MUNICIPAL STRATEGY AND GREEN BUILDINGS

ORGANIZATIONAL STRATEGY AND PERFORMANCE OF GREEN BUILDING POLICIES IN DUTCH-GERMAN MUNICIPALITIES OF EUREGIO

MASTER THESIS

LENNARD JAKOBI

S2131188

Submitted in partial fulfilment of the requirements for the degree of Master of Science, Public administration

Graduation Commission:

Dr. V. Junjan

Dr. L. A. N. Long

Faculty of Behavioural, Management and Social Sciences

Profile Public administration: Sustainability

Ethical Approval: 210046 & 211244

Date: 21.02.2022

UNIVERSITY OF TWENTE.

Abstract

Aim: As buildings account for roughly 35 % of Germans and Dutch energy consumption, it is plausible that green building policies reducing this consumption are a critical tool in climate change mitigation. Municipalities play an essential role in implementing these policies as they are ultimately best suited in convincing citizens and local property owners to renovate their houses. This study examines the municipal performance of green building policies in the Dutch-German cross-border region *Euregio.* It applies strategic management research to investigate similarities and differences in this performance using the Miles & Snow framework. The thesis operationalizes policy performance with the framework of Harms et al., which looks at the *orgware*, *software*, *hardware*, and outcome of policies. The thesis further adds networks as an element of performance.

Method: A cross-sectional study was performed across mid-sized municipalities in *Euregio*. First, a survey was distributed among 39 municipalities, collecting 15 responses. It analyzed responses using IBM SPSS V.26. In a second step, 10 municipalities were selected for additional interviews and document analysis. Both measured strategic orientation and green building policies.

Findings: Results show that municipalities on both sides of the border are very aware of their strategy. Performance is similar on the surface. But municipalities diverge in the specific measures they implement to promote green buildings and how extensive their work is. A reactive strategy without clear objectives relates negatively to performance. Municipalities with reactive tendencies currently restructure their strategy. Apart from this, there is not one perfect solution, rather municipalities search for a strategy that best suits their situation.

Conclusion: Municipalities require a strategy that incorporates prospective and defensive elements. The thesis finds that a prospective stance may enhance how the municipality can facilitate green building and reduce skepticism among other actors. Combined with defensive elements that rationally anchor green building policies, it can maximize performance.

Acknowledgments

First and foremost, I would like to thank all those who helped me during and besides writing the thesis. The guidance of my supervisors Veronica Junjan and Le Anh Long was crucial throughout the process. Your feeback was essential in preparing me to work independently, and you helped whenever I was in a clinch. Thanks to your help, the research was fun even with the usual and unusual challenges throughout last year.

Also, a special thanks to all those who helped me develop survey and interview questions in numerous ways, notably helping with the formulation and structure of questions and trying to connect me with relevant actors. The same thanks goes to those who gave me their time to participate in either survey and interview, or both. Without that help it would not have been possible to perform this study. Participating in an interview after a survey cannot be taken for granted, so thank you very much.

Last but not least, I need to thank my family and friends for the invaluable help and support throughout the thesis. On the one hand, you listened to all my not-so-constructive comments throughout writing the thesis. Even more, you were willing to give me advice at all stages, help proof-reading, and taking my mind of the thesis when necessary.

Therefore, one last time thank you, and enjoy reading the thesis

Lennard Jakobi

Nordwalde, February 2022

TABLE OF CONTENT

1.Introduction

Climate change mitigation requires concentrated efforts by Public administrations (Kemmerzell 2018, p.39). Studies stress the importance of conducting this mitigation at the local level of government (van den Berg & Coenen, 2012; Kemmerzell, 2018). Especially larger cities will struggle with weather extremes due to their building density and lack of sustainable spaces (Zölch et al., 2017, p.966). Consequently, Dutch and German municipalities alike are committed to pursuing policies and other measures related to climate change mitigation (Heidrich et al., 2016, p. 43). Green building policies are one aspect of this process that can positively affect the local climate resilience. The immediate impact of municipalities may be limited to municipal properties and actions, but they can influence other local actors to commit to green buildings (Goulden et al, 2017 p.423). However, to do so, they must engage with the necessary innovativeness to overcome reservations against these changes. Their success may have to do with the municipal strategic orientation, which indicates whether they prioritize innovative behavior, prefer to perform existing activities efficiently, or indeed have no concise strategy (Walker, 2013).

The study is conducted in *Euregio* municipalities. This cross-border approach opens up exciting opportunities during the data analysis. For one, climate change mitigation, including green building policies, is an international challenge. A look at different countries, especially in a region as closely linked as the *Euregio*, can reveal valuable insights on the modus operandi of municipalities. Of course, contrasting building laws and political structures of Germany and the Netherlands, especially distinct municipal responsibilities, may generate varying performances between cities. Therefore, the study must assess the influence of these factors. At least, the geographical similarities and cultural cooperation of cities in *Euregio* suggest that most municipalities operate in a similar field (Perkmann, 2007). For example, municipalities are expected to have mostly equal financial resources as indicated by the homogenous average income across *Euregio*[1]. Population size and economic structure are also comparable. This makes the region ideal for conducting research that maintains a broadly comparable cross-border perspective.

In summary, this study examines the strategic orientation and green building policy performance of municipalities in the Dutch-German *Euregio*. It aims to reveal similarities and differences in the municipal approach to green buildings that their strategic orientation can explain. Ideally, the study results reveal typologies that reflect distinct performances among cities. The study uses a broad conception of green building policies. This conception includes

[1] The lowest average income is 18.900€, the highest 27.000€

all measures related to improving energy efficiency and heating in built or new houses; and the associated exchange with local stakeholders.

Applied initially in business research, researchers increasingly use the concept of organizational strategy to examine public organizations' performance (Walker, 2013, p.676). It is concerned with an organization's approach to meet its purpose and mission goals (Walker, 2011, p.221). This study utilizes the Miles & Snow framework, which groups organizations into different strategic stances that describe how they respond to adaptational challenges (Walker, 2013, p.676). When studying municipal performance, Public administration research typically investigates their performance as a whole, which encompasses a range of quantitative and perceived indicators (Langereis, 2015, p.15). In contrast, this thesis looks specifically at green building policies as an essential part of climate change mitigation policies, given the building sector's high energy demands. Furthermore, these policies can serve as indicators for municipalities' overall environmental performance (Fastenrath & Braun, 2016, p.1).

While there are studies that examine the relationship between strategic stance and the general performance of municipalities (Langereis, 2015); and studies on green building policies (Fastenrath & Braun, 2016), none have combined both subjects for Germany or the Netherlands. Additionally, most studies on the strategic stance of public organizations are conducted in Anglo-Saxon countries. Particularly compared to Germany, administrations in these countries began to focus on efficient performance earlier and tend to differ in structure and approach. Differences reduced in recent decades, nonetheless Public administration research must still validate the concepts for Germany and the Netherlands. Langereis' study using the framework in the Dutch context did not indicate a clear relationship between stance and performance (Langereis, 2015, p.34). Two factors might enable this thesis to reveal a genuine relationship between the variables. For one, it applies a much narrower interpretation of performance with its focus on green buildings. This approach might miss out on other indicators but will have very precise results for the focused area.

Further, one might argue that green buildings as part of local climate change mitigation resonate with different strategies. Innovative municipalities may have long-established methods to advance green buildings, while others might be less experienced in the field. Thus, the thesis attempts to validate the framework in a non-Anglo-Saxon context and better understand the link between municipal organizations' strategic stance and their performance of sustainable policies.

The study is also societally relevant. With the insights generated by investigating the link between strategic stance and performing sustainable building policies, public managers and policymakers could adapt their behavior to ensure better results (Kontokosta, 2011, p.71). Additionally, the study's unique perspective allows public managers within German and Dutch municipalities to learn from each other and improve cooperation.

The thesis develops the following explanatory research question to examine the relationship between the strategic stance of municipalities and their performance of Sustainable Building policies:

M RQ: What is the relation between organizational strategy and the performance of green building policies of municipalities in Euregio in 2021?

Furthermore, in recognition of the case selection, it asks the following question to examine the effect of the different legislature and framework on the municipalities:

S RQ 1: What is the relation between country and federal state of municipalities and their organizational strategy and green building performance?

1.1 Research Context

This chapter presents the organization Euregio and the area it comprises.

Figure 1, Map of Euregio

Established in 1958, *Euregio* is the oldest subnational cross-border region in Europe (Jaansoo, 2019, p.171). Initially, it was formed to counter the adverse effects resulting from the peripheral nature of being a border region. Since then, it has firmly established itself as an actor in the region and as a driver of cross-border cooperation in Europe at large (Jaansoo, 2019, p.171). Therefore, it remains an influential cross-border region to this date and connects its 129 municipalities economically and culturally (Perkmann, 2007). These municipalities are part of the *Bundesländer* Lower Saxony and North-Rhine Westphalia (NRW) on the German side. In the Netherlands, a single municipality is part of the province Drenthe, whereas the rest are part of Overijssel or Gelderland. Thus, the cross-border region offers considerable political diversity, whereas the cities, most notably those directly at the border, are relatively well-connected and geographically and economically similar.

Despite the homogeneous environment, the thesis expects differences in the strategic orientation of the municipalities. A quick look at their websites reveals that they offer different services and attention to the topic. The influence of individuals within a municipality alone can impact the strategy, for example, when a mayor emphasizes the need for green building policies at an early stage. In contrast, cities with no internal or external pressure may delay

their strategy. Thus, the thesis assumes that, despite similar economic and cultural conditions, differences arise even on the small scale of the *Euregio*.

It is not unreasonable to conduct studies focused on sustainability in *Euregio*. Its thematic workgroup, "Committee of Spatial Development," already indicates the importance of cross-border climate change mitigation to the organization (Jaansoo, 2019, p.172). While *Euregio* itself admits that in parts, it does not yet have a clear mission statement in this workgroup, its ambition to improve climate change mitigation through cross-border cooperation is evident (*Euregio*, 2021). This study may only touch upon the necessity for cross-border collaboration regarding green buildings. Nonetheless, it could provide the grounds for further and more in-depth discussions and plans on incorporating green buildings in the workshop and additional work of *Euregio*.

On the national level, the unprecedented decision of the Dutch Supreme Court in 2019 to order the state to reduce GHG emissions attaches additional salience to the topic (Spier, 2020, p.319). In early 2021, a German Constitutional Court decision pronounced that the German Climate Protection Act had significant shortcomings and called for more decisive action had similar implications (DW, 2021). The act in its current form determines that Germany sets annual emission reduction targets for the building sector, indicating its importance for this process (§ 4 I 2 KSG). The federal government is now obligated to introduce more ambitious targets so the building sector may become more relevant.

While these judicial decisions address the federal level, they are just as relevant to municipalities. More stringent goals and higher expectations also increase the need for action on the local level. Within Euregio, it may also be interesting to see whether the Dutch decision already led to more decisive activity on their side of the border. In contrast, German municipalities may still process the decision as little more than five months had passed before sending out the survey. Taken together, the current interest of Euregio in establishing sustainable cross-border cooperation, federal decisions increasing salience, and cultural and economic similarities between the municipalities make the region a fascinating subject for a case study.

2.Theory

This chapter describes the theoretical framework of the thesis. First, it presents established explanations for the performance of green building policies. After that, it introduces strategic management and organizational strategic stance as potential alternative approaches. The subsequent chapter details the methodology of the thesis, introducing its design, strategy, and

sampling methods. Federal and provincial documents outline the general framework in which local administrations in the case regions operate.

2.1 Literature Review

Research on adopting green building policies has already established an extensive body of literature, which analyzes different barriers (Darko & Chan, 2017) and drivers for adopting sustainable building policies (Darko et al., 2017). The literature review below introduces significant barriers and drivers to adopting green buildings. Additionally, it briefly reflects how municipalities can influence these drivers and barriers through their work. Afterward, research on strategic management is presented. It begins with strategic management's roots in business administration, then portrays the developments leading to its application in the public sector.

2.1.1 Established Explanations

Darko and Chan identified a lack of information as the top barrier to developing green buildings (2017, p.170). Without sufficient information, individuals will not be aware of potential action they can take or find expert knowledge that helps them succeed in doing so (Darko & Chan, 2017, p.171-173). Municipalities certainly play a role in addressing this lack of information, but they might struggle to facilitate implementation when not being informed themselves.

Next, financial barriers such as costs or lack of incentives and support inhibit green building policies (Gan et al., 2015, p.62). While long-term operating costs of green buildings are usually lower than alternatives, developers tend to overestimate the costs in the short term (Zhang et al., 2017, p.7). Again, better information can play a role in reducing these prejudices. Incentives and support are other tools that can influence people's behavior. A lack of sufficient incentives can inhibit the adoption of green buildings as they help reduce developers' caution. Especially concerning incentives, municipalities have to work in the framework given to them by higher authorities. Regarding non-financial support, local authorities may be able to act more independently on their initiative.

A shortage of interest and demand and lackluster green building codes and regulations are the last weighty barriers identified by Darko and Chan (2017, p.173 f.). Although Darko and Chan primarily refer to the national scale, local zoning and development plans might impact the latter. Municipalities may be able to affect interest and demand by raising awareness. Sharing information or converting the public building stock can set a good example. On a side note, barriers identifying public authorities as an inhibiting factor, namely "Political and legal issues" and "Bureaucracy," are placed relatively low (Darko & Chan, 2017, p.171). Without reading too much into this, it seems to indicate that public organizations on the local level, or at large, are not seen as inhibitors to adopting green building policies.

Besides these barriers, there are several well-explored drivers of sustainable building policies. The crucial drivers relate to the increased efficiency of green buildings and benefits to the company image (Darko et al., 2017, p.327). Different strategies to promote green buildings are more related to government and municipalities' function in this process. Installing rating systems and governmental involvement are examples of helpful promotion strategies (Kontokosta, 2011, p.69). Experts believe financial incentives and other market-based incentives to be the most critical strategies, while information, communication, and education also play a role (Darko et al., 2017, 327). Competent local authorities are another strategy, although they are placed relatively low.

Consequently, there is an extensive list of factors that can influence the performance or adoption of green building policies. What then is the reason to introduce the concepts of strategic management and strategic stance? While they would not replace the established explanations, they could help understand how factors emerge in specific locations. For example, one could imagine that a city's financial resources partially determine its capabilities to exchange information or promote incentives. Nevertheless, the municipal strategic stance could explain diverging behavior in municipalities with relatively similar conditions. Given the lack of concrete tasks for municipalities to implement green building policies by higher-level authorities, the thesis expects their strategic stance and consequent initiative to impact their performance significantly.

2.2 Strategic Management

The concept of strategic management has a long history in business schools, with a developed notion of strategy introduced in the 1960s (Rumelt et al., 1991, p.7). Here, it was seen as a collection of companies' decisions and actions to compete in their respective environment. The economic instability of the 1970s helped the concept gain prominence over competing theories as it advocated building up specialized strengths that protect an organization from this environment (Rumelt et al., 1991, p.7). Porter's competitive strategy in the 1980s was another significant development of the concept as he felt that prior approaches were too one-dimensional and neglected the overall structure of a company (Rumelt et al., 2001).

He identified the industry as the basic unit of analysis and the product of the unit of business (Porter, 1994). His model developed three generic strategies with distinct advantages and disadvantages. No strategy is inherently superior to others. Rather each provides the best fit for specific industries while being less effective in others. Further research would elaborate these results by introducing contingency theory to strategic management (Walker, 2013, p.675). This theory argues that successful organizations adapt to their environment to achieve performance, and different environments require different structures. Different industries have

unique challenges, and they also require structures most appropriate for their circumstances (Porter, 1994, p.13). Studies using Porter's findings would identify an organization's current strategy and associated structure and then analyze its basic strategy (Porter, 1994). By comparing both next to feasible alternatives, an organization could choose the best possible strategy.

Concurrent to Porter's theory, the Miles & Snow framework was developed as an alternative illustration of "the ways in which organizations coalign with their environments" (Walker, 2013, p.676). The framework initially placed organizations in 4 distinct stances: prospectors, defenders, reactors, and analyzers. Strategy formulation and implementation are the strategic dimensions relevant to discern under which stance an organization falls. Organizational structure and environments are other indicators (Andrews et al., 2009).

Arguments for choosing the Miles & Snow framework are that its ability to attribute a stance to an organization through already established surveys is valuable in conducting the study. The survey ranks all municipalities with the same metrics, which allows for a relatively uncomplicated analysis. The framework also manages to strike a balance between the importance of external resources and internal activity on organizational strategy. Resources are, of course, an established driver of green building policies. However, the study aims to identify municipal strategy as a distinct driver of green buildings, where a framework focusing on resources is not suitable. Nonetheless, to identify the role of different legislative frameworks, it is vital to remain aware of the impact of the external environment on municipal strategy, which the M&S framework accomplishes. Thus, ease of use and lack of abstraction are further arguments for using this framework.

Despite its longevity, some blind spots of the framework remain underexplained. A first criticism is that the link between organizational stance and performance often remains unclear, calling the validity and value of the framework into question. (de Sarbo et al., 2008, p.4). Next, some critics assert that the link between market environment and strategy is underdeveloped (de Sarbo, 2008, p.4). While it acknowledges that the advantages and drawbacks of the four stances may lead to different results in different branches, it lacks a deeper explanation.

Alternatives models may hold answers to these issues. Porters' strategic positioning model focuses on the best positioning of an organization within its environment to achieve a competitive advantage (Hansen & Ferlie, 2016, p.7). It has an outside-in focus, wherein the environment shapes the organizational strategy. Clear strategies are needed to achieve profitable trade-offs within the industry. In contrast, RVB models focus on how to utilize internal resources to achieve an advantage (Hansen & Ferlie, 2016, p.10). Exploiting and developing heterogeneous resources leads to better results. This model is inside-out, meaning an organization's efficiency depends on the resources available to push its advantage. Both models respond to the criticisms of the Miles & Snow framework: Porter's model has an explicit

link between organizations and their environment, and RVB models might be better at explaining the relationship between strategy and performance. So why choose Miles and Snow in favor of them?

