnen verklaren waarom het verschil in digitaal zou kunnen zorgen voor problemen in de samenwerking?
    g. Zou u kunnen verklaren waarom het verschil in natuur kan zorgen voor problemen?
    h. Wet- en regelgeving veel meer bij de Res, waarom, invloed op de samenwerking?

Vragen over samenwerking Gemeente Rotterdam – Provincie Zuid-Holland (+/- 15 min)

1. Zou u mij wat kunnen vertellen over de samenwerking tussen de gemeente Rotterdam en de provincie Zuid-Holland betreffende de energietransitie?
2. *Stel deze vragen als ze nog niet beantwoord zijn in vraag 1:*
    a. Hoe ervaart u de samenwerking tussen de gemeente Rotterdam en de provincie Zuid-Holland betreffende de energietransitie? *(positief, negatief, neutraal?)*
    b. Op welke punten gaat de samenwerking goed en waardoor komt dat?
    c. Merkt u problemen met de samenwerking tussen de gemeente Rotterdam en de provincie Zuid-Holland betreffende de energietransitie?
        i. Zo ja: wat zijn de grootste struikelblokken bij de samenwerking tussen de gemeente Rotterdam en de provincie Zuid-Holland betreffende de energietransitie?

Onderzoeksresultaten fase 1: (beschrijf de vergelijkenissen en verschillen in de onderzoeksresultaten van beide gebieden)

3. *Vragen n.a.v. onderzoeksresultaten:*
    a. Komen deze resultaten overeen met uw ervaringen wat betreft de samenwerking tussen de gemeente Rotterdam en de provincie Zuid-Holland ten aanzien van de energietransitie?
    b. Zou u kunnen verklaren of de verschillen tussen visies, betreffende digitaal, invloed kan hebben op de samenwerking?

c. Natuur, biodiversiteit wordt ook zeer verschillend genoemd. Zou dit kunnen zorgen voor problemen in de samenwerking?
d. In vergelijking heeft de provincie het een stuk vaker over economische invloed dan de gemeente, kunt u dit verklaren en of dit invloed heeft op de samenwerking?

Vragen over samenwerking Gemeente Rotterdam – Nationaal niveau (+/- 15 min)

1. Zou u mij wat kunnen vertellen over de samenwerking tussen de gemeente Rotterdam en organisaties op nationaal niveau betreffende de energietransitie?
2. *Stel deze vragen als ze nog niet beantwoord zijn in vraag 1:*
    a. Hoe ervaart u de samenwerking tussen de gemeente Rotterdam en organisaties op nationaal niveau betreffende de energietransitie? *(positief, negatief, neutraal?)*
    b. Op welke punten gaat de samenwerking goed en waardoor komt dat?
    c. Merkt u problemen met de samenwerking tussen de gemeente Rotterdam en organisaties op nationaal niveau betreffende de energietransitie?
        i. Zo ja: wat zijn de grootste struikelblokken bij de samenwerking tussen de gemeente Rotterdam en organisaties op nationaal niveau betreffende de energietransitie?

Onderzoeksresultaten fase 1: (beschrijf de vergelijkenissen en verschillen in de onderzoeksresultaten van beide gebieden)

3. *vragen n.a.v. onderzoeksresultaten:*
    a. Komen deze resultaten overeen met uw ervaringen wat betreft de samenwerking tussen de gemeente Rotterdam en organisaties op nationaal niveau ten aanzien van de energietransitie?
    b. Natuur, biodiversiteit wordt ook zeer verschillend genoemd. Zou dit kunnen zorgen voor problemen in de samenwerking?
    c. Op nationaal niveau hebben ze het veel over veiligheid en veiligheidseisen, hier heeft de gemeente het vrijwel niet over. Kan dit nog invloed hebben op de samenwerking?

Wat zijn factoren die in uw opninie invloed hebben op de samenwerking tussen overheidlagen. Het kan zowel een positieve factor zijn als een negatieve.

