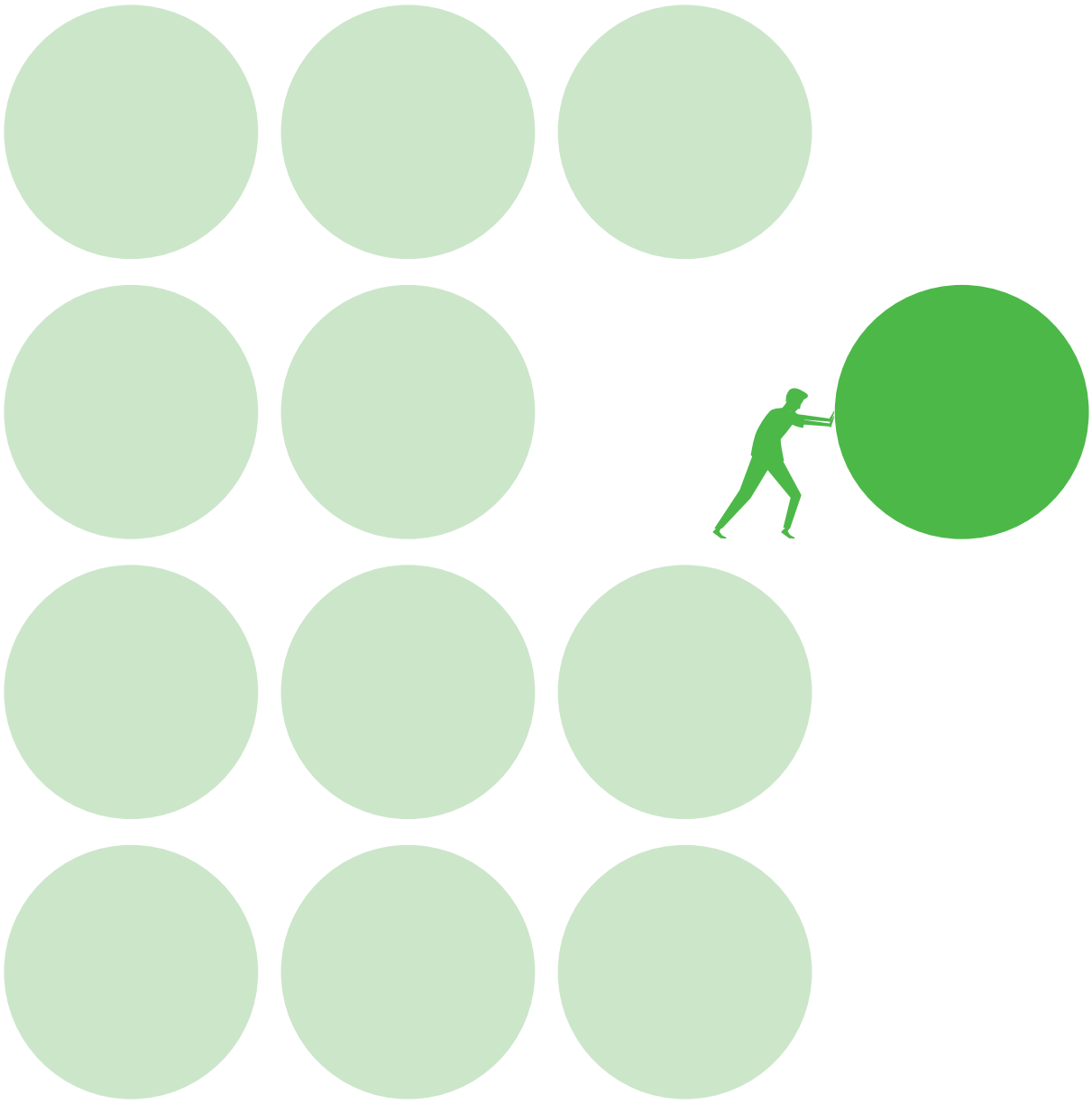
Align, Assess, Assure

Realising Sustainable Ambitions through Communication in the Front-End Phase of Built Environment Projects



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A single case study on steering sustainability ambitions with communication as progressive developer from initiative until realisation

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abstract

The construction sector plays a major role in global CO2 emissions, making the consistent realisation of sustainability ambitions a pressing challenge. Although progressive developers increasingly set high sustainability goals in the early project phases, these ambitions often weaken during the front-end process. This research examines why this gap between ambition and outcome persists and how communication can be used as a governance mechanism to safeguard sustainability objectives. Using a Design Science Research approach, the study combines literature insights with empirical findings from a single case study supported by interviews, document analysis, workshops and expert validation. The results show that ambition dilution is strongly influenced by communication gaps, unclear expectations, insufficient risk dialogue and the absence of structured feedback loops. These gaps become most impactful in interactions with conservative stakeholders such as housing associations and contractors. The study delivers a practical communication strategy tailored to progressive developers, structured around critical project moments and three communicative horizons: Align, Assess and Assure. This strategy supports goal clarity, stakeholder alignment and transparent decision-making, enabling more consistent realisation of sustainability ambitions throughout the project lifecycle.