The outside-in focus of Porter is an argument against its application. Firstly, the thesis chooses municipalities within a generally homogenous environment, at least speaking geographically and culturally. While the effect of different federal and provincial legislature on the organizational strategy is of interest to the study, the M&S framework is better able to capture the internal processes of municipalities and their impact on strategy. As argued above, RVB's focus on the importance of resources speaks against its application. Financial and personal resources are known drivers of green building policies. Additionally, one can expect that a set of mid-sized municipalities in a comparable political and geographical context will have similar resources available. If one is aware of the risks to the Miles & Snow framework and addresses them early on, it can be a valuable tool in understanding the strategic orientation of organizations and linking it with their performance.

Prospectors "actively seek new opportunities to apply innovations to existing services and opportunities (Walker, 2013, p.676)". Typically, they have an incremental approach to strategy formulation and implementation wherein new strategies may be adopted before others a completed (Andrews et al., 2009, p.741). This type of strategy functions best in environments where frequent uncertainty and external pressure demand adaptation. In contrast, defenders usually operate in a stable environment and are more cautious in their approach. They implement innovations after formal analysis and following precise procedures. The Miles & Snow framework assumes these organizations are structured in a centralized manner as central actors need complete information over processes to steer them rationally (Andrews et al., 2009, p.742). Reactors have no discernable strategy. Instead, they randomly decide what action to take once external or internal pressures make it necessary (Walker, 2010, p.231 f.). Analyzers are an intermediary category between prospectors and defenders that do not take the risk of the prospectors while being faster to innovate than defenders. Studies in recent years argued that this makes analyzers redundant (Walker, 2010, p.235). In line with these studies, the thesis does not include them in the operationalization.

While these theories were first developed and applied for private organizations, they are equally suitable for Public administration. At the turn of the millennium, public sector researchers began to look at public management as a concept and imported or adapted insights of private administration research (Moore & Khagram, 2004, p.2). In recent decades, the introduction of new public management (NPM) has played an essential role in this process. It led to demands that public organizations operate more efficiently and transparently by "utilizing […] business-like performance management" (Vogel, 2012, p. 370). Anglo-Saxon

countries were the first to adopt this new form of management in their bureaucracy. The Netherlands began with its adoption in the 1980s (Hendriks, Tops, 2003, p.301) and Germany in the early 1990s (Vogel, 2012, p.370). As a consequence of NPM, efforts to increase efficiency have made public organizations more output-oriented, and traditionally hierarchical structures have become decentralized and open. Thus, a strict distinction between the sectors has become outdated. With the privatization of specific previously public tasks and the utilization of public-private partnerships, contact and cooperation between the sectors have also increased (Schedler & Proeller, 2000, p.172). In summary, research is often applicable for both sectors due to the rapprochement between them.

Even if the private and public sectors have become more similar over recent decades, some characteristics in their strategic management remain. Boyne and Walker remark on the critical differences between private and public organizations' strategic content (Boyne & Walker, 2004, p. 236). First, private managers can select their strategy freely within a feasible and profitable range. In contrast, public managers have considerably less discretion than their private counterparts (Moore & Khagram, 2004, p.6). Second, political authority imposes constraints on an organization's strategy, even more so because of frequent changes due to election cycles and limited opportunities for managers to affect these changes. Next, political sponsors and the perceived public value of public organizations dictate their funding (Moore & Khagram, 2004, p.2). Thus, they are often more closely monitored and regulated than their private counterparts, inhibiting strategy choices and making changes costlier (Boyne & Walker, 2004, p.236). Regardless, as citizens' expectations of public services grow, researchers increasingly study their strategies to understand and increase performance (Walker, 2013, p.675).

The research on strategy examines two distinct aspects of strategy formulation and strategy content (Walker, 2013, p. 675). Research on the former concentrates on organizational behavior and how actors decide on a strategy (Walker, 2011, p.227). While this approach is dominant, this thesis focuses on the latter. Strategy content is "a pattern of action through which [organizations] propose to achieve desired goals, modify current circumstances and/or realize latent opportunities (Walker, 2011, p.228)". The thesis focuses on how municipal strategy impacts municipal green building policy performance.

2.3 Policy performance

Without a preexisting conceptualization of policy performance in the context of green building policies within a municipality, the thesis has the opportunity to develop one itself. It takes inspiration from studies on the performance of municipal cycling policies in this process. It chooses bicycle policies as a blueprint because of similarities in drivers and barriers. For

example, both require municipalities to engage with citizens and provide marketing and promotion to succeed (Fishman et al., 2021, p.691). Both call for changes to the established infrastructure to ensure an exemplary implementation (Biernat et al., 2018). Also, bicycle and green building policies encounter reservations and concerns for short-term costs or disadvantages if not following the policies. So, while not a perfect comparison, there are enough interfaces between bicycle and green building policies to warrant the subsequent conceptualization. It determines policy performance by investigating policies' input, output, and outcome. Policy inputs "refer to the institutional conditions and framework in which […] policy is created (*'orgware'*) (Harms et al., 2016,138). *Orgware* describes the role of primary actors and their cooperation and includes a variety of factors:

- involvement of citizens and advocacy groups,
- the financial means and organizational structure of (bicycle) policies,
- the consistency of policy goals and implementation over time,

  and the role of leadership and powerful actors (Harms et al., 2016, p.140)

These factors have received little attention in existing studies. Regardless, studies show that each can significantly affect the performance of policies (Harms et al., 2016, p.140). One can assume that these factors are indeed crucial for green building policies. Without thought-out incentives and good-faith engagement between relevant actors, it may be challenging to overcome financial and mental blockades to carrying out the policies. Next, policy output is designated as material (*hardware*) and immaterial (*software*) provisions made for policies. Generalized, *hardware* factors are

- Physical intervention in infrastructure
- Physically advancing the policy by making alternatives less attractive (Harms et al., 2016, p.138 f.)

The *software* relates to factors that change citizens' perceptions and attitudes towards policies. Factors are

- Providing education
- Providing information
- Providing communication
- City-wide activities (Harms et al., 2016, p.139 f.)

Finally, policy outcomes are the results of input and output. They are challenging to measure as it is often hard to determine policies' outcomes quantifiable and unambiguous. Green building policies are a fitting example as they set deadlines for when a certain percentage of building stock should be converted but generally offer little quantified objectives for municipalities besides that. Absolute or relative change regarding what the policy aimed to achieve is one of the often-applied factors to quantify outcome (Harms et al., 2016, p.138). In

their study, Harms et al. also used perceived changes in cycling conditions as indicators of performance.

Municipal networks are another factor that the thesis could apply in conceptualizing policy performance. Here, two kinds of networks are of interest. First, small, local networks between different stakeholders are valuable tools to municipalities (Retzlaff, 2010, p.31). Government officials and local professionals can use established pathways to ensure policies are implemented correctly and with the support of everyone involved (Retzlaff, 2010, p.33). Next, participation in (trans-)national municipal networks is equally interesting (Cidell, 2015, p. 571). Cities can exchange know-how and promote certain policies between each other. The transfer of knowledge could help local efforts implement sustainable building policies (Cidell, 2015, p. 571). Consequently, active external performance in small local and municipal networks focusing on green buildings is associated with better policy performance as they facilitate the exchange of experiences between cities.

2.4 Hypotheses & Research Model

While there is no general answer to which strategic stance is the most competitive, studies found that defenders and prospectors often outperform reactors (Walker, 2013, p.680). A reactive stance with an inherent lack of consistent strategy may be beneficial in the short term when a changing environment requires quick changes. However, in the long-term, they will generally have reduced performance. Langereis' findings in the Dutch context were not entirely conclusive in this regard (Langereis, 2015, p.35). However, this thesis proposes that in the context of environmental policies, where concise strategies may be crucial in getting the support of local actors and advancing projects, this assumption holds.

Proposition 1a: Reacting municipalities perform green building policies worse than prospective municipalities.

P1b: Reacting municipalities perform green building policies worse than defensive municipalities.

Better performance in this context describes municipalities that rank high in the different policy dimensions described later in this chapter and engage in (trans-)national municipal networks. In contrast, the study expects those that ignore specific policy dimensions and do not engage in "extracurricular" activities to perform worse.

Next, purely defensive municipalities may have the advantage of adopting proven measures in green buildings policies through their stance and have an increased efficiency in the fields they concentrate on. Thus, they outperform reactors. However, the thesis assumes that they perform worse than prospectors, as they have a reduced ability to adapt to new demands and targets of green building policies.

P2: Defensive municipalities perform green building policies worse than prospective and better than reactive municipalities.

Consequently, the thesis presumes that prospective municipalities perform green building policies better than municipalities following other strategies. Cities that take a proactive stance in climate change mitigation in general and sustainable building measures, in particular, might have an advantage in implementing novel innovations over their more cautious counterparts. In principle, the environment in which cities operate is relatively stable. Laws are known, important private and public actors are established, and municipalities usually know what is expected of them and to whom they can turn. However, this stability is changing due to the rapidly growing importance of green building caused, for example, by Fridays for Future and the high court rulings that institute more decisive action. The thesis suggests that prospective municipalities are better prepared to meet the demands of this change. As a result, they perform better under current conditions.

P3: Prospective municipalities perform green building policies better than defensive or reactive municipalities.

This thesis investigates how the strategic orientation of municipalities in Euregio relates to their performance of green building policies. To this end, it assumes that municipalities employ either a reactive, defensive, or prospective stance that describes a different strategy in facilitating green building policies. The research investigates whether the independent variable accounts for the municipal performance of green building policies within the selected municipalities. The thesis assumes that prospective municipalities outperform defensive and reactive ones, and defensive municipalities outperform reactive ones.

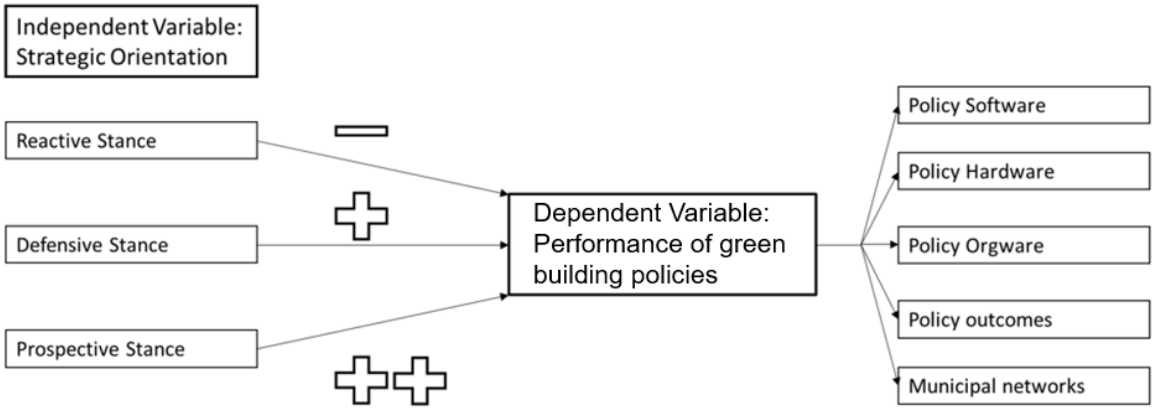


Figure 2, Research model

3.Methodology

The previous chapter presented the literature relevant to answering the research question and explained how it is applied to this end. Next, the thesis elaborates on the research methods employed to answer the research question. It presents the research design and unit of analysis below before discussing the operationalization of its variables.

3.1 Research Design

The thesis is a cross-sectional study of municipalities that are part of the Dutch-German cross-border region *Euregio* in 2021. It investigates the relationship between municipal strategic stance and the performance of sustainable building policies by measuring the variables of strategic stance and policy performance simultaneously (van der Kolk, 2015). One risk of the research design is that it may not account for reverse causation or the effect of third variables. However, the successful application of the Miles & Snow framework in existing studies indicates a valid relationship between strategy and performance as such. The thesis does substitute the overall municipal performance with the specific performance of green building policies in 2021, so some caution is required.

3.2 Unit of Analysis

Euregio consists of 129 municipalities. However, contacting all municipalities is not feasible. First, the time constraint of the thesis would make a study of every municipality complicated. Especially on the German side, several smaller municipalities provide little to no information on their sustainable action or specific green building measures. With a few exceptions, contacting these municipalities might not yield tangible results.

Consequently, the thesis studies a subgroup of municipalities within *Euregio*. The three selection criteria are population size, existing strategic documents related to green buildings, and equal representation of the different regions that make up *Euregio*. As Dutch and German municipalities have quite different average populations, the classification begins at 27.000 inhabitants. This number is the population mean of municipalities within Euregio, calculated using SPSS. Although smaller than the average Dutch municipality, considering the rural characteristics of *Euregio* and the smaller average population in Germany, this number is a suitable compromise between both systems. The top end is placed at around 75.000 inhabitants.

Additionally, the existence or the current development of a climate protection agenda is a second criterion. It increases the likelihood that a municipality has concrete strategies and measures related to green buildings and prevents contacting municipalities that have not confronted the subject. The thesis ensures that municipalities between different provinces and counties are equally represented as a final criterion. Thus, it chose to include municipalities with fewer inhabitants but an existing climate protection agenda, especially in rural German *Landkreise*. The thesis selected 39 municipalities representing every *Landkreis* and province following these criteria.

3.3 Data Collection

This chapter presents the data collection for each of the three approaches relevant to the thesis. It begins with data analysis, then discusses data collection for the survey, and ends on the collection for the interviews.

3.3.1 Primary & Secondary Data

In a first step, the thesis collected data on rules and regulations for green buildings of multi-level government political bodies represented across *Euregio*. This data analysis prioritized federal and provincial documents and guidelines and investigated similarities and differences in their effect on municipal work. These documents convey how the different levels of government perceive the importance of green buildings and which role they pass onto the municipalities. The data analysis focuses more on these guidelines than state laws like the German *Gebäudeenergiegesetz*. The thesis needs to be aware of these subordinate laws. However, the author does not have expressive expertise in analyzing legal texts. Thus, an analysis would be time-consuming without yielding better results than the data analysis focused on documents. It searched for Documents through a google search using key terms of *green buildings* and the respective government entity.

Further, the thesis collected data on municipal indicators in preparation for the survey. Where applicable, it consulted online datasets. The thesis included population, population density, economic structure, and average income. For the Netherlands, the thesis consulted CBS regional key indicators. In addition, it used a mix of data by the federal statistical *Bundesamt* and comparable subnational offices for Germany. In Lower Saxony, statistical offices do not provide the average income on the municipal level. The thesis used the different indicators to develop the subset of municipalities chosen for the survey. Initially, the thesis planned to apply the economic indicators average income and economic structure of

municipalities as control variables during the analysis of survey results. However, it did not conduct this step due to the lack of completed surveys.

A third data analysis was conducted in tandem with the interviews. For each municipality participating in the interview, the author collected documents and information related to green buildings. For most municipalities, the analysis examined the climate protection agenda and supplementary documents, i.e. progress reports and catalogs of measures. The concepts were published between 2013 and 2020. The building sector is usually a significant priority within the concept, so between 20 % and 33% of discussed measures are at least tangibly related to green buildings. Unfortunately, not all municipalities do indeed provide supplementary reports. Thus, it is not always possible to determine the eventual progress in implementing the measures described in these documents. Therefore, the analysis also incorporated municipal web pages with information related to green building and newspaper articles where possible. These web pages usually inform citizens of local subsidies or consulting offers or measures undertaken by the municipality. For the Netherlands, the thesis consulted a similar local sustainability agenda. This document also outlines a development scheme towards a climate-neutral municipality.

The advantages of these document analyses are that they generate a first overview of the municipalities' framework. For example, the first data analysis on different documents in *Euregio* helps address the first sub-question and provided orientation throughout the research. Notably, the third analysis is suitable to develop an understanding of similarities and differences in the approach of each municipality participating in interviews

3.3.2 Survey

The survey to collect data on both variables was administered via Qualtrics and offered a German and Dutch translation. It received its ethical approval on 07th of May 2021. The thesis needs to consider the language barrier that exists regarding Dutch municipalities. There are mitigating factors to this. For one, barring two exceptions, all questions are closed and can be analyzed regardless of language. Additionally, parts of the questionnaire are already aptly translated by Langereis. For most potential respondents, additional questions or interviews could likely be conducted in English. A preliminary survey version was sent to four people as part of a trial run with two speakers of the respective languages. The practice run improved the quality of the Dutch translation and the survey's overall quality. The author kept data on the personal computer and Qualtrics server.

Furthermore, the thesis had to translate Walkers' existing questionnaires into German. The questions relating to reacting were a point of contention during the early stages of the thesis. As some of them would reflect negatively on the work of the municipality, it was a

concern that respondents may be unwilling to answer them truthfully. As respondents were promised anonymous reporting in line with ethical requirements, the thesis decided against changing the phrasing of those questions. Any change might reduce the comparability of this survey compared to existing studies and make some questions challenging to distinguish from existing items.

On the 12th of October 2021, the survey was distributed among the selected 39 municipalities through an invitation via E-Mail. It reached out to climate protection managers or actors in a similar position. Particularly in Germany, individual measures and targets for green buildings are set in climate protection agendas, with implementation and overview being a key task of those managers. Most Dutch municipalities did not offer the contact details of the sustainability or planning office on their website. Thus, the thesis relied on sending the E-mail to the general municipal E-Mail in all but three cases. Furthermore, the municipal website forwards to non-public local actors that engage with green buildings in a few cases instead of presenting their work on the subject. 7 municipalities responded to this initial message.

A first reminder was sent on the 1st of November (+1 response) and a final reminder on the 8th of November (+6 responses). Dutch municipalities were sent an additional reminder on the 18th of November (+1 response), as only one municipality had responded at this point. The generally low response rate of 28 % for web-based surveys and additional difficulties of reaching municipal actors caused by the COVID-19 pandemic meant that the number of responses was already expected to be well below the average needed for this type of study. Consequently, the thesis needed to find a way to adapt its structure to a low number of cases.