Algemeen: de gemeente lijkt veel meer in te willen zetten op efficientie dan de andere lagen, kunt u dit verklaren en kan dit de samenwerking bemoeilijken?

INTERVIEW PROTOCOL HAVEN ROTTERDAM

NEEM HET GESPREK OP!

Introductie

Beste geïnterviewde,

Allereerst wil ik u bedanken dat u mee wilt doen aan dit interview en daarvoor de tijd vrij heeft gemaakt. Ik wilde u eerst iets over mezelf vertellen en het onderzoek (en de structuur van het interview) en dat u zich daarna voorstelt, deels aan de hand van een paar algemene vragen. Ik ben……Dit onderzoek richt zich op het begrijpen hoe/op welke manier verschillende factoren invloed kunnen hebben op de samenwerking tussen overheidslagen betreffende de energietransitie. ik wil u vragen om de vragen oprecht te beantwoorden en zo beschrijvend mogelijk te zijn bij het beantwoorden van de vragen. Voelt u zich alstublieft veilig bij het beantwoorden van mijn vragen. Alle interviews worden geanonimiseerd. Heeft u naar aanleiding van deze introductie nog vragen?

Vragen over identiteit (+/- 2 min)

1. Voor welke organisatie werkt u?
2. Wat is uw functie?
    a. *Als niet duidelijk:* wat houdt deze functie precies in?
3. Hoe lang werkt u al in deze functie?

Vragen over samenwerking Gemeente Rotterdam – Haven Rotterdam (+/- 8 min)

1. Zou u mij wat kunnen vertellen over de samenwerking tussen de gemeente Rotterdam en de haven van Rotterdam betreffende de energietransitie?
2. *Stel deze vragen als ze nog niet beantwoord zijn in vraag 1:*
    a. Hoe ervaart u de samenwerking tussen de gemeente Rotterdam en de haven van Rotterdam betreffende de energietransitie? *(positief, negatief, neutraal?)*
    b. Op welke punten gaat de samenwerking goed en waardoor komt dat?
    c. Merkt u problemen met de samenwerking tussen de de gemeente Rotterdam en de haven van Rotterdam betreffende de energietransitie?
        i. Zo ja: wat zijn de grootste struikelblokken bij de samenwerking tussen de gemeente Rotterdam en de haven van Rotterdam betreffende de energietransitie?
4. *vragen n.a.v. onderzoeksresultaten:*
    a. Ten opzichte van de gemeente worden economische aspecten binnen de energietransitie een stuk vaker genoemd. Heeft dit invloed op de samenwerking tussen de haven en de gemeente?
    b. Ook wordt werkgelegenheid veel meer genoemd. Is dit een hoge prioriteit voor jullie en hoe ligt dat bij de gemeente, beinvloed dit de samenwerking
    c. Natuurbehoud, biodiversiteit wordt weinig genoemd bij zowel de haven als de gemeente. Welke reden heeft dit en heeft dit een invloed op de samenwerking?
    d. Ik heb gevonden dat technische aspecten vaker worden genoemd bij de gemeente, kun je hier een reden voor bedenken. En heeft dit invloed op de samenwerking?

Vragen over samenwerking HAVEN Rotterdam – RES Regio (+/- 15 min)

4. Zou u mij wat kunnen vertellen over de samenwerking tussen de gemeente Rotterdam en de RES Regio betreffende de energietransitie?
5. *Stel deze vragen als ze nog niet beantwoord zijn in vraag 1:*
    a. Hoe ervaart u de samenwerking tussen de gemeente Rotterdam en de RES Regio betreffende de energietransitie? *(positief, negatief, neutraal?)*
    b. Op welke punten gaat de samenwerking goed en waardoor komt dat?
    c. Merkt u problemen met de samenwerking tussen de gemeente Rotterdam en de RES Regio betreffende de energietransitie?

i. Zo ja: wat zijn de grootste struikelblokken bij de samenwerking tussen de gemeente Rotterdam en de RES Regio betreffende de energietransitie?