Keywords:

Communication, Sustainable Ambition, Realisation, Project Management, Impact

executive summary

Background and Problem Context

The construction sector accounts for a substantial share of global CO_2 emissions and resource depletion. In response, progressive real estate developers increasingly articulate ambitious sustainability objectives, such as Paris Proof material use, timber construction, circularity, and biodiversity enhancement. In practice, however, these ambitions often weaken or remain partially unrealised during the project realisation phase. Previous research has identified recurring challenges, including unclear ambition definitions, fragmented stakeholder interests, and limited governance mechanisms that support continuity throughout the development process.

While existing studies predominantly focus on technical instruments, sustainability frameworks, or formal collaboration models, the role of communication is often addressed implicitly. Communication is rarely examined as a process condition that shapes how ambitions are sustained over time. This thesis addresses this gap by investigating communication as a structuring element that influences alignment, decision-making, and commitment during the front-end of development projects.

Research Objective and Questions

The central objective of this research is to develop a practical, communication-based strategy that enables progressive real estate developers to steer the realisation of sustainability ambitions throughout the front-end of projects.

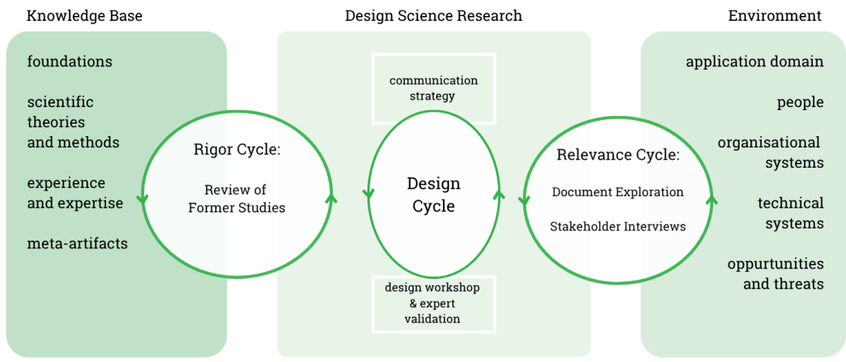
Main research question:

How can communication steer the realization of sustainable ambitions in the front-end phase?

To answer this question, the research combines theoretical insights on communication, collaboration, and sustainability implementation with empirical observations from practice. It examines how communication is currently applied in development processes, why certain communicative approaches succeed or fail in maintaining ambition, and how communication strategies can be deliberately designed to engage conservative stakeholders while operationalising sustainability goals.

Methodology

This research adopts a Design Science Research approach, following Hevner et al. (2007), in which theoretical knowledge and empirical practice are iteratively connected. The study integrates a literature-based knowledge base with an empirical environment through a single-case study of the Appelaar project. Data collection consisted of document analysis, stakeholder mapping, and process reconstructions, complemented by semi-structured interviews with actors operating at both strategic and operational levels. To translate analytical insights into actionable design knowledge, a strategy workshop was conducted using the Double Diamond framework. The resulting communication strategy was refined and validated through expert evaluation, ensuring both academic rigor and practical relevance.



Theoretical Insights

The analysis reveals that communication influences the realisation of sustainability ambitions through three interrelated mediating variables: goal clarity, stakeholder alignment, and the perceived value of sustainability. Goal clarity refers to the extent to which sustainability targets, performance indicators, and boundary conditions are explicitly defined and shared among stakeholders. Stakeholder alignment concerns the coordination of interests, roles, and priorities within the development team. The perceived value of sustainability reflects how actors assess the benefits, risks, and cost implications associated with sustainable measures.

These mediating variables are shaped through concrete communicative actions, such as visualisation, evidence-sharing, performance measurement and the establishment of feedback loops. Together, they form the conditions under which sustainability ambitions can be maintained as projects progress and pressures increase.

Case Study Insights

The Appelaar case illustrates how sustainability ambitions are subject to reinterpretation throughout the front-end phase. Ambitions shifted multiple times in response to changing risk assessments, municipal positioning, and evolving design considerations. These shifts were not primarily driven by technical infeasibility, but by differences in interpretation, responsibility allocation, and perceived risk between actors.

The case shows that misalignment often originated from implicit assumptions, unclear role divisions, and fragmented information flows. Communication that was initiated early, repeated at key moments, and supported by visual and concrete representations contributed to maintaining alignment around sustainability ambitions. Informal trust-building interactions played a significant role, although they were rarely explicitly recognised or structured within the process. The findings underline that the effectiveness of communication varies across phases, requiring adaptation to the evolving context of the project.

Final Communication Strategy

Building on these insights, this research proposes a communication strategy structured across five front-end phases: Initiative, Strategic Brief, Design, Contract & Roles, and Pricing. The strategy is organised around three overarching intentions: Align, Assess, and Assure.

Align focuses on bringing actors and perspectives together by making ambitions explicit, surfacing differing priorities, and fostering shared understanding across organisational levels. Assess supports the joint evaluation of sustainability ambitions by clarifying implications, risks, feasibility, and value, enabling informed decision-making. Assure concentrates on sustaining commitment by formalising agreements, responsibilities, and performance criteria, ensuring that earlier decisions remain traceable and revisitable as the project progresses.