To mitigate some of the shortcomings of a small n, the survey asked the initial respondents to forward the survey to one or two additional workers engaged with green buildings. Contacting different administrative actors with complementary skills and knowledge is essential in triangulating data and securing its validity. As each actor has a different approach to the subject, together, they can offer a well-rounded image of each municipality's characteristics. Yet, the thesis did not collect a second response from municipalities that completed the survey

Despite the attempts to increase the response rate and the reminders, only 15 out of 39 municipalities answered the survey. Three responses stopped short of indicating which municipality the respondent worked for. Thus, 12 of those responses were valid, leading to a response rate of 38%, respectively 30 %. Results were downloaded as Adobe-Acrobat documents and kept on the author´s computer. Unfortunately, only two Dutch municipalities completed the survey. One *adviseur energietranisitie* stated in an E-Mail response that the surveys' topic does not fit their work. As this response mainly dealt with designing green buildings rather than engaging with local citizens, there might have been a misunderstanding on the survey's subject. Given the reliance on external advisors and the focus of the E-Mail,

perhaps Dutch municipalities have a different role in the process compared to their German counterparts. Unfortunately, the survey could not explain this observation in more detail. Ultimately, neither the response rate nor the total number of responses was sufficient to advance the study.

3.3.3 Interviews

Consequently, it was clear that other steps were necessary to strengthen the thesis' validity. Therefore, it integrated an additional interview with municipal officers to address the emergent issue of not having statistically sound quantitative results. A high number of interviews, combined with the other data, could provide a suitable quantity and quality of data. They grant the thesis much coinciding information that helps in answering the research question. To this end, the study contacted municipal actors' and conducted a more in-depth telephone interview (Campos et al., 2017, 69f.). It received the necessary ethical approval on 27nd of October 2021. As interviews with all 39 municipalities were not feasible, some selection needed to occur at this stage. The author prioritized conducting interviews with municipalities that had either completed the survey or responded differently. As survey respondents had indicated their position with the municipality, the author could search for the interviewee on the municipal website and contact them. One municipal officer indicated that she could not respond to the survey, and after contacting her, she agreed to participate in the interview. All other German interviewees had previously completed the survey. Thus, the author could select a heterogeneous set of German cities representing almost all provinces and *Landkreise*. As with the survey, contacting Dutch municipalities proved more complex, and the thesis could only arrange one interview.

After agreeing to the interview request, the author sent respondents a list of essential questions to aid preparation. Nine telephone interviews with German municipalities were conducted between the 15th and 23rd of November. Of those nine municipalities, two are located in Lower-Saxony and seven in North-Rhine Westphalia. The sample represents every *Landkreis* of NRW at least once, whereas it does not include one *Landkreis* for Lower Saxony. One possible participant for the remaining region had to decline because of time constraints. The author did not contact any of the *kreisfreie* Städte within *Euregio* as they exceeded the population criterion. He conducted one interview with a Dutch municipality part of Overijssel on the 7th of December.

The table below presents all 10 municipalities that took part in the interviews. The thesis anonymizes the names of cities as the point is not to know which municipality is involved. The coding is simple: It calls cities below 35.000 inhabitants GS*n*(small), and those above GB*n* (Big). The table further shows the location, respective population, and status of a climate

protection concept for each municipality. The thesis discusses the impact of these factors on municipalities at the end of the thesis. In regards to the interview, the table displays the date and time of interviews and the position of the respondents.

Municipality	Location	Population	Climate Concept	Date & Time of Interview		Position
GS1	NL-OV	33.000	2020	07.12	10:00-10:45	Adviseur Klimaattaken
GS2	GER-NRW	9.000	2019	15.11	10:00-10:35	Climate protection manager
GS3	GER-NRW	20.000	2012 (Update i.D.)	16.11	12:00-12:35	Climate protection manager
GS4	GER-NRW	34.000	2013	15.11	08:30-09:15	Climate protection manager
GS5	GER-LS	30.000	2020	16.11	10:15-10:50	Climate protection manager
GB1	GER-NRW	48.000	In development	21.11	12:00-12:30	Climate protection manager
GB2	GER-NRW	39.000	In development	22.11	10:00-10:35	Climate protection manager
GB3	GER-NRW	36.000	2012	17.11	14:00-14:45	Climate protection manager
GB4	GER-NRW	37.000	2017	17.11	11:00-11:25	Climate protection manager
GB5	GER-LS	54.000	2013	23.11	09:00-10:15	City development & environ.

Table 1, Description of interviewed Municipalities

By asking in-depth questions on the local status quo, the interviews were better suited to understand the work of the respondents and the activity of their municipality. The author recorded interviews with the explicit consent of the respondents. Recordings were processed using Trint, a web-based audio-transcription software. In one case, the recording failed, and the author used a memory protocol. He contacted the relevant interviewee to make sure that this protocol was correct.

3.4 Operationalization

As with the data collection, the thesis will separate the presentation of methods and operationalization of data analysis, survey, and interview.

3.4.1 Data Analysis

For the case analysis, the thesis searched for strategic documents by federal and provincial governments that discuss green buildings, and it searched for the objectives and proposed measures outlined in these documents. Another concern was to what degree these documents mention the role of municipalities in implementing green buildings. Based on these results, the thesis describes similarities and differences in the framework in which *Euregio*-municipalities operate.

The thesis analyzed the relevant data of municipalities participating in the interview using a coding table based on strategic orientation and policy performance concepts. The thesis primarily developed this coding scheme, but the codes are based on dimensions belonging to the concepts. For example, the code *involvement of local actors* is described by

Harms et al. as one essential element of the *orgware* of policy performance (2014, p.140). As the thesis introduces network activity as a new dimension to policy performance, here, the thesis introduces new codes. *Entrenchment of local exchange* refers to anchoring the local involvement, and two other new codes refer to inter-communal exchange, which Harms et al. largely do not account for in their framework. The thesis bases its codes for strategic orientation on the Andrews et al. "empirical application of the Miles and Snow model (2009, p.732)". The complete table, including the relevant documents and coding, can be found in Appendix II.

3.4.2 Survey

Survey responses were checked for relevant biases, most notably central tendency, and social desirability bias. Respondents should not choose every middle option or most desirable option for the question. After collecting the survey data, it was analyzed using IBM SPSS Statistics 26 to reveal any correlation between the variables. Correlation analysis is used to scan the link between both variables. Their performance of sustainable building policies was determined by the mean score for each policy dimension. The thesis assesses the correlation between both variables using the Pearson correlation coefficient (r). More complex analyses as done by Langereis were planned initially. However, because of the low number of cases, such analysis would have consumed too much time and yielded too few robust results, thus the author decided against them.

Operationalization of strategic management

The thesis can adhere to existing research on strategic management to measure municipal strategic orientation in large parts. The study further utilizes the Miles & Snow typology because of its successful application in similar strategic management and municipal performance. While research mainly applied the framework in the context of municipal performance in Anglo-Saxon countries, it has successfully been used in the Netherlands (Langereis, 2015). A summary of studies using the framework in 2013 by Walker does not present any examples of studies of this type conducted in Germany (p.678). A literature search using SCOPUS and the key terms *Miles & Snow* and *Germany* only yields one result for 2014, which applies the typology for the hospital sector (Helmig, 2014). This article uses a different operationalization of the typology than Walker and Langereis (Helmig, 2014, p.369).

Given the lack of German operationalizations, the thesis decided to follow the approach established by Walker. The survey measures all responses using a 7-point Likert scale running from "*strongly disagree"* to "*strongly agree"*. The thesis looked at the extent to which respondents (dis-)agreed with the different statements to decide on the appropriate stance.

Operationalization of green building policy performance

The thesis may follow a model similar to that of Harms et al. to operationalize policy performance. Their study measured different elements related to policy input, output, and outcome of Cycling policies in Dutch cities (2017). Of course, the thesis must adapt the operationalization to the context of sustainable building policies.

Operationalizing policy outcomes requires neutral and sound indicators. As the survey is based on self-reports, it needs to attempt to ask for an objective indicator. As one primary objective of sustainable building policies is to renovate old and energetically inefficient buildings, the absolute change of renovated buildings is one suitable example. Another aim of the European building directive that municipalities could influence is to "enable consumers and businesses to make more informed choices to save energy and money (EU, 2021)". While it is a more subjective question, asking for an absolute or perceived change in active citizens could also be valid to reveal policy outcomes.

The operationalization of inter-municipal participation examines both small local networks of experts and municipal workers; and (trans-)national municipal networks. The former is a critical tool in realizing cooperation between local actors and driving sustainable building policies in the Dutch context. (Trans-)national networks are equally valuable in promoting the exchange of information between municipalities. The thesis can separate between no participation in such networks and active or passive participation to determine the extent of external performance (Kern & Burkeley, 2009, p.311). Consequently, the survey implements questions asking for participation in those networks.

Operationalization of Indicators and Control Variables

The survey asked for the three most salient control variables presented by Danko et al. Established barriers and drivers of green building policies should positively relate to green building performance. These control variables reflect the items presented in the chapter on established explanations of green building performance.

The final block of questions in the survey concerned the general characteristics of the respondents and the municipality they work for. As some questions make it possible to identify the particular respondent, the survey highlights that this data is used only internally and will remain confidential. With these responses, the survey intended to check whether responding municipalities and individuals represent a broad spectrum of the cities in *Euregio.*

3.4.3 Interviews

The author analyzed the interviews regarding how dependent and independent variables emerge in responses. Questions were mostly the same between municipalities, so examining where responses differed or followed the same line was essential.

During the operationalization, one key objective was to develop questions distinct from the survey. Therefore, the author integrated feedback that the officials addressed by the study could not fully answer specific strategic questions outside of their scope. Thus, especially questions on strategic orientation have been changed from the survey to be more contextual and open-ended. Again, Walker served as a broad template for the questions, focusing on gaining intel on strategy formulation, implementation, organizational structure, and environment. However, questions did not simply repeat elements of the concept and instead developed appropriate questions using experiences from the survey and examples of the work by municipalities.

Questions for policy performance were closer to the framework set by Harms et al. There had been less negative feedback on related questions in the survey, and by streamlining questions, it was easy to develop at least one question for every dimension for policy performance. One insight of survey and document analysis was that *hardware* in the original sense of the framework, physical intervention in infrastructure, was not applicable. Municipalities cannot physically intervene for or against specific building projects, especially by private actors. Thus, the author replaced physical intervention with instituting mandatory standards as an indicator for *hardware*.

The interview developed location-based questions for each municipality. For most municipalities, this included questions on the effect of the climate protection agenda or the development thereof. Additional questions investigated special on-site measures or the effect of distinct municipal structures, i.e., a municipality being separated into different population centers. Including these questions, the interviews asked between 16 and 19 questions on every dimension of the two concepts and could elaborate on data analysis and survey insights. The complete set of questions is available in Annex III.

The thesis developed two tables to illustrate the strategic orientation and policy performance of the municipality. It uses the first table to indicate the strategic orientation of a municipality. The square indicates the current stance. An arrow further highlights if documents and interviews reveal a current shift in strategy. The second table describes the green building policy performance. As the factors making up input and output vary significantly, only presenting those two dimensions would not give an accurate representation of performance.

Therefore, the thesis chose to split the presentation up into five subdimensions. This approach is better suited to express municipal performance in sufficient detail.

City / Strategic Orientation	Example
Reactive	
Defensive	
Prospective	

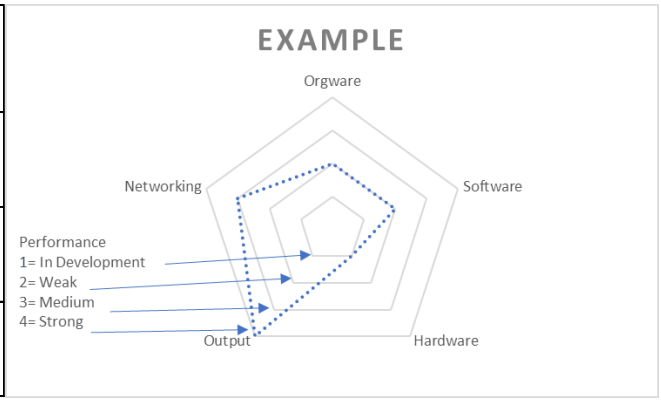


Table 2, Illustration of Orientation & Performance

4.Results

The thesis separates results of case analysis, survey results, and the subsequent data and interview analysis. It will begin with a description of the legislative and operative framework of municipalities within *Euregio*. Here, it focuses on the objectives and laws of federal states and provinces and presents notable similarities and differences. Next, it presents survey results. Finally, it displays the results for the secondary data analysis and interviews. After a brief general presentation of results, the thesis divides the interview analysis between the stances in which it places municipalities. This has the advantage of structuring the results and can further help answer the thesis's sub-question.

4.1 Results I: Case analysis

Sustainability at large and green buildings, in particular, is a salient subject for the governmental bodies participating in *Euregio*. By choosing this region for the case study, the thesis has access to municipalities belonging to two countries and five different subnational states. Thus, it has enormous potential to demonstrate how different legislative approaches may influence the municipal performance of green building policies. Nevertheless, there is also a risk that different federal structures result in municipalities' tasks on either side of the border diverging too far for comparison. Both countries' current policies and directives are reviewed below to assess this risk. Notably, neither countries nor provinces refer to green buildings in their documents. Rather, with few exceptions German documents use *nachhaltiges Bauen* and Dutch *duurzam bouwen*.

In Germany and the Netherlands, national decisions set targets for the number of houses to be sustainably renovated in years to come. The Dutch *Klimaatakoord*, not referring to green buildings but to sustainability at large, aims to make 1.5 million houses sustainable by 2030 (Climate Agreement, 2019). Beyond that, the agreement sets targets to reach a low-carbon building stock by 2050. To facilitate this process, the government offers municipalities the "*Sectorale Routekaart Gemeentelijk Maatschappelijk*," which focuses on how local authorities can transform their building stock (RVO, 2021). Furthermore, it obliges them to update and review their roadmap towards these goals every four years. In Germany, the Climate protection act serves as the legal framework for climate change mitigation. The relevant document for specific targets and accompanying tools is the "*Leitfaden Nachhaltiges Bauen*."

It sets targets for 2050 for an 80% reduction of energy consumption by the building sector but has no objectives for 2030 (BMI,2021, p.9). The *Leitfaden* emphasizes the importance of exchange between the federal government and Länder and integrates municipal

associations (BMI, 2021, p.8). Outside of this remark and the observation that "acceptance among decision-makers and project managers (BMI, 2021, p.4)" is rising, the *Leitfaden* does not refer to the local government's role in adopting green building policies. Another central aspect of the German handling of green building is that it increasingly applies different certification systems such as Nachhaltiges *Bauen für Bundesgebäude* (BNB). The recently passed *Klimaschutzprogramm 2030* added new interim goals. Interestingly, it barely mentions local authorities as relevant actors in its chapter on buildings.

At the provincial level, both German and all three Dutch provinces bring forward additional documents. While the Netherlands has expanded its provincial governments' authority, the thesis must point out that they have a different function compared to their German counterparts (Hulst, 2007, p.101). As a unitary state, the Netherlands relies more on the central state than federalist Germany does. In Germany, the central government rarely intervenes in municipal matters, as that is a subject for the province or lower authorities. The Netherlands applies a different approach where the central government does indeed check the progress of municipalities, and provinces are tasked with aiding this process and facilitating the implementation of the national requirements rather than developing their own.

Nonetheless, all three provinces develop unique programs or objectives, which illustrates their relative freedom despite the unitary framework. Overijssel provides a framework for its municipalities that demands an energy-neutral built environment by 2050 (Overijssel, 2021). To develop a path towards meeting this target, in 2019, the province published an agenda building on a motion passed in 2016 (European Commission, 2019). This agenda aims to use fewer raw materials in the housing environment, ultimately removing them entirely by 2050. As per the document, the national government's role is to conclude energy and raw material agreements, while provinces and municipalities translate those into local activities (Overijssel, 2019, p.16). Consequently, the transition agenda calls for communal authorities to stimulate a circular economy by reducing bureaucratic barriers and designing suitable locations (Overijssel, 2019, p.29). While not immediately drawing up concrete steps that province and local authorities should take, the agenda offers a blueprint for moving forward in this field.

Drenthe and Gelderland propose similar steps for their respective provinces. The latter outlines objectives to advance circular and conceptual buildings (Gelderland, p.2). In contrast to the other provinces, this *circular bouwen* appears to take precedence over *duurzam bouwen*. However, the thesis cannot determine whether the use of different concepts has real implications on the work of provinces in the building sector. Existing documents indicate that the province is aware of the climate implications of the building sector and act to rectify them. Drenthe offers four million euros of funds for energy-neutral living, conveying their participation

in green buildings (Dagblaad Norden, 2020). The province outlines its role as a facilitator and supporter of cities, property developers, and other actors in the sectors.

The most relevant documents for both German federal states appear to be their sustainable development strategies. These outline their path to fulfilling the sustainable development goals devised by the United Nations, with green buildings partly reflected in goal 11, "Make cities and human settlements inclusive, safe, resilient and sustainable." NRW's strategy postulates that municipalities should increase their sustainability engagement by coordinating social, environmental, and ecological demands (NRW, 2020, p.56). For example, decisions on agenda processes or sustainability strategies at the municipal level could provide orientation (NRW, 2020, p.57).

Cities have different tasks as part of their self-government, for example, annually devising an urban development program. While the strategy does not explicitly mention green building policies, it calls for action in the sector at large. The corresponding strategy of Lower Saxony has an even looser focus on sustainable cities, with very few remarks that relate to green building policies. Events such as the *Bionale* illustrate that the province is aware of the subject (Niedersachsen, 2019). Nonetheless, it is challenging to find clear policy targets without better access to such documents.

This comparison aims to recapitulate central aspects of the federal and provincial approaches to green buildings in the Netherlands and Germany. Unfortunately, none of the strategies make explicit use of the green building concept. Beyond that, the comparison illustrates that both countries apply roughly similar methods. Both aim to significantly reduce their built environment's energy consumption by 2050, according to the goals of the Paris agreement. Interim goals in 2030 are meant to pave the way. Neither provides strict plans on how to implement these objectives.