Onderzoeksresultaten fase 1: (beschrijf de vergelijkenissen en verschillen in de onderzoeksresultaten van beide gebieden)

1. *vragen n.a.v. onderzoeksresultaten:*
    a. In vergelijking met de RES regio, benoemt de haven vaak de digitale transitie. Wat bedoelen jullie precies met de digitale transitie en heeft dit nog invloed op de samenwerking?
    b. Natuuraspecten wordt dan weer relatief veel genoemd in de RES regio, kunt u dat verklaren en heeft dat invloed op de samenwerking?
    c. Hetzelfde geld hierbij ook voor ruimtelijke en technische aspecten, die worden meer genoemd in de RES. Invloed op de samenwerking?

Vragen over samenwerking HAVEN Rotterdam – Provincie Zuid-Holland (+/- 15 min)

1. Zou u mij wat kunnen vertellen over de samenwerking tussen de gemeente Rotterdam en de provincie Zuid-Holland betreffende de energietransitie?
2. *Stel deze vragen als ze nog niet beantwoord zijn in vraag 1:*
    a. Hoe ervaart u de samenwerking tussen de gemeente Rotterdam en de provincie Zuid-Holland betreffende de energietransitie? *(positief, negatief, neutraal?)*
    b. Op welke punten gaat de samenwerking goed en waardoor komt dat?
    c. Merkt u problemen met de samenwerking tussen de gemeente Rotterdam en de provincie Zuid-Holland betreffende de energietransitie?
        i. Zo ja: wat zijn de grootste struikelblokken bij de samenwerking tussen de gemeente Rotterdam en de provincie Zuid-Holland betreffende de energietransitie?

Onderzoeksresultaten fase 1: (beschrijf de vergelijkenissen en verschillen in de onderzoeksresultaten van beide gebieden)

3. *vragen n.a.v. onderzoeksresultaten:*
    a. Digitaal ook weer weinig genoemd in Zuid-Holland
    b. Economische aspecten worden hier relatief evenveel genoemd. Heeft dit invloed op de samenwerking?
    c. Vooral hier wordt ruimtelijk weer veel genoemd, bij Zuid-Holland. Heeft dit nog invloed op de samenwerking?

Vragen over samenwerking HAVEN Rotterdam – Nationaal niveau (+/- 15 min)

1. Zou u mij wat kunnen vertellen over de samenwerking tussen de gemeente Rotterdam en organisaties op nationaal niveau betreffende de energietransitie?
2. *Stel deze vragen als ze nog niet beantwoord zijn in vraag 1:*
    a. Hoe ervaart u de samenwerking tussen de gemeente Rotterdam en organisaties op nationaal niveau betreffende de energietransitie? *(positief, negatief, neutraal?)*
    b. Op welke punten gaat de samenwerking goed en waardoor komt dat?
    c. Merkt u problemen met de samenwerking tussen de gemeente Rotterdam en organisaties op nationaal niveau betreffende de energietransitie?

i. Zo ja: wat zijn de grootste struikelblokken bij de samenwerking tussen de gemeente Rotterdam en organisaties op nationaal niveau betreffende de energietransitie?

Onderzoeksresultaten fase 1: (beschrijf de vergelijkenissen en verschillen in de onderzoeksresultaten van beide gebieden)

4. *vragen n.a.v. onderzoeksresultaten:*
    a. Economische aspecten weer hetzelfde genoemd.
    b. Echt een significant verschil in technische aspecten. Rijk noemt dat echt veel meer, invloed op de samenwerking?

INTERVIEW PROTOCOL RES-REGIO

NEEM HET GESPREK OP!