Within each phase, targeted communicative actions support these intentions, including visualisation to enhance clarity, explicit linking of sustainability ambitions to risk allocation and pricing logic, and the establishment of feedback moments to revisit assumptions and decisions. Action types are divided in several objectives; transmitting information, building team strength, setting context and finally; repetitive actions.

Conclusion

This research answers the central research question by showing that communication steers the realisation of sustainability ambitions in the front-end phase by structuring how key mediating variables evolve over time. Communication does not steer ambitions directly, but influences whether sustainability ambitions are maintained or diluted by shaping goal clarity, stakeholder alignment, and commitment. Through communication, ambitions become explicit, interpretations are aligned, and the perceived value and implications of sustainability measures are jointly assessed. In this way, communication determines how actors understand, evaluate, and relate to sustainability ambitions as projects progress.

The study shows that this steering takes place through three recurring communicative intentions: Align, Assess, and Assure. Align supports the alignment of actors by creating shared understanding of ambitions and roles; Assess enables collective evaluation of sustainability goals by clarifying implications, risks, and feasibility; and Assure focuses on sustaining commitment by embedding ambitions into decisions, responsibilities, and agreements. Together, these intentions structure communication across critical moments in the front-end phase, allowing sustainability ambitions to be reconsidered without being implicitly weakened. The findings demonstrate that the realisation of sustainability ambitions is therefore primarily shaped by how these mediating variables are managed through communication, rather than by technical constraints alone.

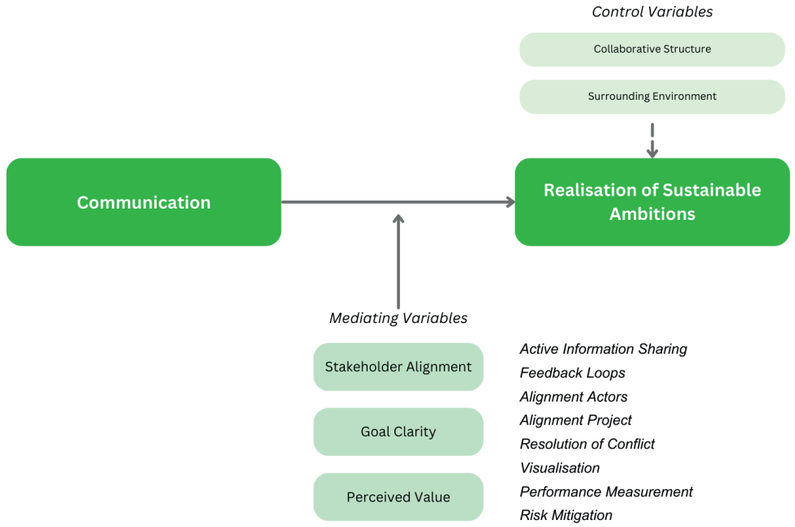
Recommendations

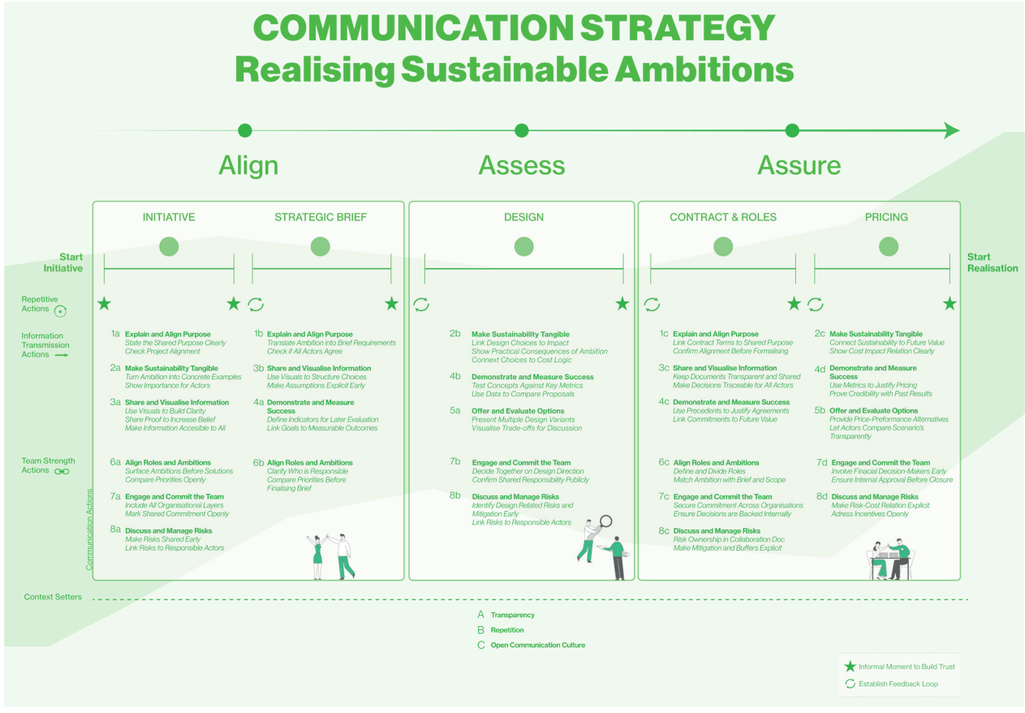
For Practice:

- Implement the communication strategy as a recurring protocol.
- Use visualisation tools for clarity and alignment.
- Treat sustainability metrics as conversation starters.
- Embed structured reflection moments.