It appears that the Dutch government and provinces take municipalities closer into consideration. German documents do not necessarily offer pendants to the Dutch roadmap and calls to stimulate local authorities' green buildings. Further insights would be necessary to ensure the correctness of this claim, and similarities in municipalities' tasks also exist. In light of this comparison, it is evident that a comparison between municipalities of both countries is valid and promises relevant results. It will be interesting to see how minor differences in the relevant documents and varying municipal competencies affect their work from a scientific perspective. Neither duties of local public officials nor the financial capabilities of higher federal structures are too distinct; the opportunities of the comparison certainly outweigh the risks. With the opportunity to promote greater cooperation regarding green buildings between municipalities, the study is also societally relevant.

4.2 Results II: Survey

As a preface, the number of cases is too small to make conclusions based on the survey alone. Nonetheless, the thesis presents it to be transparent about the work done and briefly discuss it as far as possible.

4.2.1 Proportionality of participants

With that in mind, the following chapter displays the survey results. The study collected 15 total and 12 complete responses. 10 German municipalities answered, with seven from North-Rhine Westphalia and three from Lower-Saxony. Both Dutch municipalities are part of Overijssel. The thesis conducted a Mann-Whitney-Test comparing municipalities that responded with those that did not. It chose the categorical variables of population size, percentage of each economic sector, and income per capita as indicators. This analysis did not reveal a significant correlation between these key indicators and whether the municipality responded. The average population size of all contacted municipalities calculated by SPSS is 36.600. The average population of the municipalities that responded to the survey was 30.673, indicating that fewer large cities responded overall. Attempts to contact the largest German city included in the sample failed partially because of the high workload of two separate officials. Perhaps this is why on average, smaller municipalities responded to the survey, although the thesis would need further evidence for this claim.

The average income of the partial sample is 22.033 €, around 900 € or 4 % lower than the 22.919 € in the complete sample. Furthermore, they have slightly more recent climate protection concepts. These indicators can easily be affected by individual cases, so it is essential to remember the low N in play. Ultimately, there is little difference between the average value of key indicators between the complete sample and partial sample of responding municipalities. Especially in Germany, the partial sample represents all regions and is relatively proportional.

4.2.2 Descriptive Statistics

Statistic / Dimension	N	Minimal Value	Maximum Value	Average Value	Std.-Deviation	Data Skewness
Prosp-total	15	1,3	5,5	4,0	1,1	-1,5
Defend-total	15	3,0	5,6	4,6	0,7	-0,9
React-total	15	2,0	4,6	3,6	0,8	-0,6
Input-total	15	2,0	6,8	4,0	1,1	0,3
Hardware-total	15	1,0	5,5	3,4	1,4	-0,4
Software-total	15	1,0	6,7	3,8	1,8	-0,3
Output-total	14	2,5	7,0	4,5	1,2	0,0
Network-total	15	1,0	6,5	3,8	1,5	-0,2
Control-total	15	3,3	6,3	4,5	0,8	0,4

Table 3, Descriptive statistics of survey results

The table above presents descriptive statistics of strategic orientation and policy performance. It also includes the three incomplete results, as those had responded to all questions relevant to this table. It presents the average value for each dimension rather than the value for each question. Any result below must take the low number of cases into account. Consequently, statements are meant to understand the work done for the thesis and cautiously outline apparent trends. They are explicitly not statistically secure conclusions.

Results for strategic orientation show a slight tendency towards a defensive stance, as its average value deviates the least and is the highest of all dimensions across the survey. While it is moderately skewed, most answers are reasonably close to each other. In contrast, the average value for a prospective stance has a central tendency. Responses are highly skewed towards the right. However, two deviating responses with a significantly lower value for prospectiveness weigh in heavily here and reduce its average value. Otherwise, it would be comparable to the defensive stance. Finally, *react* has the lowest average value, and the relatively low standard deviation and skewness compared to the other stances further indicate that most municipalities did not see themselves as reactive.

Statistics for policy performance show a more moderate skewness compared to strategic orientation. Results are approximately symmetric, especially concerning *output*. Output also has the highest average value next to the control variables. This could indicate that most respondents see a positive change in their municipality. In contrast, h*ardware* has the lowest average value while also having a relatively high standard deviation. As discussed in chapter 3.4.3, the original operationalization of *hardware* of Harms et al. was not suitable for green buildings. However, the survey had applied it, so it is self-explanatory that respondents would disagree here, and it has the added benefit of showing that respondents paid attention to the question. Results for i*nput* are comparable to the prospective stance both in average value and standard deviation. 11 of 15 responses are between 3,5 and 4,5, so outside of extreme cases that balance out each other, responses here are very neutral. Comparatively, *software* has the highest standard deviation, as three extremely low responses lead to a value below the center. Results for *network* are relatively symmetrical but have a high deviation. As with other dimensions, a few responses with a low value influence the remaining moderate responses. Even with the small number of cases, very different responses emerged as indicated by the standard deviation and difference between the minimal and maximal expression of the different dimensions. Social desirability bias does not emerge overall, as different responses did not shy away from grading their municipality's work poorly.

Finally, contact persons offered several remarks in response to the survey. A table of all remarks is available in Appendix II, but the implications of the remarks on the research are briefly discussed here. One frequent remark by respondents concerns the strategic questions of the survey. They argued that they are not in a position to answer them, and instead, these

questions are better suited for higher-ranking officials. Other questions were critiqued for addressing politics more than the respondents' administrative work. While it was not possible to change the questions of the running survey, the author integrated the feedback for the subsequent interview questions. Another remark was that the number of questions was too high, especially as some questions were near-duplicates of each other. Again, this feedback was incorporated in the interview, which had fewer questions and attempted to avoid duplicates.

Additionally, those municipalities in the process of developing the climate protection concept highlighted that at this early stage, they could not answer all questions yet, or that they would answer them differently in a couple of months. For these municipalities, the thesis developed alternative interview questions that take the context into account and tried to fill any remaining gaps with secondary data. Finally, two Dutch municipalities offered remarks on why they could participate in the survey. One said that it would partake, but did not find a Dutch version of the survey. This was likely a misunderstanding, as there is a Dutch version, and both the messages and survey mentioned this. The author mentioned this to the official, and wrote the final reminder in Dutch rather than English, highlighting this fact. Additionally, one official argued that the survey does not fit into the work of municipal workers, as they do not engage with green buildings. It was challenging to address as other responses by Dutch municipalities did not offer further insights on this comment; thus, it was briefly addressed in the sole interview with a Dutch official.

4.2.3 Correlation Analysis

Correlation

		Prospect	Defend	React	Input	Hardware	Software	Output	Network	Control
Prosp-total	Pearson Cor.	1	,646**	-,538*	,715**	,431	,721**	,518	,706**	-,278
	Significance		,009	,039	,003	,109	,002	,058	,003	,315
	N	15	15	15	15	15	15	14	15	15
Defend-total	Pearson Cor.	,646**	1	-,504	,719**	,692**	,656**	,641*	,688**	,34
	Significance	,009		,055	,003	,004	,008	,013	,005	,903
	N	15	15	15	15	15	15	14	15	15
React-total	Pearson Cor.	-,538*	-,504	1	-,697**	-,336	-,602*	-,663**	-,689**	-,193
	Significance	,039	,055		,004	,221	,018	,010	,004	,491
	N	15	15	15	15	15	15	14	15	15
Input-total	Pearson Cor.	,715**	,719**	-,504	1	,647**	,740**	,822**	,657**	,283
	Significance	,003	,003	,055		,009	,002	.000	,008	,307
	N	15	15	15	15	15	15	14	15	15
Hardware-total	Pearson Cor.	,431	,692**	-,336	,647**	1	,682**	,732**	,555*	,21
	Significance	,109	,004	,221	,009		,005	,003	,032	,941
	N	15	15	15	15	15	15	14	15	15
Software-total	Pearson Cor.	,721**	,656**	-,602*	,740**	,682**	1	,777**	,859**	-,008
	Significance	,002	,008	,018	,002	,005		,003	,000	,976
	N	15	15	15	15	15	15	14	15	15
Output-total	Pearson Cor.	,518	,641*	-,663**	,822**	,732**	,777**	1	,799**	,272
	Significance	,058	,013	,010	.000	,003	,003		,001	,347
	N	15	15	15	15	15	15	14	15	15
Network-total	Pearson Cor.	,706**	,688**	-,689**	,657**	,555*	,859**	,799**	1	-,029
	Significance	,003	,005	,004	,008	,032	,000	,001		,919
	N	15	15	15	15	15	15	14	15	15
Control-total	Pearson Cor.	-,278	,34	-,193	,283	,21	-,008	-,008	-,029	1
	Significance	,315	,903	,491	,307	,941	,976	,976	,919	
	N	15	15	15	15	15	15	14	15	15

*Table 4, Correlation Analysis **. Correlation is significant at the 0.001 level (2-sided); *. Correlation is significant at the 0.05 level (2-sided)*

The low number of cases negatively affects the value of a correlation analysis of the survey result. Nonetheless, as with the survey's descriptive statistics, the analysis is presented both to show the work done and highlight that similar future research would be worthwhile. A first insight is that the control variable does not express a single significant correlation. This is a sign that the corresponding survey questions based on Danko et al. did not function as expected. Excluding this variable, 80% of correlations are significant. It would be expected that the dimensions of the same concept closely relate. But it is noteworthy that in this small set of cases, responses generally follow the expected route in this regard.

The defensive and prospective dimensions are strongly and positively correlated, indicating that municipalities employing either stance are also more likely to exhibit the second. In contrast, react has a negative correlation with the prospective and defensive stances. Most dimensions belonging to policy performance significantly and positively correlate. On the correlation between stance and performance, it can be said that were it not for the low number of cases, results would follow expected patterns. The reactive stance only has negative correlations with policy performance dimensions, indicating that reactive tendencies indeed harm the performance of green building policies by municipalities. Again, as stated in the propositions, the defensive and prospective stances positively correlate with most dimensions.

In summary, the thesis must note that the results of this analysis are called into question by the low number of cases. Therefore, individual answers to the survey with extreme values skew the results, albeit in a good direction in terms of checking the propositions. One such response did not indicate the respondent's municipality, making it more problematic. In this respect, the thesis would need more cases and further statistical analysis to answer the hypotheses and the research questions based on the survey. Nevertheless, results do, on paper, meet the expectations. Further research on a larger scale might be able to statistically prove the assumptions that can be expected based on the Miles & Snow framework. With this at least in outline recognizable confirmation of the proposition, the work now moves further into the evaluation of the interviews and the associated data analysis.

4.3 Results III: Document Analysis & Interviews

The following chapter presents the results of the interview and secondary data analysis for the different dimensions of strategic orientation and policy performance. As mentioned in the methodology, this set includes one municipality located in Overijssel, seven in NRW, and two in Lower Saxony. As few documents provide updated reports with concrete evidence of strategy or policy performance in municipalities, the thesis primarily relies on interviews to outline similarities or differences in the municipalities. The conducted interviews also collected congruent responses for several questions. Thus, the author decided to group municipalities based on the stance they employ. Given the nuance and details that interviews can pick up on, even among the same stance municipalities are not identical. Therefore, the thesis will highlight unique measures or circumstances that explain where they differ or overlap. Annex II includes two tables that present the frequency of codes appearing in documents and common responses along the various dimensions in interviews.

4.3.1 Reactive*Defensive municipalities

City / Strategic Orientation	GB1
Reactive	↓ ■
Defensive	
Prospective	

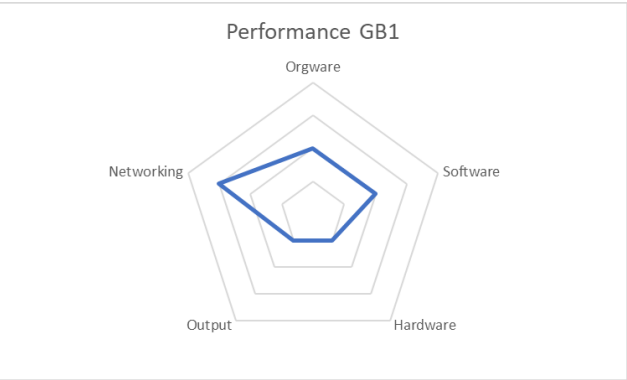


Table 5, Orientation & Performance GB1

City / Strategic Orientation	GB2
Reactive	↓ ■
Defensive	
Prospective	

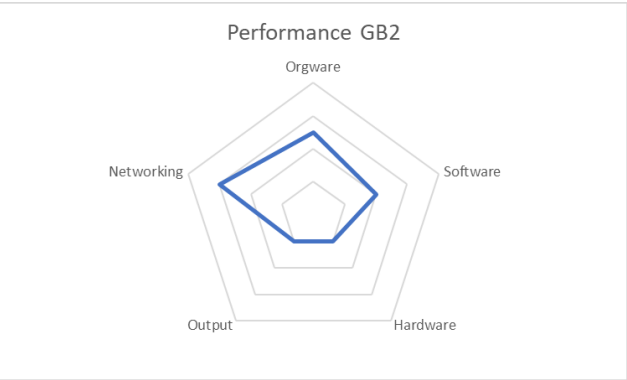


Table 6, Orientation & Performance GB2

City / Strategic Orientation	GS3
Reactive	
Defensive	
Prospective	

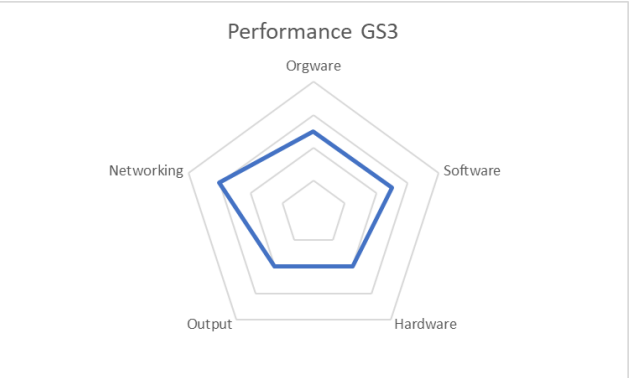


Table 7, Orientation & Performance GS3

The analysis will begin with the municipalities most closely matched with employing a reactive stance. The three cases fall under two categories: GB1 and GB2 are very similar as both currently develop their climate protection concept and are consequently still at an early stage in this process. In contrast, GS3 has published its original climate protection concept in 2013 and is currently developing a revised concept. Thus, here the administration had time to develop a strategy but did not utilize all tools theoretically available (Interview GS3, ll.106-110).

The available data for GB1 and 2 confirms that neither provides information on subsidies or measures on their website. Furthermore, outside of measures related to public buildings, they have limited experience on the renovation of buildings (Interview GB2, l.69). Nonetheless, both respondents believe that the development of the concept will trigger a transformation process to provide a guideline for green buildings. Documents and the interview also highlight that the municipal administrations are aware of the need to develop a strategy and willing to do the necessary work in building up local networks.

The website and concepts of GS3 reveal more information on its situation and prior efforts. GS3s´ respondent remarks on the role model function of the administration in renovating its building stock and referring to external advisors (Interview GS3, ll.12-16). The issues are that the city only recently implemented an energetic concept aiding the search of energy-efficient development opportunities and political intervention (Interview GS3, ll.87-91). GS3´s administration closely involves local politics (Interview GS3, ll.126-128). In updating the climate protection concept, the administration received political pressure to set its climate goals higher (Interview GS3, ll.326-328). At the same time, it was not politically desired to mandate a thermal network in developing areas, showing a discrepancy between ambition and action (Interview GS3, ll.89-93). For these reasons, the municipality struggled to develop a concise strategic orientation as different interests and lack of tools slowed down efforts.

As in the other two municipalities, GS3´s respondent reaffirmed that she and others within the city work towards rectifying these issues. The new and revised concepts and political ambition highlight these efforts, although the different actors still need to agree on what ambition is realistic and how to implement it. Therefore, the thesis does not believe it can

categorize either of the cities as purely reactive. Had the research been done a year or two ago, the efforts to change the strategy were not as apparent. However, all are sincerely interested in advancing, and it seems that their strategic orientation will shift in the short- to medium-term.

From interviews and documents, it would appear that GB2 is slightly ahead in performance compared to GB1 as it did have a partial climate concept focused on municipal buildings (Interview GB2, ll.388-390). The respondent of GB2 has worked for her city longer than that of GB1. Thus, it might have been a subjective impression that her municipality had already done more regarding green buildings as she had more experiences outside of developing the climate protection concept. In general, both municipalities are still developing projects and strategies and are not at the implementation stage (Interview GB2, ll.72-73). As part of developing the climate protection concept, the administration builds up local networks and learns about citizens' concerns and priorities (Interview GB1, ll.271-272). Another priority of the respondents is to anchor sustainable behavior within the administration, which also connects to the role model function (Interview GB1, l.37). In GS3, many public buildings are being renovated. But these construction measures need to be highlighted even more to live up to the role model function (Interview GS3, ll. 224-226). Otherwise, local stakeholders are also involved when their participation is relevant, such as investors regarding new tenders. Unfortunately, public events, including those directly related to green buildings, are relegated to being conducted online due to COVID-19.

Therefore, communication occurs mainly by telephone, with the rise in gas prices making itself felt here with an increased interest in advice. Otherwise, online events and informal networks provide an opportunity for communication. GS3 also refers to already implemented measures and the currently expired funding of solar panels. The city had much success with this promotion of solar panels as the information spread rapidly in local networks. The administration was surprised by the measure's success, which leads to expect more in the future (Interview GS3, ll.343-344). GS3´s respondent favors mandatory standards within the city as a tool to promote green buildings. So far, against political pressure, their implementation is not possible (Interview GS3, ll.387-389).

It is impossible to determine the output of green building policies for any municipality. The municipalities that currently develop their concept conduct few measures for which outcomes are already available, and do not monitor the overall progress. GS3 faces the problem that it has little access to relevant information, among other things, also because only half of the building land belongs to the municipality itself (Interview GS3, ll.271-275). Therefore, local actors do not have to report many private measures, making an accurate overview difficult. The respondent has received advice from a colleague to offer homeowners small subsidies or vouchers for providing information, but she has not yet been able to do so

(Interview GS3, ll.275-277). Finally, all three respondents are engaged in different networks that aid their work. First, exchanging with other climate protection managers is vital to the personal work of the managers (Interview GB1, l.282). Further inter-municipal exchange happens within the region, notably the *Landkreis.* It allows the municipality to learn from other municipalities in a similar position and is essential to all respondents (Interview GB2, ll.312-315).