Introductie

Beste geïnterviewde,

Allereerst wil ik u bedanken dat u mee wilt doen aan dit interview en daarvoor de tijd vrij heeft gemaakt. Ik wilde u eerst iets over mezelf vertellen en het onderzoek (en de structuur van het interview) en dat u zich daarna voorstelt, deels aan de hand van een paar algemene vragen. Ik ben……Dit onderzoek richt zich op het begrijpen hoe/op welke manier verschillende factoren invloed kunnen hebben op de samenwerking tussen overheidslagen betreffende de energietransitie. ik wil u vragen om de vragen oprecht te beantwoorden en zo beschrijvend mogelijk te zijn bij het beantwoorden van de vragen. Voelt u zich alstublieft veilig bij het beantwoorden van mijn vragen. Alle interviews worden geanonimiseerd. Heeft u naar aanleiding van deze introductie nog vragen?

Vragen over identiteit (+/- 2 min)

1. Voor welke organisatie werkt u?
2. Wat is uw functie?
    a. *Als niet duidelijk:* wat houdt deze functie precies in?
3. Hoe lang werkt u al in deze functie?

Vragen over samenwerking RES Regio - Gemeente Rotterdam en de Haven (+/- 15 min)

1. Zou u mij wat kunnen vertellen over de samenwerking tussen de RES Regio en gemeente Rotterdam betreffende de energietransitie?
2. *Stel deze vragen als ze nog niet beantwoord zijn in vraag 1:*
    a. Hoe ervaart u de samenwerking tussen de RES Regio en gemeente Rotterdam betreffende de energietransitie? *(positief, negatief, neutraal?)*
    b. Op welke punten gaat de samenwerking goed en waardoor komt dat?
    c. Merkt u problemen met de samenwerking tussen de RES Regio en gemeente Rotterdam betreffende de energietransitie?
        i. Zo ja: wat zijn de grootste struikelblokken bij de samenwerking tussen de RES Regio en gemeente Rotterdam betreffende de energietransitie?

Onderzoeksresultaten fase 1: (beschrijf de vergelijkenissen en verschillen in de onderzoeksresultaten van beide gebieden)

3. *Voorbeeldvragen n.a.v. onderzoeksresultaten:*
4. *In vergelijking met zowel de haven als de gemeente noemt de RES de digitalisering weinig. De haven en gemeente benoemen dit als een tweede transitie die veel kan doen en de RES helemaal niet. Heeft dit invloed op de samenwerking?*
5. *Natuur, natuurbehoud en biodiversiteit wordt in alle visies relatief weinig beoemt. Maar In de haven en gemeente vrijwel niet. In de RES nog wel een beetje, het meest van allemaal. Denkt u dat dit invloed kan hebben op de samenwerking? Merkt u dit ook in de praktijk?*
6. *Ruimtelijk wordt een stuk vaker besproken in de Res dan bij de haven, merkt u dit in de samenwerking of zou dit invloed kunnen hebben?*

Vragen over samenwerking RES Regio – Provincie Zuid-Holland (+/- 15 min)

1. Zou u mij wat kunnen vertellen over de samenwerking tussen de RES Regio en provincie Zuid-Holland betreffende de energietransitie?
2. *Stel deze vragen als ze nog niet beantwoord zijn in vraag 1:*
    a. Hoe ervaart u de samenwerking tussen de RES Regio en provincie Zuid-Holland betreffende de energietransitie? *(positief, negatief, neutraal?)*
    b. Op welke punten gaat de samenwerking goed en waardoor komt dat?
    c. Merkt u problemen met de samenwerking tussen de RES Regio en Provincie Zuid-Holland betreffende de energietransitie?
        i. Zo ja: wat zijn de grootste struikelblokken bij de samenwerking tussen de RES Regio en provincie Zuid-Holland betreffende de energietransitie?