For Future Research:

- Expand the model toward negotiation and decision-making.
- Test the strategy across multiple developers.
- Examine the influence of policy and ESG regulation.





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01 introduction

While progressive developers are advanced in achieving sustainable ambitions, they often lack effective strategies and tools to make and sustain collaboration with conservative stakeholders. However, their success heavily depends on their ability to bridge the gap between innovative ambitions and the conservative practices of key stakeholders. Eventually to ensure that their stated sustainability ambitions are met, both at project and organisational level.

1.1 Research of Former Studies

Over the last years, sustainability became a more highlighted issue in almost every industry (Hwang et al., 2017). Sustainable development has received a lot of attention in all countries since the World Commission on Environment and Development's (1987) 'Our Common Future' report (Ortiz, Castells and Sonnemann, 2008). And years ago sustainable development was already prospected as one of the greatest challenges of the twenty-first century (Sachs, 1999). Most industries have, since then, incorporated sustainability in their agenda's. The built environment industry, as one of the most contributing industries to the total CO2 emissions, has not been behind (Escamilla et al., 2016). Previous studies have discussed this development industry's climate impact and the need of reducing the carbon dioxide emissions. Treaties like the Paris Agreement and the Kyoto Protocol have been trying to enforce thinking and acting in a more green direction when developing projects (Calster & Reins, 2021). In line with these international frameworks, the Dutch real estate sector has recently introduced a more binding instrument. In September 2025, a coalition of thirteen institutional investors and housing associations launched a national embodied carbon trajectory that prescribes both indicative targets and hard ceiling values for material-related emissions (GWPA, Module A of the Dutch MPG) per m² gross floor area. Projects that exceed the ceiling values will, in principle, no longer be eligible for acquisition. The framework is aligned with Building Decree (Bbl) assumptions, differentiates thresholds for small dwellings and high-rise, and will be periodically reviewed. This shift from voluntary ambition to enforceable procurement standards illustrates how private governance anticipates and complements forthcoming European whole-life carbon regulation. Despite increased attention, significant challenges remain in translating sustainability goals into actionable strategies, particularly in the construction sector, where conservative practices dominate (Eikelenboom and van Marrewijk, 2024). Achieving sustainability ambitions in a construction project can be characterised as a wicked problem. This is defined by multiple, interdependent dimensions, ambiguous goals, evolving stakeholder perspectives and no definitive 'solution' (Lönngren 2021). Goel (2019) argues that sustainability in construction is marked by uncertainties across social, economic, environmental and technical domains, making it inherently complex to manage. Recognising this as a wicked problem implies that realising sustainable outcomes demands more than static plans. It requires adaptive management, ongoing stakeholder alignment and iterative collaboration rather than a one-off implementation (Parrott, 2017).

A lot has been researched about sustainability in the Built Environment sector in the last years. It has begun to be one of the most talked about subjects in this industry and has been facing a number of challenges and problems from a managerial, strategic and operational perspective (Lima et al., 2021). Sustainability is evolving in an inevitable part of projects. New generations of professionals are growing up more environmentally aware than ever and eager to put their beliefs and attitudes into practice (Lambrechts et al., 2019). This perspective on development results in sustainability being more and more seen as a way to add value to a project instead of just a cost (Dias & McPhee, 2020). A trend which adds to the positive sentiment of sustainability in the building sector. National programmes such as 'Circular Economy in the Netherlands 2050' and the Building Agenda emphasise the importance of sustainable sound construction methods. The Dutch ministry is working with municipalities and private developers to realise these ambitions (Holland Circular Hotspot, 2024). Niche developers often face structural barriers when engaging with conservative stakeholders who prioritize established practices over innovative sustainable methods. This dynamic slows down sector-wide transitions and challenges the realization of ambitious sustainability goals (Van Uden, 2023). Additionally, Eikelenboom and van Marrewijk, (2024) underscore how deeply ingrained cultural practices within the building sector act as obstacles to transformative change, reinforcing the need for innovative collaboration. Overcoming these challenges requires a nuanced approach that combines effective communication, stakeholder alignment, and tangible proof of sustainability impact.