In summary, the municipalities are currently revising their strategy and no longer employ a purely reactive stance. Nonetheless, this change will take some time to reflect in performance as they only begin to implement projects and anchor the values within the administration and city. Thus, the past indecision negatively affects the current performance, but it is promising to see the change in all three cities.

4.3.2 Prim. Defensive:

City / Strategic Orientation	GB4
Reactive	
Defensive	■
Prospective	

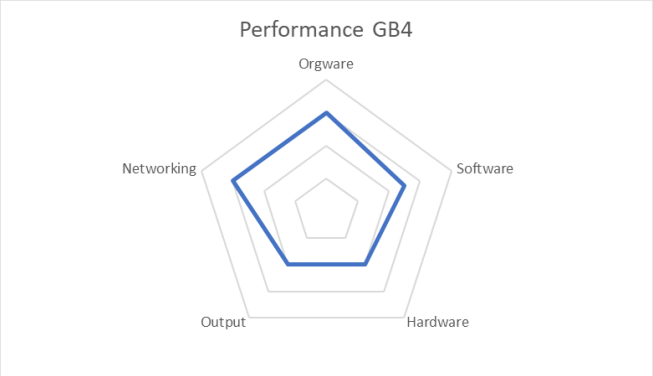


Table 8, Orientation & Performance GB4

City / Strategic Orientation	GB5
Reactive	
Defensive	■
Prospective	

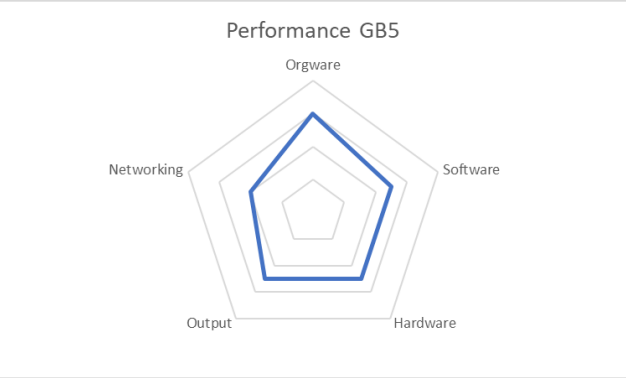


Table 9, Orientation & Performance GB5

The second set of municipalities primarily employs a defensive stance. The thesis acknowledges that even these municipalities contain some prospective elements, as they also discuss new measures, so this categorization occurs with an asterisk. Yet based on the available data, the thesis argues that both cities prioritize the efficiency of existing procedures, whereas the prospective municipalities in the next sub-chapter are somewhat more focused on developing new offerings.

GB5 is the only municipality not to continue the position of climate protection manager following the promotion of its concept. Therefore, the urban development office is responsible for green building here. Both emphasize the role the municipality can exert through development plans for properties marketed by the city itself (Interview GB4, l.12). Sustainable stipulations are a key tool in this regard. A shared priority is the renovation of buildings regarding heating and light sources (Interview GB5, ll.104-106). Other priorities are being discussed internally, with the respondents stating that they still need to convince other actors on some occasions (Interview GB4, ll.23-25). The cities employ a pragmatic implementation (Interview GB5, l. 206). New ideas are tried out and tested to see how they perform. Successful ones, such as a formulation regarding the design of front gardens along public roads are adopted as standards (Interview GB5, l.213). On the other hand, if a stipulation is easily undermined, it is removed again (Interview GB5, ll. 240-245). The administrations learn how to develop procedures and transfer experiences to other contexts in this way.

As in all other cities, the decisive body is ultimately the local council. According to the respondent of GB4, their administration is relatively free in its decisions, as long as it internally agrees on them and can obtain funding (Interview GB4, ll.72-75). In GB5, too, in principle, most local politicians favor green building policies and expect the administration to produce good results. However, there are different ideas among the political parties on promoting it (Interview GB5, l. 133). They disagree as to whether development plans should directly prohibit gravel gardens, for example, or rather create incentives for alternatives (Interview GB5, ll.130-138). Externally, the municipality's freedom of action is limited because areas in the town often belong to various landowners who do not want to sell them. Therefore, the possibilities of urban development are limited.

Another problem with the organizational environment is that laws are very vague concerning green buildings (Interview GB5, ll.347-351). The building code, for example, provides basic guidelines for the administration. The administration cannot in principle demand mandatory standards such as the prohibition of dark roof tiles based on this code. As a result, such regulations tend to be contestable, which reduces their reliability and value. Furthermore, both respondents remark that it is a significant challenge to oversee the breadth of public subsidies related to green buildings. Thus, GB5 had to assign an employee to supervise subsidies part-time, next to his regular tasks (Interview GB5, ll.387-390).

Considering all this, it appears that GB4 and GB5 primarily have a defending orientation. Their strategy prioritizes development plans and the municipal building stock over developing new measures in other areas, thus not having a prospecting orientation.

Both cities are relatively large compared with others in the sample. As a consequence, it is difficult to involve “all” local actors in green building policies. Such general involvement can happen through council work but does not allow actors to discuss details of policies (Interview

GB4, ll.151-154). Therefore, the administrations prefer to address the actors relevant for individual projects. Financial resources continue to be secured through part-time grant management. The administrations are aware of their leadership role and exemplary function. It is a challenge to communicate the importance of municipal measures to citizens, and how citizens can learn from municipal action (Interview GB5, ll. 615-620). It is difficult to get citizens interested in municipal construction measures as they do not link such projects with their situation and behavior.

In GB4, there appear to be relatively few *software* measures. GB4 advertises events and programs in the local newspaper and encourages participation through councils (Interview GB4, l.151). But these measures are more likely to reach people already interested and aware of green buildings. There are few low-threshold offers to raise general awareness. GB5 also concentrates its low-threshold measures on local newspapers and social media. Citizen participation takes place on a neighborhood level. In one example, the city asked citizens of a particular street to contribute ideas to drive the revitalization of that neighborhood (Interview GB5, ll.396-401). GB5 further hosts a building fair through which it distributes information. Changes in homeownership or a simple lack of interest are a challenge as information and stakeholders willing to participate are lost in this way (Interview GB 5, ll.519-521). Over the last two years, opportunities for participation were curtailed, which further affects the ability of the municipalities to develop their *software*.

Neither city currently has extensive *hardware* in terms of mandatory standards or other measures. The administration of GB4 has had positive experiences promoting green roofs as one example of voluntary intervention (Interview GB4, ll.232-236). Besides that, GB4 primarily focuses on upgrading the municipal building stock. Similar measures are the subject of controversial discussions in GB5. The city's website refers to external funding opportunities, but currently, provides no own funding programs. As already mentioned, there is no consensus among the political groups on how far-reaching municipal green building policies should be. The respondent favors mandatory standards in principle (Interview GB5, l.634). However, under the current legal situation, such plans are not possible. For one thing, measures lose their eligibility for funding as soon as they become mandatory. Furthermore, they can be challenged by law and thus often not worth the effort of drawing them up (Interview GB5, ll.637-639). In a hypothetical scenario without these problems, the respondent fears the social impact of mandatory standards. These could make it difficult or impossible for less affluent actors to acquire land and comply with the requirements. Therefore, they would need to be supported financially in some way.

Output is also challenging to assess in the cities, given the lack of monitoring (Interview GB4, ll.189-191). The cities generate central balance sheets regularly but do not trace results for individual measures. GB5 can further control energy costs for public buildings to measure

the success of renovation measures. However, since the city does not currently have a climate protection manager, no employee is responsible for further analysis (Interview GB5, ll.600-604).

Finally, the biggest difference between the municipalities appears in the role of networks. Documents and interviews reaffirm the importance of regional networks for GB4. The *Landkreis* helps in coordinating actors, and climate protection managers aid their work through networks between each other. GB4s´ respondent is the first of multiple respondents to note that you do not need to reinvent the wheel as problems and solutions in the municipalities can often be similar (Interview GB4, ll.201-203). In contrast, in GB5 exchange with other municipalities is not necessarily important (Interview GB5, l.663). First, it cannot benefit from the networks of a climate protection manager. Additionally, the priorities and weighting of the city differ significantly from the much smaller municipalities in the *Landkreis*, with which exchange would therefore be difficult. The *Landkreis* itself often takes on implementing green buildings in those municipalities. However, it has a more conservative political composition than GB5, and both work more alongside than with each other (Interview GB5, ll.664-669). GB5 is close to NRW and the Netherlands but does not exchange experiences on green buildings with cities across either border. Compared to NRW alone, it already works with considerably different building laws, so cooperation promises only a few synergies, at least in such aspects (Interview GB5, 697-699).

In summary, both cities have an average to a good performance across the dimensions. Especially GB4 appears to have fewer proactive measures that aim to gain multiplicators among local actors. Instead, it prioritizes renovating municipal buildings, where it seems to be making good progress. GB5 focuses its *software*-related measures on neighborhood participation, which can help actors see the benefits of their activity. Both still face issues distributing the *software* among the entire population, not just among the “usual suspects” who are already invested in green building policies. Perhaps involving pupils could be a further step to promote the large-scale promotion of green buildings and sustainability at large. Progress under *hardware* seems possible once the local councils and other places in the administration reach a consensus on their necessity. The fact that so little networking takes place in GB5 despite a fairly established strategy is somewhat surprising, even if the circumstances in the *Landkreis* partly explain this. Nevertheless, it might be possible to develop new measures through a targeted exchange, or influence politics towards unity through positive examples.

4.3.3 Prospective*Defensive

The remaining five municipalities employ a mix of a prospective and defensive orientation. They share priorities such as stipulations in development plans or renovating municipal buildings with most other municipalities. They differ from the previous municipalities through new and innovative measures that elaborate on these priorities or open up new areas of activity. The thesis separates the 5 cases into two groups. While all are roughly similar, this approach allows for a better description of each municipality.

4.3.3.1 Group I

City / Strategic Orientation	GB3
Reactive	
Defensive	
Prospective	

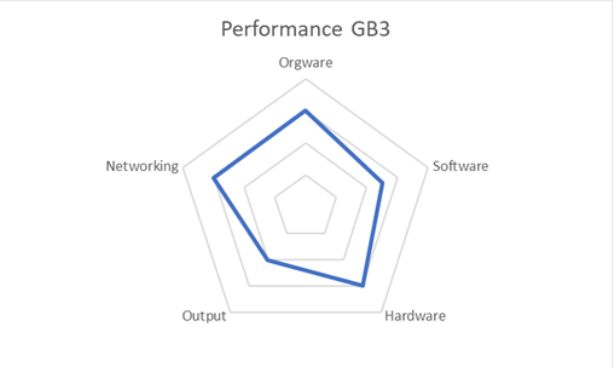


Table 10, Orientation & Performance GB3

City / Strategic Orientation	GS4
Reactive	
Defensive	
Prospective	

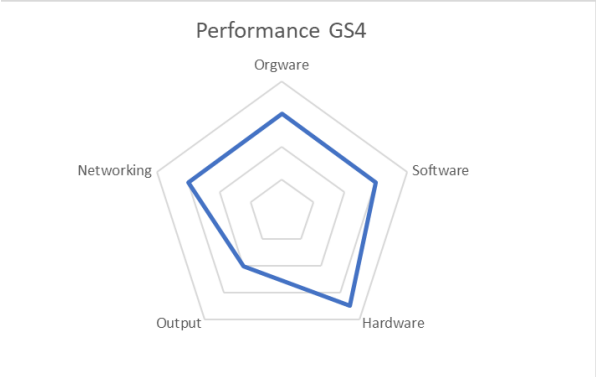


Table 11, Orientation & Performance GS4

GS4 and GB3 are very similar in size and have published their climate protection concept within one year of each other. Both prioritize informing local actors and guiding them towards subsidies and consultation as part of the strategic formulation (Interview GB3, ll. 13-15). While the municipalities have had a strategy for recent years, the respondents still highlight the necessity of engaging with other local actors to promote sustainable action and green buildings (Interview GS4, 2.5). In GB3, the local council, lacking majorities, is prone to hindering the implementation of projects (Interview GB3, l.122). However, a new mayor in the municipality prioritizes modernizing the municipal administration and increasing the focus on sustainable strategies. Without a council majority, this proves a challenge, but these efforts to revise

internal procedures within the administration might advance the subject regardless (Interview GB3, ll.392-395).

Financial bottlenecks negatively affected the potential for implementation in GS4. As the city now enjoys a better budgeting situation, this problem is currently not as significant, and the administration can employ more ambitious measures. Both respondents agree that limited personal capacities challenge their work (Interview GS4, 3.1.). GB3s´ respondent argues that her municipality is too large to allow for the informal neighborhood networks of a smaller city while being too small to afford more staff in her position (Interview GB3, ll. 365-370). Additionally, both respondents remark that the structure of public subsidies necessary to fund many measures is needlessly complicated and requires constant supervision. GB3 employs a subsidy manager to "relieve the city treasury through the increased inflow of public funds and also to implement measures with subsidy money (NRW Bank, 2021)."

As the complicated local politics appear to affect GB3 more than GS4 right now, the thesis believes it to be less prospective. Nevertheless, as the new mayor facilitates change within the administration and city, it could adapt its strategy to be equally prospective. The municipalities also have a partial defensive orientation. They do not simply aim to implement new and improved consistently. Rather, they employ a reiterative process where they implement measures in close cooperation with other local and regional actors. GB3s´ respondent is the first of many to report that you do not need to reinvent the wheel (Interview GS4, l.308). Employing a tried-and-true measure might not be as prospective as developing one from scratch, but it is often more sensible for both cities to do so given personal capacities and the opportunity to share experiences.

With a few exceptions, both municipalities have a similar level of policy performance. Respondents and documents explicitly mention the importance of engaging with local actors, from Stadtwerke to investors and citizens, to promote green buildings (Interview GS4, 2.4). Both highlight the importance of the administrations' role model function (Municipality GB3, ID 1., p.69). As the municipalities have secured basic structures in past years, extending the reach of *software* is a core concern (Municipality GS4, 4.1.). They conduct a variety of measures ranging from low-threshold information to joint working groups, where all interested actors can meet to exchange ideas (Municipality GS4, 2.4). For example, the municipalities organize projects in schools, aiming to raise children's awareness and gain them as multiplicators that further influence their parents (Municipality GB3, ll.211-217). In another noteworthy project in GS4, the administration cooperated with a family that wanted to renovate their landmarked house. In return for this support, the family now offers tours and advice to other interested citizens (Municipality GS4, 2.3.). As such, the primary objective of the municipalities is to gain multipliers from existing measures and use them to convince more and more stakeholders.

One brief observation at this stage is that GS4 offers slightly more information on consultation and subsidies on their website under the tab *Klimawandel* und *Klimaschutz*.

Regarding *hardware*, neither municipality sets mandatory standards right now, outside of some minor rules regarding development plans (Municipality GB3, ll.13-16). In her personal opinion, the respondent for GB3 agrees that mandatory standards related to the use of solar panels will be necessary for the future (Municipality GB3, ll.253-255). For now, political and legal reasons prevent such measures. The municipalities provide infrastructure for communication and exchange between local actors, for example, in expert rounds or the aforementioned working group. The program *Jung kauft alt* offered by GS4 is one example of intervention. It offers monetary rewards to young citizens, preferably couples, buying older buildings in the city. It aims to lower the demand for new houses and prevent vacancy (Municipality GS4, ID.3). The website of the mayor´s party in GB3 also refers to this program, but it is not yet implemented.

Neither of the municipalities has set procedures for measuring the output of single green building policies. For GS4, the respondent notes that he has only been in the position of climate protection manager for a short period which affects his current capability of monitoring progress. He outlines one possibility to look at the renovation rate of individual streets (Municipality GS4, 4.4). GB3 has experience monitoring local thermography campaigns, but not measures related explicitly to green buildings (Interview GB3, ll.280-283). Both cities engage with inter-municipal networks, much in the same way as GB1 and GB2. The respondents highlighted the value of this exchange and the role the *Landkreis* plays in it.

While there are some differences between the two municipalities regarding local politics and the specific measures, overall, both have similar orientations and performances. They have convinced a group of local actors – the “usual suspects”- to support sustainability in recent years. The task is to promote green building policies to other actors not as intrinsically supportive towards sustainable efforts. To this end, they employ a mix of prospecting and defending orientations to develop new measures where necessary and increase the efficiency of existing procedures if possible. They offer subsidies and encourage actors to inform themselves or receive information and consultation as part of this effort.