Onderzoeksresultaten fase 1: (beschrijf de vergelijkenissen en verschillen in de onderzoeksresultaten van beide gebieden)

3. *Voorbeeldvragen n.a.v. onderzoeksresultaten:*
4. *U spreekt veruit het meest over wet-en regelgeving, dat deze genoemd worden en ook van belang zijn in de transitie. Merkt u dit of kan dit invloed hebben op de samenwerking?*
5. *U noemt beiden geen digitaal, merkt u daarover een goede samenwerking?*
6. *Natuur wordt door u beiden bijna evenveel genoemd, goede samenwerking?*

Vragen over samenwerking RES Regio – Nationaal niveau (+/- 15 min)

1. Zou u mij wat kunnen vertellen over de samenwerking tussen de RES Regio en organisaties op nationaal niveau betreffende de energietransitie?
2. *Stel deze vragen als ze nog niet beantwoord zijn in vraag 1:*
    a. Hoe ervaart u de samenwerking tussen de RES Regio en organisaties op nationaal niveau betreffende de energietransitie? *(positief, negatief, neutraal?)*
    b. Op welke punten gaat de samenwerking goed en waardoor komt dat?
    c. Merkt u problemen met de samenwerking tussen de RES Regio en organisaties op nationaal niveau betreffende de energietransitie?
        i. Zo ja: wat zijn de grootste struikelblokken bij de samenwerking tussen de RES Regio en organisaties op nationaal niveau betreffende de energietransitie?

Onderzoeksresultaten fase 1: (beschrijf de vergelijkenissen en verschillen in de onderzoeksresultaten van beide gebieden)

3. *Voorbeeldvragen n.a.v. onderzoeksresultaten:*
4. *Economische factoren komen een gemiddeld aantal keer naar voren in vergelijking met alle visies, haven, zuid-holland en rijk een stuk meer. Gemeente een stuk minder, dnekt u dat dit invloed kan hebben op de samenwerkign of merkt u dit verschil?*
5. De res benoemt ruimtelijke aspecten een stuk vaker, invloed?
6. *De RES noemt technische aspecten een stuk minder, invloed?*

Efficiency lijkt bij de RES op een lager pitje te staan dan bij andere overheidslagen, merkt u dit ook en kan dat invloed hebben op de samenwerking?

Integraal denken en werken lijkt veel naar voren te komen in jullie Res, merkt u hierin verschillen met andere overheidslagen en geeft dit invloed op de samenwerking?

INTERVIEW PROTOCOL PROVINCIE ZUID-HOLLAND

NEEM HET GESPREK OP!

Introductie

Beste geïnterviewde,

Allereerst wil ik u bedanken dat u mee wilt doen aan dit interview en daarvoor de tijd vrij heeft gemaakt. Ik wilde u eerst iets over mezelf vertellen en het onderzoek (en de structuur van het interview) en dat u zich daarna voorstelt, deels aan de hand van een paar algemene vragen. Ik ben……Dit onderzoek richt zich op het begrijpen hoe/op welke manier verschillende factoren invloed kunnen hebben op de samenwerking tussen overheidslagen betreffende de energietransitie. ik wil u vragen om de vragen oprecht te beantwoorden en zo beschrijvend mogelijk te zijn bij het beantwoorden van de vragen. Voelt u zich alstublieft veilig bij het beantwoorden van mijn vragen. Alle interviews worden geanonimiseerd. Heeft u naar aanleiding van deze introductie nog vragen?

Vragen over identiteit (+/- 2 min)

1. Voor welke organisatie werkt u?
2. Wat is uw functie?
    a. *Als niet duidelijk:* wat houdt deze functie precies in?
3. Hoe lang werkt u al in deze functie?