Termote (2023) and Urton & Murray (2021) highlight that the concept of management is accountable for the sustainable initiative of a project. Setting ambitions as early as possible contributes to the end-result in significant manner (Robichaud & Anantatmula, 2011; Dias & McPhee, 2020). But, these initiatives do not ensure long-term sustainability throughout the whole project. In addition, it remains a difficulty to manage a design team to rise above minimum standards of sustainability measurement instruments (Dixon et al., 2018). There is too little attention on how project management can ensure that these ambitions don't dilute once the project moves into the implementation phase (Robichaud & Anantatmula, 2011; Lambrechts et al., 2019). The ambitions are present, but most developers lack in achieving them and actually changing the industry. Municipalities, such as Amsterdam, are taking the lead in the Netherlands encouraging circular construction practices, but they too see that sustainable objectives are often diluted once construction begins (Ministerie van Buitenlandse Zaken, 2023; Holland Circular Hotspot, 2024; Gökhan, 2020). This discrepancy lies in the conservative side of the industry (Eikelenboom & van Marrewijk, 2024). Stakeholders, such as housing associations and pension funds, hesitate to take risk over their social ambitions and are reluctant to involve themselves in these new processes. The successful realisation of organisational change in the building sector is challenging and, to this day, not well understood (Cropper and Palmer, 2008). Niche, progressive developers, who want to change in this direction, find difficulties in establishing themselves firmly in the industry. Causing transitions to be slow and perhaps also making sustainability ambitions to lag behind or to not be achieved (Eikelenboom & van Marrewijk, 2024; van Uden, 2023).

The role of these small developers and their management strategies becomes pivotal in the industry in ensuring

sustainability ambitions are maintained throughout the project lifecycle. The effectiveness of projects has been demonstrated to depend heavily on project management (Bourne & Walker, 2004; Tabassi et al., 2016). This concept of project management exists on different levels during a project. Individual skills, direct actions on project team level and organisation strategies all play a role within the concept of project management (Marcelino-Sádaba, 2020; Jóhannesdóttir, 2019; Rozhkov et al., 2017; de Jong, 2017; Ballam, 2023). Steering a project towards a more sustainable direction is therefore also most influenced by the applied management style (Das, 2023). Coordination of the sustainable practices of project teams is an important aspect of the management of innovation and is the subject of many management studies (Gibson and Gibbs, 2006; Kratzer et al., 2006; Martinsuo, 2009; Van der Vegt and Janssen, 2003). A manager who has to guide and steer a sustainable innovation process needs a broad repertoire of soft management skills for this complex case (Chakrabarti, 1974; Hauschildt and Kirchmann, 2001; Jung et al., 2008; Krause, 2004; Lloréns Montes et al., 2005; Roberts and Fusfeld, 1981). Van Uden (2023) highlights the importance of communication in this process. Ambitions in the face of tight schedules, rigid budgets and stringent quality requirements can often only be defined 'softly'. They run a high risk of falling by the wayside when chain partners in the cooperation do not communicate well about their goals and the values they cherish in doing so. Especially when low risk is favoured by specific conservative stakeholders.
Building on the crucial role of progressive parties, their ability to balance subjective management strategies and objective measurement tools is essential for becoming the new normal. As highlighted by several researches, communication plays a crucial role in this process. The way a developer communicates, establishes the way stakeholders react and perceive information on sustainability implementations (Kim et al., 2017; Serhan & Dragonov, 2016). To persuade more conservative stakeholders during this process, negotiating in the right way enforces this communication even more. (Li et al., 2018). This practice is therefore essential for project managers during the implementation of sustainable ambitions (Montrucchio & Maneschi, 2012). The focus of this study is therefore on this specific factor, although other instruments in soft management might play a role as well (Heurkens, 2012).

To measure the realisation of sustainable ambitions on project level, the use of objective measurement instruments is crucial. These allow for clear evaluation of the sustainable impact of a project and are necessary to go from ambitions to actual realisation. Comprehensive environmental assessment methods require measurable criteria to bridge gaps in stakeholder expectations (Pol, 2010; Karol & Brunner, 2009). Several systems such as Het Nieuwe Normaal, Bouwbesluit, BENG and other initiatives help project teams to identify which factual sustainable impact is made. Additionally, convincing conservative parties to join the "new normal" established by front-runners; an ambition which is set on organisation level. So, both 'subjective' management strategies and 'objective' measurement tools shape the realisation of sustainable ambitions (Orieno et al., 2024; Marković et al., 2020; Yu et al., 2018).



Figure 1. Visual Representation of the Research Gap (Bourgonjen, 2025)

Although most findings indicate the importance of setting sustainable ambitions, there is little discussed about how soft management strategies, focusing on communication, can steer the realisation of sustainable ambitions. Apparently translating these 'soft skills' into 'real' results remains a challenge (Urton & Murray, 2021). Most research focuses on provable realisation of sustainable ambitions and subjective communication strategies in isolation. However, little attention has been given to how these 'soft' strategies interact with the measurable realisation of sustainable ambitions, both on project- and organisation level. This study seeks to address this gap by focusing on the specific context of progressive developers operating in conservative environments.

1.2 Problem Definition

As discussed in the former section (1.1), sustainability ambitions on both organisation- and project level are often hard to maintain during the front-end phase of built environment projects. In practice, ambitions are set-up, but these goals frequently dilute after the tender phase. This gap is exacerbated by the lack of clear communication strategies that align stakeholder ambitions with quantifiable outcomes.