4.3.3.2 Group II

City / Strategic Orientation	GS1
Reactive	
Defensive	
Prospective	

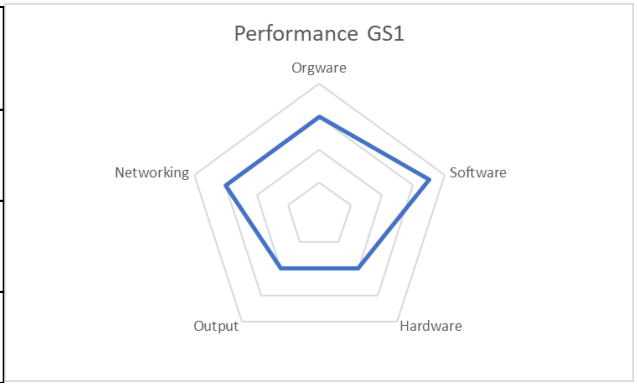


Table 12, Orientation & Performance GS1

City / Strategic Orientation	GS2
Reactive	
Defensive	
Prospective	

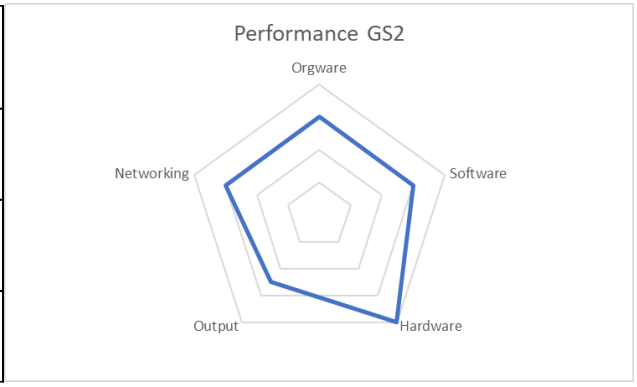


Table 13, Orientation & Performance GS2

City / Strategic Orientation	GS5
Reactive	
Defensive	
Prospective	

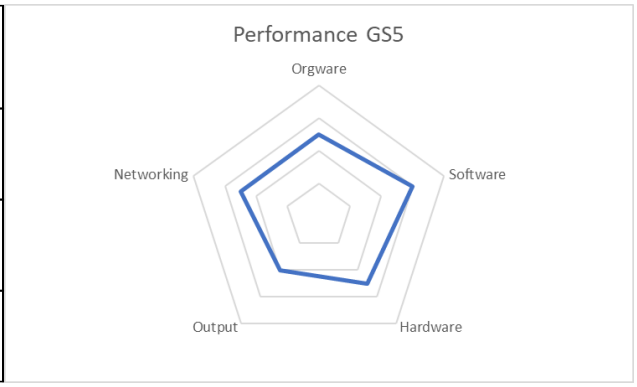


Table 14, Orientation & Performance GS5

The remaining three municipalities all share a smaller population size and the recent adoption of their climate protection concept. Additionally, GS1 and GS5 are similarly structured. GS5 is a *Samtgemeinde* (joint municipality), where small population centers still keep autonomy over various resorts, and the joint municipality is responsible for superordinate tasks that members could not do themselves. This can provide a challenge as certain members are keen on keeping their autonomy from the joint municipality and do not necessarily positively participate in implementing green building policies (Interview GS5, ll.338-342). Particularly smaller members with little personal capacity are more open to cooperation, showing the complexity

faced by the administration (Interview GS5, ll.363-366). GS1, as a rural Dutch municipality, is also an amalgamation of various small municipalities comparable to the joint municipality. Compared to GS1, however, there seems to be less resistance from the members against the parent municipality, which can therefore exercise more control (Interview GS1, l.348).

The strategic formulation of the three municipalities largely overlaps. GS2 and GS5[2] have an emphasis on development plans and aim to set regulations on the type of houses and heating networks within the city soon (Interview GS2, ll.20-25). The respondent for GS2 remarks that the climate protection concept created considerable awareness for the subject within local politics and the administration (Interview GS2, ll.34-35). The administrations are also relatively autonomous in other respects, as long as they remain within the financial framework (Interview GS1, ll.130-132). There are minor differences in the strategic approach between GS1 and German municipalities. It shares priorities of fulfilling the role model function and improving the sustainability of new houses (Interview GS1, ll.46-50). Yet, it relies more on negotiation and communication as part of the strategy compared to German municipalities. Rather than setting stipulations in development plans or renovating municipal buildings, it aims to lead through conversation (Interview GS1, l.78).

Since all three municipalities have only recently adopted their climate protection concept and were slowed down by Corona in the meantime, the implementation of measures is still in the early stages (Interview GS1, ll.88-93). Given the lack of existing experiences, the municipalities mainly follow the concept's specifications for the time being. In GS5, the administration first aims to create awareness for new goals among planners and member municipalities (Interview GS5, ll. 89-94). It plans to incorporate owners and those interested in buildings at a later stage through public events. GS2 strives for a prospective implementation. Within the administration, there is a belief that existing experiences and measures did not reach far enough, and new ones are necessary to utilize opportunities within the given rules and regulations (Interview GS2, ll.65-66).

As per the similar population size, there are few structural differences between the municipalities. Respondents emphasize the advantages of their informal networks within the city (Interview GS1, ll.253-256). They easily communicate with colleagues and citizens, and information is not diluted between departments. Especially in GS1 and GS2, the municipality has good access to informal neighborhood networks and can therefore talk directly to local actors (Interview GS2, ll.295-302). The conservative views of the rural population can be a minor disadvantage, which occasionally puts the brakes on projects. Furthermore, GS5 has to consider the occasional resistance by member municipalities if they perceive a measure as dangerous to their autonomy (Interview GS5, ll.351-353).

[2] In joint municipalities, development plans are a matter for the individual members. Nonetheless, GS5 tries to apply indirect influence, mainly focusing on reducing soil sealing.

While GS2 did not mention any external pressures, GS1 and GS5 note the effect of their environment on the strategy. In the Netherlands, both provincial and national governments observe the progress of municipalities and ask questions if they observe inactivity (Interview GS1, l. 423). In Lower Saxony, the growing attention to sustainability and green buildings also adds pressure (Interview GS5, 392-396). The respondent cites the very rural nature of the state as a reason for past indifference, as it reduced the salience of climate protection in politics and the population. However, she believes that this will change, and the consolidation of climate protection managers and their work will improve in the next few years (Interview GS5, ll.397-401).

All three cities continue to rapidly expand their strategy and efforts, which are only relatively new. In GS1, this is evidenced by the role in negotiations, in GS2 by ambitions in implementing new measures. GS5 develops a strategy to achieve as much as possible within its role as the joint municipality. Therefore, all three contain prospective elements. The municipalities have high internal motivation from politicians and officials to advance sustainability. Yet, they are at the beginning of this process and must also employ a defensive approach that anchors the recent changes. Accordingly, the thesis states that the municipality uses a mix of defending and prospecting strategies.

In terms of *orgware*, both German municipalities operate within good financial conditions. GS1 appears to have slightly lower funds, but can still finance individual projects with political goodwill or private support (Interview GS1, l.134). Local stakeholders are also involved when their participation is relevant, such as investors regarding new tenders. Unfortunately, public events, including those directly related to green buildings, are relegated to being conducted online due to COVID-19. Nevertheless, local actors can participate in green buildings policies through committees or the informal networks already mentioned (Interview GS2, l.296). The energy-efficient refurbishment of public buildings is also an attempt to fulfill the role model function.

The biggest difference between the three municipalities emerges in *soft-* and *hardware.* Next to the negotiations with planners, GS1 conducts a lot of low-threshold participation to distribute information among the city (Interview GS1, ll.239-243). The administration tries to approach the subject in marketing terms by advertising green building policies as a means for actors to spend less money on gas and energy. It employs a variety of proactive methods to inform citizens on measures, including door-to-door campaigns, distribution of fliers or stands in front of the supermarket (Interview GS1, ll.260-264). GS2 does not perform as extensive measures, rather utilizing the local newspaper to inform about activity and providing additional information on its website (Municipality GS2, ID.2-3). Notably, GS2 offers an extensive list of measures and frequently asked questions under the environment tab. Yet again, the structure of GS5 impacts its *software*. With its limited responsibilities, there are currently few low-

threshold measures. It does provide a unique checklist recently created together with planners. The municipality intends to offer people interested in building a concise document outlining its green building objectives and where subsidies and consultation can help actors implement them. Most member municipalities appreciate the checklist, and the municipality advertises it well on its website (Interview A, ll.353-355).

GS2 is the most advanced municipality regarding stipulations in development plans (Interview GS2, ll.20-24). It is also the second municipality that offers *Jung kauft alt*. The simplicity and directness of the measure are particularly appreciated, which is why it extended the funding period for another three years after the original period (Municipality GS2, ID. 4). Comparatively, GS1 provides little *hardware*. The administration internally decided not to use mandatory standards (Interview GS1, ll.318-321). At the same time, the municipal agenda describes the baseline targets all actors must agree to (Interview GS1, l.320). While not providing subsidies on its own, it refers to external initiatives that can steer actors towards subsidies or other help (Duurzam Thuis Twente, 2022). GS5 cannot exert direct influence and only provides *hardware* to a limited extent. It is responsible for municipal buildings, with several having had small renovations in recent years (Municipality GS5, ID.5). GS5 provides infrastructure for its member cities by arranging events and inviting experts. Yet intervention through stipulations and other demands are not possible.

All three municipalities are at the beginning of the implementation process. Therefore, they cannot yet assess the output of the green building policies. The respondent for GS5 emphasizes that the effect of the measures can be checked after the completion of the first construction areas (Interview GS5, ll.260-264). Until then, they can control the energy efficiency of public buildings but will need to build up other monitoring and controlling capabilities.

Regarding networks, GS5 stands out as the inter-municipal exchange has played a limited role so far (Interview GS5, l.269). Direct exchange between cities seems to be less prevalent than in other locations. Still, the *Landkreis* is an important contact for the climate protection manager and mediates information between the municipalities. It also informed GS5 that the checklist is the first of its kind in the region and is in huge demand (Interview A, ll. 278-282). New networks of climate protection managers are being established, albeit at a slower pace due to COVID-19. GS1 and GS2 are both already regionally connected and use meetings between municipalities and climate protection managers and the Dutch counterparts to exchange knowledge.

In summary, despite the short period of activity, all three municipalities already have a good green building performance. Notably, each stands out with a certain focus or project: The extensive negotiation in GS1, the advanced *hardware* in GS2, and the checklist in GS5. It will be interesting to see whether the municipalities will find a limit to their approach in the next

years. For example, how long can GS1 rely on their voluntary approach, or will they have to incorporate mandatory standards at some stage? But before drawing up problems that might not even materialize, the thesis concludes that all three municipalities are seriously invested in developing a strategy suitable for their situation. It is confident that they will successfully implement their measures if they continue to build support within the administration and the city itself.

5.Analysis

5.1 Overview Propositions

The thesis formulated three propositions. After evaluating surveys, documents, and interviews they can be rejected or supported. Then, it presents the effect of the selection criteria *Population size* and Existing *or planned climate protection* agenda on municipalities.

Proposition 1a and 1b state: *Reacting municipalities perform green building policies worse than prospective municipalities.* | *Reacting municipalities perform green building policies worse than defensive municipalities.* The preliminary analysis of the survey appears to confirm that municipalities employing a reactive strategy perform worse than others. Of course, the thesis would require more cases and additional statistical analysis to confirm the proposition. Results from interviews and document analysis are more ambiguous, as no municipality appears to be decidedly reactive. Nonetheless, elements related to the reactive stance are seen as very distracting by respondents. Distracting interference by local politicians that demand higher targets but prevent activities is an ideal example. These problems mean that the administration cannot implement specific measures, directly impacting the policy performance negatively. In another example, the respondent complained that she had been switched between two superiors with a different prioritization of sustainable action for the past two years, restricting her ability to act.

Additionally, the municipalities closest to being reactive have the weakest green building performance as they need to establish networks and experiences. However, the question here is whether the two cities currently developing the climate protection concept had a reactive or no strategy for green building policies. At this time, both cities already implemented some measures, particularly renovations of municipal buildings, that were mediated by the Landkreis. Therefore, as they conducted limited activity in response to stimuli, the thesis concludes that they were indeed reactive. In summary, interviews highlighted reactive elements as disruptive to the overall municipal strategic orientation. Furthermore, municipalities that partially employ a reactive strategy currently have weaker green building policies performance. Based on these results, the study can **confirm propositions 1a and 1b.**

Proposition 2 states that *defensive municipalities perform green building policies worse than prospective and better than reactive municipalities.* Survey and interviews confirm the second part of the statement. The relation between defensive and prospective municipalities is not as apparent. The survey does not have a clear answer here, as both stances perform better on some policy dimensions. If anything, the correlation between defensive stance and performance is marginally higher and more significant. This would then indicate that among

the 15 municipalities, a defensive municipality has slightly better performance of green building policies.

The thesis also receives no direct insight through document analysis and interviews. It assigned 2 of the 10 municipalities to employ a defensive orientation, and even those develop new offerings in response to demands or out of internal dedication to sustainability. In that sense, no municipality is only prospective or defensive. But the dilemma is not insoluble. The interviews reveal the effects of a more defensive or prospective orientation in some places. In general, more defensive municipalities appear to place less emphasis on measures that appeal to the broader population. GS1 offers a counter-example with its marketing-heavy approach to proactively convincing citizens of the savings potential of sustainable measures. More prospective municipalities are also the only ones to run campaigns in schools. The lighthouse projects of individual municipalities - the checklist in GS5, for example, or the renovation of the historic building in GS4 - are also the result of prospective elements within the administration. Another discernible trend is that more prospective cities often have a more pronounced performance across all dimensions.

However, all this does not mean that more defensive municipalities generally perform worse. Some perform exceptionally well in the focused areas. Especially in strategic implementation, most cases prefer to act defensively anyway. Rational evaluation of experiences is a good way of assessing which measures work and which do not. Incremental implementation, which is expected for prospective municipalities, has the disadvantage that it is time-consuming. Many are only at the beginning of their activities. The necessary infrastructure for green building policies is still developing within the administration and broader city. In this environment, it may be that ambitious plans do not have any support to be implemented, and constantly changing the implementation would be chaotic and not at all productive.

Therefore, the evaluation of this Proposition indicates that a mix of strategies causes better performance. The Miles & Snow framework already confirms this assumption, but it is interesting that it also explicitly applies to green building policies. The thesis states that a purely defensive administration would perform worse, as it would probably not manage to expand its offerings in time. Necessary adjustments are tied to a prospective orientation, allowing municipalities to formulate particularly innovative measures and rationally implement them. Thus, the thesis **partially confirms proposition 2.**

Proposition 3 states that prospective municipalities perform sustainable building policies better than defensive or reactive municipalities. Here, the thesis can give the same answer as for proposition 2: In the sample, no city is purely prospective. Nevertheless, the interviews show that it is essential for municipalities to set themselves up prospectively, at least in some areas.

The municipality also needs to anchor its strategy through defensive action, such as maintaining climate councils for exchange or evaluating results before doing something new. But especially with the growing relevance of green building policies, every municipality must increasingly employ a prospective orientation. Thus, the thesis **partially confirms proposition 3.**

It is again interesting for the thesis to explain why none of the municipalities are entirely prospective. The interviews revealed several obstacles to prospective action. The thesis has already reported on the influence of local politics in many places. In some cases, local politicians, usually mayors, stand out and vehemently demand sustainable action in the city. Equally, however, political disagreement may mean that the municipality cannot adopt new measures and, therefore, prefers to improve existing ones. It is also a core task for the climate protection managers to anchor sustainable action within the administration and its close partners. As long as they do not achieve this everywhere, the development of measures often takes longer. Finally, the thesis refers to the oft-repeated quote about not reinventing the wheel. For municipal, implementing completely new, prospective processes requires a lot of human and financial resources. At the same time, measures aimed at citizens must be comprehensible to everyone, which means that successful, simple measures (*Jung kauft alt*) have an inherent advantage. Being purely prospective is a great challenge that would not pay off in many places.

5.2 Selection criteria

5.2.1 Population size

Several trends can be identified in the effect that population size has on cities. Although a conservative population and limited resources might suggest that smaller, rural municipalities are less prospective, this is not true in the sample. On the contrary, informal networks among acquaintances and neighbors often allow respondents to find reasonable solutions and quickly share information. Particularly in medium-sized cities, respondents emphasize that they have many tasks for their position, which can sometimes be too much for one employee. In addition, there are municipalities in which the respondents do not see any direct influence due to size. Here, it is more a question of whether a city is growing or shrinking in terms of the opportunities to promote green building. If it is growing and there are many interested parties, it is easier to make demands on new buildings than if you have to court buyers.

5.2.2 Existing or planned climate protection agenda

All respondents emphasize the great value of the climate protection program. The three groups within the sample are municipalities that have adopted their concept more than five years ago, those that have adopted it recently, and two municipalities that are currently developing theirs. For the latter, the concept currently has a significant impact on the overall strategic orientation and the green building policy performance. Its development demands that the administration sits together to understand its current and desired strategy and involves stakeholders through public meetings. This allows the administration to focus on the subject internally and throughout the city. Since the concept also promotes the position of the climate protection manager, who is responsible for anchoring this change, the municipality is forced to adapt a reactive or missing strategy. Furthermore, the external agency supporting this process collects successful measures appropriate for the city and establishes networks. This also pushes the policy performance.

Municipalities that published the climate protection concept in recent years further praise the concept. It creates a guideline that all local stakeholders must adhere to. In the same way, measures can always be derived from the concept. In several municipalities, it managed to raise awareness of the subject. Finally, an existing concept is a precondition for many public subsidies, so there is also a financial component. The final group of municipalities also generally still appreciates the climate protection concept. But its value is somewhat diminished by being outdated. Even so, the administration can still use the guidelines of the concept to encourage local politicians to act. Some of these municipalities consider updating the concept to include more suitable measures, introducing the dilemma of developing this update or implementing existing policies.

In summary, a climate protection concept has a largely positive influence on a municipality's strategy and its policy performance. For municipalities with older concepts, not all measures are successfully implemented, but this is part of the learning experience of municipalities and, therefore, expected. The igniting effect affects not only the administration but also other local stakeholders.

6.Discussion

In recent years, public pressure and judicial decisions addressing federal governments have called for more decisive, sustainable action on all levels of government. The thesis selected to focus on green building policies. Housing is responsible for a significant amount of energy and raw material usage, so there is considerable interest in improving the sector's sustainability. Economic factors are also relevant given the financial impact of increasing energy prices and inflation. Green building policies can even promote social sustainability by enabling more innovative housing districts. Against this backdrop, it becomes apparent that municipalities, both through their buildings and the steering capacity towards local actors, play a significant role in advancing green buildings.

Thus, the thesis investigated the relationship between strategic orientation and performance regarding green building policies. It focuses on *Euregio* as it is a culturally and geographically homogeneous region that offers much diversity in political entities and the priorities of individual municipalities. Some have been active in sustainability for many years and have also been promoting it as a "climate municipality," while others are only just discovering the topic due to internal or external pressure. Therefore, despite similar requirements, the municipalities have different strategies to investigate.

6.1 Discussion of the results

The thesis develops the following explanatory research question to answer this investigation:

M RQ: What is the relation between organizational strategy and the performance of green building policies of municipalities in Euregio in 2021?