Vragen over samenwerking Provincie Zuid-Holland - Gemeente Rotterdam (+/- 15 min)

1. Zou u mij wat kunnen vertellen over de samenwerking tussen de provincie Zuid-Holland en gemeente Rotterdam betreffende de energietransitie?
2. Zou u mij wat kunnen vertellen over de samenwerking tussen de provincie Zuid-Holland en de Haven betreffende de energietransitie?
3. *Stel deze vragen als ze nog niet beantwoord zijn in vraag 1:*
    a. Hoe ervaart u de samenwerking tussen de provincie Zuid-Holland en gemeente Rotterdam/haven betreffende de energietransitie? *(positief, negatief, neutraal?)*

b. Op welke punten gaat de samenwerking goed en waardoor komt dat?
c. Merkt u problemen met de samenwerking tussen de provincie Zuid-Holland en gemeente Rotterdam/haven betreffende de energietransitie?
    i. Zo ja: wat zijn de grootste struikelblokken bij de samenwerking tussen de provincie Zuid-Holland en gemeente Rotterdam betreffende de energietransitie?

Onderzoeksresultaten fase 1: (beschrijf de vergelijkenissen en verschillen in de onderzoeksresultaten van beide gebieden)

4. vragen n.a.v. onderzoeksresultaten:

a. Ik heb een aantal verschillen gevonden (digitaal, natuur, technisch)Komen deze resultaten overeen met uw ervaringen wat betreft de samenwerking tussen de provincie Zuid-Holland en gemeente Rotterdam ten aanzien van de energietransitie?
b. Zou u kunnen verklaren of en hoe verschillen betreffende digitalisering voor problemen kunnen zorgen in de samenwerking? Of waarom niet?
c. Denkt u dat het belangrijk is om rekening te houden met natuurbehoud en biodiversiteit in de energietransitie? Zo ja waarom, zo nee waarom en waarom denkt u dat het in Zuid-holland wel wordt genoemd en in de RES maar niet bij de gemeentet en nauwelijks bij de haven?
d. Wat voor aspecten denkt u dat er moeten worden meegenomen in een energievisie om een goed lopende energietransitie te waarborgen?

Vragen over samenwerking Provincie Zuid-Holland - RES Regio (+/- 15 min)

1. Zou u mij wat kunnen vertellen over de samenwerking tussen de provincie Zuid-Holland en de RES Regio betreffende de energietransitie?
2. *Stel deze vragen als ze nog niet beantwoord zijn in vraag 1:*
    a. Hoe ervaart u de samenwerking tussen de provincie Zuid-Holland en de RES Regio betreffende de energietransitie? *(positief, negatief, neutraal?)*
    b. Op welke punten gaat de samenwerking goed en waardoor komt dat?
    c. Merkt u problemen met de samenwerking tussen de provincie Zuid-Holland en de RES Regio betreffende de energietransitie?
        i. Zo ja: wat zijn de grootste struikelblokken bij de samenwerking tussen de provincie Zuid-Holland en de RES-regio betreffende de energietransitie?

Onderzoeksresultaten fase 1: (beschrijf de vergelijkenissen en verschillen in de onderzoeksresultaten van beide gebieden)

3. vragen n.a.v. onderzoeksresultaten:

a. Komen deze resultaten overeen met uw ervaringen wat betreft de samenwerking tussen de provincie Zuid-Holland en de RES Regio ten aanzien van de energietransitie?
b. Zou u kunnen verklaren waarom de verschillen tussen het includeren van veiligheidseisen en maatschappelijke kosten (wellicht energiearmoede) aanwezig zijn tussen u en de RES regio?
c. Zou u kunnen verklaren waarom de gelijkenissen in het benoemen van natuur wel of niet leidt tot het beinvloeden van de samenwerking?

d. Ten opzichte van andere overheidslagen benoemt u werkgelegenheid vaak, denkt u dat de mindere benoeming in andere visies kan leiden tot een invloed op de samnwerking? De haven noemt het als enige wel veel.