Therefore, the problem statement of this research is:

"While sustainability ambitions are frequently established during the early phases of built environment projects, they often fail to translate into measurable outcomes during the realization phase. This inconsistency highlights the need for effective communication strategies to bridge the gap between ambitions and outcomes. This research firstly seeks to analyse this complex problem and what it exactly entails. Subsequently, it aims to identify practical strategies for progressive developers on how to communicate with conservative stakeholders can be made actionable for achieving measurable results when setting sustainability ambitions, both on project- and organisation level. Ultimately, intending to minimize the disparity between ambitions and outcomes, enabling a more consistent implementation of sustainability in the building industry."

1.3 Research Objective

This research aims to develop a strategy that makes communication actionable for measurable results. More in detail; to develop a strategy that involves more conservative stakeholders via communication. This tool links existing theory on this topic with practice to support progressive developers in prioritizing sustainability ambitions on both project- and organisation level. The research aims to develop practical strategies that leverage communication to support these niche parties in realising sustainability ambitions. By analysing theoretical frameworks, conducting a project case study, and validating solutions through stakeholder collaboration, this study seeks to offer an actionable tool for aligning initial sustainability ambitions with factual outcomes.

1.4 Research Questions

To attain the research objective of this thesis and solve the problem outlined in Section 1.2, the main research question is as follows:

"How can communication steer the realisation of sustainability ambitions in the front-end phase?"

The sub questions, which support the main question, will each uncover a part of this aimed research goal. They are formulated as:

1. What does existing theory reveal about how communication influences the realisation of sustainability ambitions on project- and organisation level?
2. How has communication been applied in the selected projects to shape the realisation of sustainability ambitions?
3. Why did certain communication strategies succeed or fail in realising measurable sustainability ambitions?
4. How can communication strategies be designed to engage conservative stakeholders and operationalise sustainable ambitions?

1.5 Research Relevance

Scientific relevance
This research dives into the connection between communication strategies and the measurable realisation of sustainability ambitions in the building industry. It bridges the gap between theoretical insights and practical implementation by focusing on the interplay between soft skills and measurable outcome approaches. Sustainability in the building industry and soft management skills have been frequently researched in the last years, but there lies a research gap in their intersection, where ambitions often fail to translate into measurable outcomes. This study contributes scientifically in the following ways:

- An in-depth analysis of existing research within the field of the interaction between communication and ambitions, contributing new theoretical insights into sustainable project management.
- An empirical study which offers evidence on how communication strategies can steer measurable sustainability outcomes.
- Knowledge on conservative stakeholder dynamics and fostering involvement through effective communication.
- Innovative connection by combining theories on subjective management and measurable outcomes, yielding insights into how these can be co-dependent in practice. Resulting in new insights in broader theory about this subject.
- Expanding existing theory on the role of communication, emphasizing the integration of soft skills (communication) and strict outcomes (measurement frameworks) in achieving sustainability outcomes.

Practical relevance
In practice, many organisations in the building industry fall short of their sustainability ambitions, resulting in a persistent gap between high expectations and actual outcomes. This discrepancy occurs both on project- and organisation level and presents significant challenges for progressive parties, where ambitions risk dilution due to the lack of involvement of conservative stakeholders such as investors and housing associations. This research provides actionable insights to minimize this gap by offering both theoretical and practical guidance. Specifically:

- Understanding why the gap occurs: By analysing a single case study and stakeholder perspectives, the study identifies patterns, drivers, and barriers contributing to discrepancies between ambitions and measurable results.
- Providing solutions to bridge the gap: The research delivers a communication and roadmap, designed to help niche developers align conservative stakeholders with realisation of sustainability ambitions.
- Equipping developers with actionable tools to bridge the gap: The findings serve as a practical guide professionals in the built environment, offering strategies to enhance collaboration and ensure sustainability ambitions are realised.
- Game-changing strategies for the industry: By connecting theoretical insights with in-practice results, this research develops strategies that can transform communication approaches in sustainable building projects, fostering greater accountability and measurable impact.

02
methodology

This research will be conducted including different types of research methods to answer the main- and sub questions in a logical and scientific manner. Each sub question, as mentioned in the former parts, will be answered using its own research method. This section will elaborate on the type of study, each question and its research method, data collection and data analysis.