The thesis initially planned on answering this question primarily using a survey among mid-sized municipalities within *Euregio*. As it progressed, it became evident that the number of responses achievable through this approach was insufficient to advance. In response, it focused on municipalities where respondents completed the survey or responded to the related message and conducted an additional document and interview analysis. This has the advantage of adding much more nuance to the results of these municipalities. The interviews were particularly valuable in contextualizing the relationship between strategic orientation and policy performance. Additionally, they enabled the thesis to collect detailed information on the impact of country and federal state that helped show differences between the municipalities of *Euregio*.

The thesis has formulated the first sub-question to demonstrate this effect and to improve the answer to the main research question:

SQ 1: What is the relation between country and federal state of municipalities and their organizational strategy and green building performance?

Seven of the ten municipalities that took part in the interview were from NRW. Therefore, the focus of this sub-question is on NRW. However, the thesis can also present a result for Lower Saxony and the Netherlands through selected questions and self-assessments of the remaining three respondents.

There is a weak relation between country and federal state and strategic orientation. Municipalities share priorities across borders, notably employing regulations within development plans and the renovation of public buildings. The Dutch municipality stands out at this point with its very soft approach to green building policies. It has similar priorities on paper, and the implementation does not differ significantly from German examples. Thus, location does not influence strategic implementation. Across the province and national borders, municipalities prefer to implement rationally.

The federal-state indirectly influences the organizational structure of some cities. Lower Saxony tends to be even more rural than North-Rhine Westphalia. This necessitates the creation of the joint municipalities, whose particular challenges were extensively discussed in the results. The relation between country/ federal state and municipal strategy is most notable in the organizational environment. Lower Saxony has historically exerted the least pressure on its municipalities to develop a strategy. Many municipalities in this federal state are only beginning to delve into the subject and anchor climate protection concepts and the respective manager. As highlighted in the case analysis and interview, the Dutch federal and provincial governments currently demand more from their municipalities. Of the three, municipalities in North-Rhine Westphalia have been subject to external pressure for the longest. However, this is precisely why the pressure on progressive municipalities is currently rather low, as they are already meeting external expectations. Almost all cities are influenced by their *Landkreis* or comparable Dutch institutions that coordinate activities and ensure that all its municipalities adhere to some standard.

In NRW, most respondents highlight the importance of the *Energieagentur NRW* as a supporting actor within the environment. The agency offers an overview of valuable subsidies and often helps organize local events on sustainability and green buildings. Unfortunately, beginning in 2022, the agency is replaced with a *Landesgesellschaft* with fewer employees. Arguments by the government are that lower costs and higher flexibility will streamline the new

organization's work. Respondents unanimously reject this step. It will remain to be seen whether the new organization can diffuse these concerns and work as an equal successor to the *Energieagentur*. At the least, it is a conflicting decision by the government to replace an appreciated and reliable organization when actors on every level of government try to accelerate the implementation of sustainable measures.

Similar to strategic orientation, **the relation between province and policy performance is overall weak**. The province of a municipality does not explain differences in *org* and *software*. It may be possible to say that the soft approach of GS1 can be explained by the Dutch affection towards consensus-based decision-making expressed in *polderen*. But according to the respondent, some municipalities take hard measures, so the relationship here would be limited. There are no differences in *hardware* between Lower Saxony and North Rhine-Westphalia. In the output, the thesis must state that no municipality can currently determine the outcome of green building policies. The most significant effect of location on performance is apparent with networks. Comparatively, all municipalities in NRW report a high prioritization of networks. One typical response is that one does not need to reinvent the wheel. The respective *Landkreis* is another crucial factor. It functions as a platform for the exchange and helps municipal officials link up. Dutch municipalities use similar networks. While the subject may not be as anchored as in NRW, the exchange participants already utilize it to a great extent. Interestingly, Lower-Saxon municipalities reported a lower interconnectedness. Given the very rural structure of Lower-Saxony and the sometimes-delayed prioritization of green buildings, this might be a sign of where work between federal states differs.

No province intrinsically promotes a stance or performance. However, it appears the organizational environment in Lower Saxony has not attached salience to green buildings until recently. Thus, many municipalities are late to develop their strategy. Given the lack of cohesive activity, there are few networks in place, but this is changing. Dutch municipalities have entered into this change earlier. Compared to Germany, negotiation is more prioritized. North Rhine-Westphalia has offered opportunities for some time, but here, too, some municipalities are only now beginning to act strategically.

Thus, the thesis has all the evidence to answer the main research question. Based on the findings, the thesis concludes that **there is a strong relation between municipal strategic orientation and the performance of green building policies**. This relationship is most apparent in the negative impact of employing a reactive strategy. If the municipal administration cannot follow a concise strategy, it struggles to implement and anchor green building policies. In interviews, political conflict in the local council and missing prioritization prove significant sources of a reactive orientation, as they prevent the administration from taking necessary measures. All the partially reactive administrations within the sample are transforming their

strategy, as the respondents and others within the municipality work towards initiating a rethinking within the city.

The relation of defensive and prospective orientations and performance is more nuanced. Both, in theory, provide a positive relationship with policy performance. A defensive stance allows municipalities to anchor policies and increase their efficiency. The prospective stance excels at finding and implementing innovative ideas. But interviews showed that few municipalities, if any, exclusively employ a single orientation. A purely defensive municipality performs well in the field on which they focus. However, there is a risk that changes in the environment will be absorbed with a delay. In contrast, a prospective administration risks developing advanced measures that the wider municipality or other internal positions do not support. Rather, it is a core aspect of municipalities with good performance to identify how to orient themselves in different fields to maximize performance. The study finds that municipalities employing a mixed strategy perform better in *software*, utilizing innovative measures to reach local stakeholders. Defensive elements tend to improve *orgware* as they increase the reliability and efficiency of local structures.

Therefore, the thesis concludes that municipalities with a deliberate strategy that uses the advantage of defensive and prospective stance, perform green building policies best.

6.2 Theoretical & Practical implications

In light of the novel application of strategic orientation and policy performance focused on green buildings, a brief reflection of the theoretical and practical implications of the thesis is in order. Admittedly, there is already a wealth of studies on the impact of strategic orientation on organizational performance. However, according to available information, no study has yet focused specifically on green buildings, certainly not in the *Euregio*. Furthermore, the conceptualization of green building policy performance is innovative. It has proven to be largely applicable and could be adapted in the area of *hardware*, as described. With the growing importance of the topic, the application of the concepts and focus of the study could therefore also be interesting for other researchers.

In summary, the thesis concludes that its particular focus is suitable for further research as it could (partially) confirm its propositions and outline a relation between the variables. It appears that strategy research can highlight individual dimensions of municipal performance. One issue that emerged especially in surveys was the choice of respondents. The climate protection managers and other respondents have an excellent understanding of green building performance, but in several instances argued that they cannot wholly answer strategic questions. Further research must, therefore, either explicitly target senior managers who may

have less accurate information on green buildings or develop a survey better suited to address the particular respondents.

Next, the study was conducted during the COVID-19 pandemic, which has both theoretical and practical implications on the subject. As outlined multiple times throughout the presentation of interview results, all municipalities reported a reduced availability of citizen participation, so *software* is negatively affected. At the same time, an increased focus on telephone and online consultation may shape the future exchange between municipalities and citizens. Additionally, high electricity and gas costs pose an unexpected challenge as they raise the demand for alternative solutions. At the same time, increasing raw material prices can prevent activity as actors may lack the funds to follow through on green building measures. In this respect, the consequences of the pandemic offer opportunities for more personalized counseling, but at the same time, financial and participatory problems also arise.

Finally, the thesis outlines practical implications in the form of three policy recommendations in response to problems revealed in interviews.

1. Public funding needs simpler and less bureaucratic application procedures

Be it provincial, federal, or European subsidies: All respondents agree that subsidies change too often and are too time-consuming to apply for. The request for European subsidies often requires one to fill out 30 pages. That makes it undesirable for the public and often impossible for private actors if they do not have specific knowledge. Smaller municipalities do not have the capacity for these subsidies, potentially cutting them off from such aid.

Actors need more reliable funding. Services such as the *Fördernavi*, which provide an overview of existing subsidies, must be expanded and made more widely available. Small municipalities require support from *Landkreis* or external funding consultants. In the long term, it may be possible to build up human resources in these municipalities in this regard.

2. Provincial and Federal laws need to be more concise.

Except for the Dutch respondent, most agree that current laws relevant for building, i.e., the *Baugesetzbuch* are either vaguely defined or do not reach far enough. In some cases, federal and provincial laws contradict: The Lower-Saxon building codes prohibit gravel gardens, the federal one does not. Some vagueness and regional differences are necessary to enable their context-depended implementation. But in the current form, laws often do not provide a distinct legal basis for measures. The administration must discern whether their measure would be contestable or realistically implementable.

Laws can only set the municipalities' framework, so the thesis does not argue that they should set rules for green building in the smallest detail. A more unified framework by the state and province would already help. Furthermore, provincial governments could set precedents on legal measures despite vagueness, so municipal workers understand what they can do.

3. Mandatory regulations must be better supported institutionally.

As far as consensus-based activity is concerned, the best way to implement green building policies is to convince local stakeholders of their importance through voluntary negotiations. However, most respondents agree that mandatory standards will be necessary to some extent to achieve climate goals. Currently, municipalities cannot apply for subsidies when applying such measures. Additionally, they are often legally contestable, returning to the previous recommendation.

Mandatory standards risk being highly divisive in the already heated housing market without proper support. Multiple respondents are concerned that they may disadvantage less affluent actors. In the medium term, however, they will probably be necessary. Therefore, higher political authorities should reconsider prohibiting subsidies for them. Additional government intervention could mitigate the financial impact of such measures. It should also hold investors and large landlords accountable so as not to pass on too much of the costs to tenants.

6.3 Limitations and direction for future research

A final investigation of theoretical and methodical limitations to the thesis can help with the classification of results and outline promising approaches for future research. First, a risk lies in the limitations of the correlation. It cannot describe the influence of third variables, nor where the cause and effect of a relationship lie. Since in the field of green building policies a multitude of variables influence the possibilities and the will to act, the thesis cannot exclude that an important third variable has not been considered; or that performance may influence the strategy - for example, if, despite ambitious goals, progress remains below expectations and one therefore adjusts the strategy. The interviews are valuable in mitigating this risk. Respondents could give detailed accounts of how strategy affects performance, or further describethe influence of other variables on the process. Thus, their qualitative input helps in assessing direction and impact of the correlation. Certainly, the thesis acknowledges the value of other variables, as it stated back in the chapter on established literature. But perhaps, this hitherto little investigated relationship can help further research on the subject.

Another already extensively discussed limitations is the novel applications of the concepts which impacts the comparability of this study with existing research. Usually, studies on public organizations using Miles & Snow gather data on the entire organization, knowing that different departments will have different orientations. In this study, this approach was not feasible for different reasons. Asking managers without links to green buildings on the municipal performance promised little value. Inversely, the thesis assumes that respondents specialized to this topic cannot assess the administration's entire strategy. Additionally, comparability with existing studies is not the primary objective of this thesis. As one of the first

applications of the framework in Germany, and with its specific focus, taking steps to ensure that it collects valuable responses should take precedence over being utterly faithful to the framework.

The setting of the thesis presents other limits. Euregio captures only 2,7 % of German citizens and 4,2 % of Dutch citizens. As such, its results are not representative of either country. Again, this contrasts with existing studies, which usually look at larger national or subnational units. Nevertheless, the aim of the study is not to collect data representative for both countries. Instead, it purposefully chose a small but geographically and culturally similar region to identify similarities and differences in both countries next to answering the study's primary research question. Across Euregio, notably its German side, the selected municipalities represent relatively similar cases of mid-sized, generally rural municipalities in the catchment area of larger regional centers. As such, it offers the benefits of a most similar case study for Euregio: The results provide the potential for generalization even without a large number of cases.

A final limit of the study is that many administrations are in the process of (further) developing their current strategy. The cross-sectional design cannot fully assess these changes so the results may be little more than a screenshot for some municipalities. Nevertheless, the thesis sees little risk to the internal validity, particularly in terms of time order. Even municipalities in transition follow the expected outcome, i.e., a reactive stance worsens performance, and only a mix of prospective and defensive maximizes it. It could not find a municipality where a good performance precedes a successful strategy.

As the field is currently developing, further research has great potential to expand on the insights generated by the thesis. The first suggestion for such research is to broaden the scope of the observation. Strategic orientation and policy performance might differ in larger cities or other Germany and the Netherlands regions. The cities of *Euregio* have more differences than observed at first glance. Nonetheless, a study that looks at other regions might uncover new results that help to understand the relationship between strategic orientation and green building performance. In addition, the research could utilize a time-series design. We are currently in a time of change as far as sustainability is concerned. Therefore, insights into the development of green buildings would undoubtedly be valuable. A time-series design can better track this development but requires resources not available for this thesis.

The study sheds light on a field in flux. Nearly all of the municipalities it investigates are in the process of (re-)developing their strategies. In this respect, it is promising that they take the political mandate to act more sustainably seriously. The municipal strategies primarily focus on their buildings, outreach to local stakeholders, and new construction. While green construction of new buildings is already a step forward, resource consumption and soil sealing remain a challenge. Of course, the administration has limited influence on the sustainability of

the built environment. Municipalities from NRW show that they can promote positive change through measures such as green roof promotion or "*Jung kauft alt*". To this end, local politicians must push through helpful resolutions and not fight between the various parties. Admittedly, in a good part of the municipalities, local politics is already quite united, which is also positive.

Municipalities must also expand the provision of low-threshold counseling and information. Many municipalities have noticed that the rising gas and electricity prices are currently increasing the interest of private actors. They must capitalize on this development. The fact that they can refer more citizens to consumer advice centers is already the first step. Perhaps it would be helpful to establish a stronger local offering in addition. Bottom-Up activities like the neighborhood redevelopment in GB5 will not inspire every citizen to build green. Still, these measures allow for participation where everyone can easily understand their influence. The thesis concludes with a positive impression. The municipalities are expanding their work and are aware of their role. If the administration can convince all the critical local stakeholders of green building policies, it will take an important step. This sounds like a tall order and will certainly not happen overnight. Nevertheless, the issue is already locally anchored in many places and will only become more salient. If this process succeeds, there is not much standing in the way of the decade of implementation.

7.References

Andrews, R., et al. (2009). "Strategy, structure and process in the public sector: a test of the Miles and Snow model." Public administration 87(4): 732-749.

BMI (2020). Das neue Gebäudeenergiegesetz. Retrieved from https://www.bmi.bund.de/DE/bauen-wohnen/bauen/energieeffizientes-bauen-sanieren/energieausweise/gebaeudeenergiegesetz-artikel.html

BMI (2021). Leitfaden Nachhaltiges Bauen. Retrieved from https://www.bmi.bund.de/SharedDocs/downloads/DE/publikationen/themen/bauen/leitfaden-nachhaltiges-bauen.html

Boyne, G. A. and R. M. Walker (2004). "Strategy content and public service organizations." Journal of public administration research and theory 14(2): 231-252.

Campos, I., et al. (2017). "Understanding climate change policy and action in Portuguese municipalities: A survey." Land Use Policy 62: 68-78.

Cidell, J. (2015). "Performing leadership: municipal green building policies and the city as role model." Environment and Planning C: Government and Policy 33(3): 566-579.

Dagblaad Norden (2020). Provincie Drenthe wil 4 miljoen voor Expeditie naar Energieneutraal Wonen. Retrieved from https://dvhn.nl/drenthe/Provincie-Drenthe-wil-4-miljoen-voor-Expeditie-naar-Energieneutraal-Wonen-25997850.html

Duurzam Thuis Twente (2022). Wie zijn wij?. Retrieved from https://www.duurzaamthuistwente.nl/wie-zijn-wij/

Euregio (2022). Nachhaltige Raumentwicklung. Retrived from https://www.*Euregio*.eu/de/was-wir-tun/nachhaltige-raumentwicklung/

European Commission (2021). Energy performance of buildings directive. Retrieved from https://ec.europa.eu/energy/topics/energy-efficiency/energy-efficient-buildings/energy-performance-buildings-directive_en

Fastenrath, S. and B. Braun (2018). "Sustainability transition pathways in the building sector: Energy-efficient building in Freiburg (Germany)." Appl. Geogr 90: 339-349.

Gan, X., et al. (2015). "Why sustainable construction? Why not? An owner's perspective." Habitat international 47: 61-68.

Goulden, S., et al. (2017). "Green building standards as socio-technical actors in municipal environmental policy." Building Research & Information 45(4): 414-425.

Harms, L., et al. (2016). "Performance of municipal cycling policies in medium-sized cities in the Netherlands since 2000." Transport Reviews 36(1): 134-162.

Heidrich, O., et al. (2016). "National climate policies across Europe and their impacts on cities strategies." Journal of environmental management 168: 36-45.

Hendriks, F. and P. Tops (1999). "Between democracy and efficiency: trends in local government reform in the Netherlands and Germany." Public administration 77(1): 133-153.

Hoppe, T., et al. (2015). "Local Governments Supporting Local Energy Initiatives: Lessons from the Best Practices of Saerbeck (Germany) and Lochem (The Netherlands)." Sustainability.

Kemmerzell, J. (2018). Innovations in European climate governance and their impact on local climate policy: An analysis of German major cities. Climate Change in Cities, Springer: 39-57.

Kern, K. and H. Bulkeley (2009). "Cities, Europeanization and multi-level governance: governing climate change through transnational municipal networks." JCMS: Journal of Common Market Studies 47(2): 309-332.

Klimaatakkoord (2019). National Climate Agreement - The Netherlands. Retrieved from https://www.klimaatakkoord.nl/documenten/publicaties/2019/06/28/national-climate-agreement-the-netherlands

Kontokosta, C. (2011). Greening the regulatory landscape: The spatial and temporal diffusion of green building policies in US cities. Journal of Sustainable Real Estate, 3(1), 68-90.

Landesregierung NRW (2020): NRW-Nachhaltigkeitsstrategie 2020

Langereis, M. (2015). The link between strategy and performance of municipalities in the Netherlands, University of Twente.