Vragen over samenwerking Provincie Zuid-Holland – Nationaal niveau (+/- 15 min)

1. Zou u mij wat kunnen vertellen over de samenwerking tussen de provincie Zuid-Holland en organisaties op nationaal niveau betreffende de energietransitie?
2. *Stel deze vragen als ze nog niet beantwoord zijn in vraag 1:*
    a. Hoe ervaart u de samenwerking tussen de provincie Zuid-Holland en organisaties op nationaal niveau betreffende de energietransitie? *(positief, negatief, neutraal?)*
    b. Op welke punten gaat de samenwerking goed en waardoor komt dat?
    c. Merkt u problemen met de samenwerking tussen de provincie Zuid-Holland en organisaties op nationaal niveau betreffende de energietransitie?
        i. Zo ja: wat zijn de grootste struikelblokken bij de samenwerking tussen de provincie Zuid-Holland en organisaties op nationaal niveau betreffende de energietransitie?

Onderzoeksresultaten fase 1: (beschrijf de vergelijkenissen en verschillen in de onderzoeksresultaten van beide gebieden)

3. *vragen n.a.v. onderzoeksresultaten:*
    a. Komen deze resultaten overeen met uw ervaringen wat betreft de samenwerking tussen de provincie Zuid-Holland en organisaties op nationaal niveau ten aanzien van de energietransitie?
    b. Technisch wordt wel vaker benoemt bij het Rijk , denkt u dat dit belangrijk is? En ruimtelijk een stuk minder bij het Rijk dan de Zuid-Holland

Even nog apart. Ten opzichte van andere overheidslagen spreekt u in de visie niet veel over onzekerheden. Kunt u zich hierin vinden (ik praat over de schone energie voor iedereen 2020-2023) denkt u omdat u door deze tijdsperiode minder onzekerheden heeft? De andere visies gaan tot 2050?

Denkt u dat een mate van integraal denken invloed kan hebben op de samenwerking?

INTERVIEW PROTOCOL NATIONAAL NIVEAU

NEEM HET GESPREK OP!

Introductie

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mogelijk te zijn bij het beantwoorden van de vragen. Voelt u zich alstublieft veilig bij het beantwoorden van mijn vragen. Alle interviews worden geanonimiseerd. Heeft u naar aanleiding van deze introductie nog vragen?

Vragen over identiteit (+/- 2 min)

1. Voor welke organisatie werkt u?
2. Wat is uw functie?
    a. *Als niet duidelijk:* wat houdt deze functie precies in?
3. Hoe lang werkt u al in deze functie?

Vragen over samenwerking Nationaal niveau - Gemeente Rotterdam (+/- 15 min)

1. Zou u mij wat kunnen vertellen over de samenwerking tussen organisaties op nationaal niveau en gemeente Rotterdam betreffende de energietransitie?
2. *Stel deze vragen als ze nog niet beantwoord zijn in vraag 1:*
    a. Hoe ervaart u de samenwerking tussen organisaties op nationaal niveau en gemeente Rotterdam betreffende de energietransitie? *(positief, negatief, neutraal?)*
    b. Op welke punten gaat de samenwerking goed en waardoor komt dat?
    c. Merkt u problemen met de samenwerking tussen organisaties op nationaal niveau en de gemeente Rotterdam betreffende de energietransitie?
        i. Zo ja: wat zijn de grootste struikelblokken bij de samenwerking tussen organisaties op nationaal niveau en gemeente Rotterdam betreffende de energietransitie?

Onderzoeksresultaten fase 1: (beschrijf de vergelijkenissen en verschillen in de onderzoeksresultaten van beide gebieden)

3. *vragen n.a.v. onderzoeksresultaten:*
    a. Zou u kunnen verklaren waarom de verschillen tussen digitaal en weinig digitaal wel of niet van invloed kunnen zijn op de samenwerking? Gemeente en Haven praten heel veel over digitaal en nationaal eigenlijk niet.
    b. Samen met de haven visie heeft u een heel hoog percentage met he noemen van economische factoren. Beinvloed dit de samenwerking in positieve of negatieve zin?
    c. Daarentegen noemt de gemeente weinig ecnomonische factoren. Heeft dit een invloed op jullie samenwerking?
    d. In een wat algemenere zin, wordt natuur, ecologie en biodiversiteit weinig genoemd in alle visies. Maar in de gemeente visies helemaal niet. Denkt ui dat dit de samenwerking kan beinvloeden in positieve of negatieve zin?