2.1 Type of Study

This study uses a qualitative approach to answer the research questions. A qualitative approach aims to gather information about experiences, reasoning and perspectives of actors, and is useful for investigating systems of change (Busetto et al., 2020; Hammarberg et al., 2016). Bhattacherjee (2012) argues that such methods help understand certain happenings and the interplay of concepts. As this thesis examines how communication makes sustainability ambitions measurable and actionable, a quantitative approach is not appropriate (Bhattacherjee, 2012). Therefore, a qualitative approach is chosen. Additionally, this study is exploratory and follows a single case study design to investigate how communication strategies steer the measurement of sustainability ambitions in the front-end phase of built environment projects. A case study is defined as an intensive analysis of a case in its real-life context (Flyvbjerg, 2011; Bhattacherjee, 2012; Baarda et al., 2018). Its value lies in the in-depth understanding of a social phenomenon. In this study, depth is preferred over breadth (Flyvbjerg, 2011; Yin, 2014). Through a detailed examination of one project and interviews with relevant actors, the study identifies trends, motivators and obstacles. The research is conducted abductively: it starts from a conceptual model based on theory (deductive), while remaining open to additional insights emerging from the exploratory case study (inductive). Through a research-through-design approach, a practical tool is developed to support the steering of measurable sustainability ambitions through communication. The study is approached from a socio-technical perspective, combining technical project-management concepts with the social context in which they are applied. Given the limited research on the relationship between subjective aproaches (communication strategies) and objective outcomes, this study aims to offer new insights and contribute to actionable strategies for project managers seeking to strengthen sustainable project implementation.

2.2 Research Methods

Sub question 1

“What does existing theory reveal about how communication influence the realisation of sustainability ambitions on project- and organisation level?”

To answer the first research question, a structured literature review is conducted to establish the theoretical basis for this study. The purpose of this review is to identify academically supported insights into how communication influences the formulation and realisation of sustainability ambitions in area development. This theoretical grounding is essential, as the subsequent field analysis, interpretation of findings, and development of the strategy rely on a coherent understanding of the mechanisms through which communication affects measurable outcomes.

The review examines five overarching themes derived from existing research, see table 1.

Table 1. Number of Identified Researches per Theme

Theme	Number of Papers
1. Ambitions in Area Developments	19
2. Collaboration Strategies and Tender Structures	9
3. Factors in Maintaining Sustainability	17
4. Stakeholder Management and Tensions	13
5. Project Management as a Tool	23

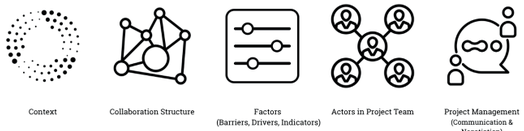

Figure 2. The 5 Main Themes of Literature Studies (Bourgonjen, 2025)

Together, these themes capture the multi-layered context in which sustainability ambitions are shaped, negotiated, and operationalised. The review process began with broad conceptual scanning and was refined through a systematic coding of keywords and their synonyms into structured search queries. These queries were applied in Scopus, filtered to relevant subject areas (Engineering; Environmental Science; Business, Management & Accounting), and subsequently screened on relevance through abstract analysis. An iterative snowballing approach ensured that additional relevant literature was incorporated as the review progressed. In total, 77 academic publications were examined across the five themes, see table 1. This body of literature provides the foundation for the conceptual framework developed at the end of the chapter. The framework is used deductively to structure the empirical case study, while leaving room for abductive insights emerging from interviews and field observations. A detailed description of the search strategy, keyword codes, search queries, and selection criteria is provided in appendix B, which documents the full methodological process underlying the literature review.

Sub question 2

“How has communication been applied in the selected project to shape the realisation of sustainability ambitions?”

The following question is directed at the practical implications of managing set sustainability ambitions using communication on project level and its influence on organisation level. Firstly, this research method will support mapping out the specific situation of this research. Using a single case study, an analysis will be conducted to foster a clear understanding of the project and its characteristics. This method uses one project to examine how communication directly influenced measurable sustainability ambitions during the front-end. This addresses

the “what happened” by examining specific moments or strategies in the project in which obstacles occurred in realising sustainability ambitions. Moreover, the extent to which these processes impacted measurable outcomes. As much data as possible is collected in this stage to give the most comprehensive overview possible. This will be done by a stakeholder analysis, document exploration and an overview of all meetings and stakeholders. Additionally, interviews with stakeholders, focussing on the ‘what’ of this study, will be held to get into detail about what happened during this project, who did what and when crucial moments appeared. These stakeholders include both a strategic position (director of Nice Developers) and operational actor at the examined organisation and at least 2 employees of three other parties involved.

Sub question 3

“Why did certain communication strategies succeed or fail in realising measurable sustainability ambitions?”

After mapping out the theory in practice, the reasoning behind this specific project process will be looked in to. This sub question therefore identifies specific drivers, obstacles, and tensions to explain why communication strategies worked or fell short during the case-study. In terms of ambitions: what stakeholders wanted to achieve. Does this align with the overall sustainable ambitions or do contradictions occur? Furthermore, how and why more conservative parties participated in the project or not. Why did certain ambitions dilute and some not? On which level did this happen? Did some types of communication succeeded repeatedly? The research method which will be conducted in this phase is semi-structured interviewing with both internal stakeholders on the developers side as external stakeholders in the realisation team such as contractors and builders. The total amount of interviews will thereby lie between 10 and 15. These semi-structured interviews will give insight in the practical aspects of the process and how this went. Additionally, on a deeper level; why this happened and how ambitions were steered in this project. Information required from the extensive literature review will provide a broader perspective in the interpretation of answers. This helps to avoid experience bias and give some theoretical guidance to the answers. The interview protocol of this phase is added to this report in appendix D. The output of this phase is a timeline with critical moments, applied communication actions and remaining gap in realising ambitions per moment. Extra input, such as gathered ideas during the interviews to improve these critical points in the process (inductive measures), is also added to incorporate in the strategy design. In this way, the conceptual model serves as a framework that gives direction but does not determine any boundaries and is open for inductive feedback.