Ministerium für Umwelt, L., et al. (2020). Die globalen Nachhaltigkeitsziele konsequent umsetzen: 96.

Niedersächsisches Ministerium für Umwelt, E., Bauen und Klimaschutz (2020). Fortschrittsbericht zur Nachhaltigkeitsstrategie für Niedersachsen: 122.

Niedersächsisches Ministerium für Umwelt, E., Bauen und Klimaschutz (2019). Willkommen im Holzhaus! MINISTERIEN LADEN EIN: BIOÖKONOMIE-AKTIONSWOCHE „BIONALE“ STARTET AM 27. SEPTEMBER IN HANNOVER

NRW.Bank (2021). Förderturbo für Städte und Gemeinden. Retrieved from https://www.nrwbank.de/de/info-und-service/presseinformationen/erfolgsgeschichten/foerdermanagement-[GS3].html

Perkmann, M. (2007). "Construction of new territorial scales: a framework and case study of the EUREGIO cross-border region." Regional studies 41(2): 253-266.

Porter, M. E. (1997). "Competitive strategy." Measuring business excellence.

Provincie Overijssel (2022). Gebouwde Omgeving. Retrieved from https://www.overijssel.nl/onderwerpen/economie/nieuwe-energie/gebouwde-omgeving/

Retzlaff, R. (2010). "Developing policies for green buildings: what can the United States learn from the Netherlands?" Sustainability: Science, Practice and Policy 6(1): 28-38.

Rijksoverheid. Bouwbesluit 2012. Retrieved from https://www.rijksoverheid.nl/onderwerpen/bouwregelgeving/bouwbesluit-2012

Rosenberg Hansen, J. and E. Ferlie (2016). "Applying strategic management theories in public sector organizations: Developing a typology." Public Management Review 18(1): 1-19.

Rumelt, R. P., et al. (1991). "Strategic management and economics." Strategic management journal 12(S2): 5-29.

RVO (2022). Verduurzaming gebouwen – Gemeentelijk vastgoed. Retrieved from https://www.rvo.nl/onderwerpen/duurzaam-ondernemen/gebouwen/verduurzaming-utiliteitsbouw/maatschappelijk-vastgoed/gemeentelijk-vastgoed

Schedler, K. and I. Proeller "The New Public Management." New Public Management: 163.

Spier, J. (2020). "'The "Strongest" Climate Ruling Yet': The Dutch Supreme Court's Urgenda Judgment." Netherlands International Law Review 67(2): 319-391.

van den Berg, M. M. and F. H. Coenen (2012). "Integrating climate change adaptation into Dutch local policies and the role of contextual factors." Local environment 17(4): 441-460.

Walker, R. M. (2010). "10 strategy: which strategic stances matter?" Public Management and Performance: 227.

Walker, R. M. (2013). "Strategic management and performance in public organizations: findings from the Miles and Snow framework." Public administration Review 73(5): 675-685.

Zölch, T., et al. (2018). "Integrating the ecosystem-based approach into municipal climate adaptation strategies: The case of Germany." Journal of Cleaner Production 170: 966-977.

Annex

A1: Survey

English Survey Questions

Strategic management

Prospecting

1. We continually redefine our service priorities
2. We seek to be first to identify new modes of delivery
3. Searching for new opportunities is a major part of our overall strategy
4. We often change our focus to new areas of service provision

Defending

1. We seek to maintain stable service priorities
2. The service emphasizes efficiency of provision
3. We focus on our core activities

Reacting

1. We have definite service priorities
2. Pressure of external agencies is the main reason for us to change our provision
3. We pay attention to new opportunities for service delivery
4. We explore new opportunities mainly when under external pressures
5. We have a consistent response to external pressure

Policy Performance

Policy input

1. We have officials who are full-time staff for matters of green buildings

<u>If not</u>

   a. For many hours per month treat employees as part-time sustainable construction per month?

2. We involve citizens and advocacy groups in green building policies.
3. We have secured the financial means and organizational structure to implement green building policies.
4. We have consistent policy goals and a straightforward implementation.
5. We have an accepted leadership role within the municipality and the support of powerful actors.

Policy hardware

1. We have made the necessary interventions in infrastructure to support green building policies.
2. We have physically made alternatives to green buildings less attractive.

Policy software

1. We provide education on green building policies.
2. We provide information on green building policies.
3. We provide city-wide activities to ingrain green building policies.

Policy Output

1. The amount of buildings renovated in line with green building policies has increased.
2. We have achieved a change in citizens' and property owners' attitudes regarding green building policies.

Policy networks

1. We engage with local industry professionals to negotiate how to implement green building policies.
2. We engage with citizens to negotiate how to implement green building policies.
3. We participate in (trans-)national municipal networks
4. In these networks, we actively share our experiences regarding green building policies.
5. In these networks, we actively promote the implementation of green building policies.

Open questions

1. Is your municipality taking unique steps to encourage the implementation of sustainable building?
2. Is there anything you would add?

Control variables

1. We operate under adequate codes and regulations.
2. Developers in our city have sufficient access to financial and other market-based incentives.
3. We apply a rating system for green buildings in our city.

Demographic data

1. Do you work for a German or Dutch municipality?

<u>If no indication</u>

   a. How many inhabitants does the municipality you work for have?

<u>If indication</u>

   b. In which **county** is your municipality located?
   c. Which municipality do you work for?

2. What is your position within the organization?
3. How old are you?
4. What is your gender?
5. How many years have you worked in your current position for the aforementioned municipality?

Feedback to survey & lesson for survey

I. Comment	Implication
Die Fragestellungen sind aus meiner Sicht nicht ausreichend praxisgerecht und zu sehr aus Sicht des Fragenden gestellt. *Manche Fragen sind schwer zu beantworten, weil sie eher die Politik als die Verwaltung betreffen* *Soweit ich gesehen habe sind es viele strategische Fragestellungen, die ich auch gar nicht beantworten möchte.*	Could not change questions of running survey; Focus on making interview questions more contextualized and appropriate for municipal administration
Eine Reduzierung auf die Hälfte der Fragen zu wichtigen Dingen würde die Motivation zur Beantwortung erhöhen.	Could not change questions of running survey; Fewer duplicate questions in interview
Wir befinden uns in einem Veränderungsprozess und würden diese Fragen heute vermutlich anders beantworten als nach Fertigstellung unseres ersten Klimaschutzkonzeptes *Es gibt einzelne Aktivitäten zum Thema Nachhaltiges Bauen, aber es gibt noch keinen konkreten Leitfaden, eine konsequente Bewertung und entsprechende Öffentlichkeitsarbeit zu diesem Thema. Dies wird sicherlich auch Teil des Klimaschutzkonzeptes werden, daher war es mir an einigen Stellen nicht möglich ihre Fragen konkreter zu beantworten.*	Acknowledge current position in interview questions and analysis Apply secondary data analysis for these municipalities to allow for a more accurate representation
Ik wil wel vragen beantwoorden maar voor mij is eenvoudiger in de Nederlandse taal.	Misunderstanding, Dutch version language available. The final reminder on the survey was in Dutch and highlighted this fact
Wij gemeenteambtenaren zijn eigenlijk niet bezig met het ontwerpen van gebouwen en dus ook niet met duurzame gebouwen. [...] Dus ik heb de enquête niet ingevuld, het past niet echt bij ons werk.	Difficult to address as other responses by Dutch municipalities did not offer further insights on this comment; Briefly addressed in the sole interview with a Dutch official

A2: Case Analysis

List of consulted documents

	1.	2.	3.
Germany	Leitfaden Nachhaltiges Bauen	Klimaschutzprogramm 2030	
Netherlands	Sectorale Routekaart Gemeentelijk Maatschappelijk	Klimaatakoord	
North-Rhine Westphalia	NRW-Nachhaltigkeitsstrategie | 2016	NRW-Nachhaltigkeitsstrategie 2020	
Lower Saxony	Fortschrittsbericht zur Nachhaltigkeitsstrategie für Niedersachsen	Nachhaltigkeitsstrategie 2017	
Overijssel	Circulair Bouwen Transitieagenda circulair bouwen	Nieuwe Energie Overijssel	ANNEX II. ACTUALISATIE ARTIKEL 4 STRATEGIE
Drenthe	Provincie Drenthe wil 4 miljoen voor Expeditie naar Energieneutraal Wonen		
Gelderland	Van ketens naar kringlopen, Uitvoeringsprogramma Circulaire Economie 2021 - 2023		

A3: Document & Interview Analysis

List of consulted documents

Documents / Municpality	1.	2.	3.	4.	5.
GS1	AGENDA GS1 SAMEN DUURZAAM DOEN				
GB1	Maßnahmenvorschläge für die Zwischenpräsentation | 2021	Auswahl bisher umgesetzter Maßnahmen	Klimawerkstatt "Planen, Bauen, Sanieren" am 07.10.21	Protokoll der 5. Klimawerkstatt im Rahmen des Klimaschutzkonzeptes	
GS2	Integriertes Klimaschutz und Klimaanpassungskonzept für die Gemeinde GS2 | 2019	Klimagerechtes Bauen - Wie schütze ich mein Haus vor den Folgen des Klimawandels	Förderprogramm "Jung kauft Alt - Junge Menschen kaufen alte Häuser"	Zuschuss für das eigene Haus | 2021	
GB2	Durchgeführte Klimaschutzmaßnahmen | 2019	Erneuerbare Energien	Runder Tisch Nachhaltigkeit GB2: Zweite Konferenz		
GS3	Maßnahmen- und Umsetzungsüberblick Klimaschutzkonzept Gemeinde GS3 | 2019	Bürgerworkshop Klimaschutz	Förderung Photovoltaik und Speicher	Förderungen im Bereich Energieeffizienz	

GB3	Integriertes Klimaschutz- und Klimaanpassungs-konzept der Stadt GB3 | 2012	Photovoltaik und Speicherung	Förderprojekte	Maßnahmenkatalog proKLIMA | 2014	
GS4	Integriertes Klimaschutzkonzept der Kreisstadt GS4 | 2013	KLIMASCHUTZ-GEBÄUDE	JUNG KAUFT ALT – FÖRDERPROGRAMM DER KREISSTADT GS4	Klimakisten wecken den Forschergeist	
GB4	100% Klimabewusst: Der Masterplan für GB4 | 2017	Ergebnisbericht zum Masterplan 100% Klimaschutz GB4	Förderung von Maßnahmen zur Dachbegrünung	Mit Sonnenkraft voraus: Machen Sie Ihr Dach zum Energielieferanten!	Energieberatung
GB5	Kommunales Klimaschutzkonzept | 2013	Geförderte Klimaschutzmaßnahmen			
GS5	INTEGRIERTES KLIMASCHUTZKONZEPT | 2020	Maßnahmen- Aufbau eines Klimaschutz-Managements | 2020	Checkliste zur ökologischen und Klima(folgen)angepassten Eigenheimplanung	Website der Samtgemeinde	

Coding Table

Theory I	Concept	Code heading	Code
Strategic Orientation	Strategic Formulation	Planning	Importance of output and cost objectives
			Innovativeness of measures
			Search for new opportunities of service delivery
			Priorities in strategy formulation
	Strategic Implementation	Formality in planning	Clearly defined tasks of municipality
			Updating procedures
			Focus on efficient service delivery
	Organizational Structure	Extent of decentralization	Autonomy of the municipal subunit
			Control of the management
		Awareness of structure	Demands for change of organization
			Adressing unique structures
	Organizational Environment	Stability in environment	Degree of external pressure
			Reaction to external pressure
			Need for organization to evolve

Theory II	Concept	Code heading	Code
Policy performance	Orgware	Organization and implementation of policy	Involvement of local actors
			Financial means secured
			Organizational structure secured
			Role of leadership and powerful actors
	Software	Education	Learning as an organization
			Education at early stages
			Low-threshold education
		Information	Large-scale promotion of green buildings
			Addressing concerns and barriers
			Consulting services
			Steering and oversight by administration
			Low-threshold participation
		Communication	Communication between actors
			(Regular) events and communication channels
	Hardware	Providing infrastructure	Building knowledge and exchange networks
			Awareness of potential conflicts
		Intervention	Active intervention
			Mandatory demands

			Transparent communication
	Output	Outcome of policies	Absolute change in green buildings
			Perceived change in mentality
			Evaluation of individual measures
	Network Activity	Exchange and cooperation on policies	Entrenchment of local exchange
			Intercommunal exchange

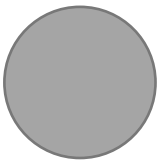
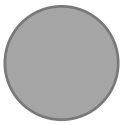
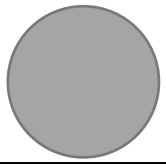
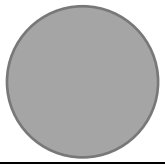
English Interview Questions

Subject	
1. Start	1. What role do you play as a Municipality GB3n the local implementation of sustainable buidlings?
2. Work within Municipality GB3	What are your priorities for sustainable building measures?
	How do you transfer experience from existing sustainable construction measures to follow-up projects?
	How do you succeed in convincing all protagonists involved in the planning process (including owners, investors, architects, planners, specialist planners, ...) to take measures in the sense of sustainability?
	How autonomous can you work in implementing sustainable building measures?
3. Work within Municipality GB3I	1. How important is it to you to develop new measures and offerings under the influence of constantly changing framework conditions?
	2. How do laws, regulations and guidelines influence your work on sustainable construction?
	3. To what extent do demands from local developers and citizens influence your work?
	4. How does your organization analyze the breadth of public and private funding programs?
4. Implementation of Policy	1. How is the exchange with citizens and local stakeholders organized in your city?
	2. How do you reach citizens who do not proactively access information or funding?
	3. How do you support stakeholders to reduce barriers (concerns about costs, effort... ") to the use of individual measures?
	4. Is it possible to objectively assess the outcome of individual measures during their lifetime and beyond (Monitoring)?
	5. What role does exchange with other municipalities play in your work?
	6. Could mandatory measures be a useful means of promoting sustainable construction?
5. Location-based questions	1.
End	Is there anything you would like to add?

German Interview Questions

Themenkomplex	
1. Beginn	1. Welche Rolle spielen Sie als Kommune bei der lokalen Umsetzung nachhaltigen Bauens?
2. Strategie & Arbeit I	1. Was sind Ihre Prioritäten bei Maßnahmen zu nachhaltigem Bauen?
	2. Wie übertragen Sie Erfahrungen aus bestehenden Maßnahmen zu nachhaltigem Bauen in Folgeprojekte?
	3. Wie gelingt es Ihnen sämtliche am Planungsprozess beteiligten Protagonisten (u.a. Eigentümer, Investoren, Architekten, Planer, Fachplaner, ...) von Maßnahmen im Sinne der Nachhaltigkeit zu überzeugen?
	4. Wie autonom können Sie bei der Umsetzung nachhaltigen Bauens arbeiten?
3. Strategie & Arbeit II	5. Wie wichtig ist Ihnen die Entwicklung neuer Angebote unter Einfluss sich ständig ändernder Rahmenbedingungen?
	6. Wie beeinflussen Gesetze, Vorgaben und Richtlinien Ihre Arbeit zu nachhaltigem Bauen?
	7. Inwiefern beeinflussen Forderungen lokaler Entwickler und Bürger Ihre Arbeit?
	8. Wie analysiert Ihre Organisation die Breite der öffentlichen und private Förderprogramme?
4. Konkrete Umsetzung	1. Wie gestaltet sich in Ihrer Stadt der Austausch zu Bürgern und lokalen Interessenträgern?
	2. Wie erreichen Sie BürgerInnen, die nicht proaktiv Informationen bzw. Förderungen abrufen?
	3. Wie unterstützen Sie Akteure um Barrieren (Sorgen vor Kosten, Aufwand… “) zur Nutzung einzelner Maßnahmen zu reduzieren?
	4. Lässt sich das Ergebnis einzelner Maßnahmen während ihrer Laufzeit und darüber hinaus objektiv beurteilen?
	5. Könnten verbindliche Maßnahmen ein sinnvolles Mittel zur Förderung von nachhaltigen Bauen sein?
	6. Welche Rolle spielt der Austausch mit anderen Gemeinden bei Ihrer Arbeit?
5. Ortsgebundene Fragen	1.
Abschluss	Gibt es etwas das ich vergessen habe?

Frequency of codes for strategic Orientation and policy performance in Documents

Dimension / Frequency	Strategic Formulation	Strategic Implementation	Organizational Environment	Organizational Structure	
Frequency across all municipalities					
Dimension / Frequency	Orgware	Software	Hardware	Output	Networks
Frequency across all municipalities					

Interview results for strategic orientation and policy performance

	3 most common responses per dimension (# of repetitions)
Strategic Formulation	Strategies for municipal buildings (8) Specifications in development plans (8) Avoid sealing of soil (7)
Strategic implementation	Limited transfer of experiences as we are at the beginning of the process (4) Getting all actors on one table (6) The climate protection concept offers a guideline for implementation (4)
Organizational environment	You have to account for laws and regulations during your work (10) These laws and regulations are not far-reaching enough and leave too much unclear (6) Local politics have a huge effect (9)
Organizational Structure	Limited autonomy of sustainability office itself (7) As a small municipality, short decision path-ways aid our work (4) Our municipality is both too large and too small: much work, fewer informal neighborhood networks (2)
	3 most common responses per dimension (# of repetitions)
Orgware	We involve local actors through events and panels to discuss and inform (10) We have secured financial means for most of our projects (6) We have a role model function that we must fulfill (6)
Software	Low-threshold participation is an essential tool to activate local actors (6) We try to gain pupils as multiplicators for sustainability (2) We use the local newspaper and social media for advertising activities (9)
Hardware	Mandatory demands can be an opportunity for green buildings (7) We are concerned with legality and conflict potential of mandatory measures (4) We hope that new laws and regulations set the framework for mandatory measures (6)
Output	We are currently setting up monitoring (6) We evaluate projects individually (3) There is an overall assessment by looking at climate data (5)
Networks	Exchange with other municipalities plays an essential role (8) You do not have to reinvent the wheel. Discuss what worked elsewhere and might be appropriate (8) We climate protection managers have our network to aid our work (9)