Vragen over samenwerking Nationaal niveau - RES Regio (+/- 15 min)

1. Zou u mij wat kunnen vertellen over de samenwerking tussen organisaties op nationaal niveau en de RES Regio betreffende de energietransitie?
2. *Stel deze vragen als ze nog niet beantwoord zijn in vraag 1:*
    a. Hoe ervaart u de samenwerking tussen organisaties op nationaal niveau en de RES Regio betreffende de energietransitie? *(positief, negatief, neutraal?)*
    b. Op welke punten gaat de samenwerking goed en waardoor komt dat?
    c. Merkt u problemen met de samenwerking tussen organisaties op nationaal niveau en de RES Regio betreffende de energietransitie?

i. Zo ja: wat zijn de grootste struikelblokken bij de samenwerking tussen organisaties op nationaal niveau en de RES-regio betreffende de energietransitie?

Onderzoeksresultaten fase 1: (beschrijf de vergelijkenissen en verschillen in de onderzoeksresultaten van beide gebieden)

3. *vragen n.a.v. onderzoeksresultaten:*
    a. De Res noemt economische factoren ook minder, heeft dat hier invloed, zo ja welke?
    b. Ten opzichte van de RES wordt ruimtelijke impact minder genoemd, heeft dit invloed?

Vragen over samenwerking Nationaal niveau - Provincie Zuid-Holland (+/- 15 min)

1. Zou u mij wat kunnen vertellen over de samenwerking tussen organisaties op nationaal niveau en de provincie Zuid-Holland betreffende de energietransitie?
2. *Stel deze vragen als ze nog niet beantwoord zijn in vraag 1:*
    a. Hoe ervaart u de samenwerking tussen organisaties op nationaal niveau en de provincie Zuid-Holland betreffende de energietransitie? *(positief, negatief, neutraal?)*
    b. Op welke punten gaat de samenwerking goed en waardoor komt dat?
    c. Merkt u problemen met de samenwerking tussen organisaties op nationaal niveau en de provincie Zuid-Holland betreffende de energietransitie?
        i. Zo ja: wat zijn de grootste struikelblokken bij de samenwerking tussen organisaties op nationaal niveau en de provincie Zuid-Holland betreffende de energietransitie?

Onderzoeksresultaten fase 1: (beschrijf de vergelijkenissen en verschillen in de onderzoeksresultaten van beide gebieden)

3. *Vragen n.a.v. onderzoeksresultaten:*
    a. Economische factoren worden vrijwel evneveel genoemd, merkt u dat de samenwerking hierdoor beinvloed wordt?
    b. Ruimtelijke factoren worden weinig genoemd in het Nationaal beleid ten opzichte van de provincie heeft dit inlvoed op de samenwerking. Eerder zou ik hebben verwahct dat juist nationaal het meeste ruimtelijk zou benoemen omdat die het beste overzicht hebben van het hele land, kunt u dit uitleggen?
    c. Het noemen van technische factoren gebeurt dan bijna het meest van alle visies in de nationale visie. Vooral ten opzichte van Zuid-Holland, kan dat nog invloed hebben?

Algemener:
Denkt u dat een zo integraal mogelijke visie op papier belangrijk is? Denkt u dat samenwerking tussen ons en andere landen belangrijk is, en waarom? Waarom noemt de Haven en nationaal zo vaak wereldwijde samenwerking? Denkt u dat participatie (burger) belangrijk is? De gemeente en haven noemen dit eigenlijk niet en de RES, Zuid-Holland en Nationaal wel, bemoeilijkt dat de samenwerking?