Sub question 4

“How can communication strategies be designed to engage conservative stakeholders and operationalise sustainable ambitions?”

The last question moves toward solution-building by refining communication practices based on findings from the project and theory. This last approach focusses on the question of ‘what can happen?’. Used to design a strategy that makes communication actionable for measurable results in the realisation of sustainability ambitions. The main methodology is based on the Design Science Research framework of Hevner 2007, shown in figure 4, also known as ‘research through design’. The framework designs out of two ‘circles’; the rigor cycle, which is based upon a theoretical knowledge base, and the relevance cycle, which includes the environment where the study is executed and all its documents. The knowledge base in this situation consists of the information retrieved from the literature review. The relevance cycle includes the explorative case-study, which offers the main obstacles of the case, the applied approach and finally, the remaining gap in critical moments. The core design cycle supports a closed-loop research approach for developing and evaluating strategy designs and procedures (Hevner, 2007) within three phases of prototyping. The output of the knowledge base and environment is combined in a total output during the first iterative design prototyping. This results in an output of design guidelines and early shaping of the strategy.

Second iteration
In the subsequent workshop, the concept of generative design is used to sketch and validate the timeline and first approach. The participants are the future users of the strategy; the employees of the developer. They are asked to ‘play’ the role of the key stakeholders in the decision-making process and evaluate the output of the case study. Role-play is effective in design workshops because it enhances user involvement, supports rapid idea generation, and helps participants understand other perspectives. (Seland, 2010) Within this method, the double diamond framework is used to set up a strategy design workshop. This method is a good guideline to ensure that the components in the workshop pursue the right goal. (British Design Council, 2024) It goes from playing a meeting (diverging), a reflection on key-issues during the process (converging), to generating multiple ideas (diverging) and finally to mapping these solutions on the strategy map (converging). This will results in a strategy sketch, used as input for expert validation. The workshop approach is further explained in appendix F, consisting of a detailed method explanation and course.

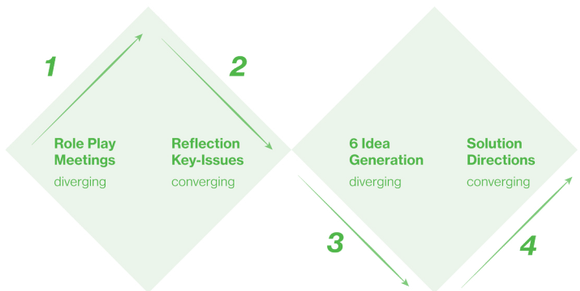

Figure 3. Double Diamond Method Workshop (British Design Council)

Third Iteration
The final iteration involves individual experts on disciplines such as communication, project management, team collaboration and sustainability in building projects. They will examine the output of the first group, using their perspective, and provide feedback on the sketched strategy during several one-on-one talks. This feedback is combined and compared to construct a second feedback round for the strategy. The final design is refined based on this expert input. The strategy contains communication tools and their implementation to ensure that set ambitions are upheld in the front-end phase. To conclude, the nature of this strategy is adaptive; based on literature and the conceptual model, followed by an integration with qualitative data from the workshop and expert interviews.

Figure 5. gives a total overview of the research framework applied in this study (Research through design). It shows the different stages, methods, techniques and outputs.

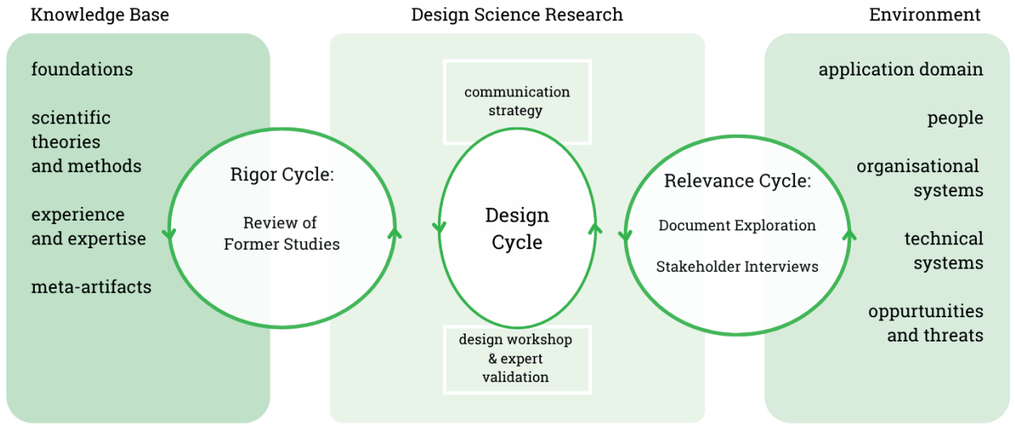

Figure 4. Design Science Research Framework (adapted from Hevner, 2007)

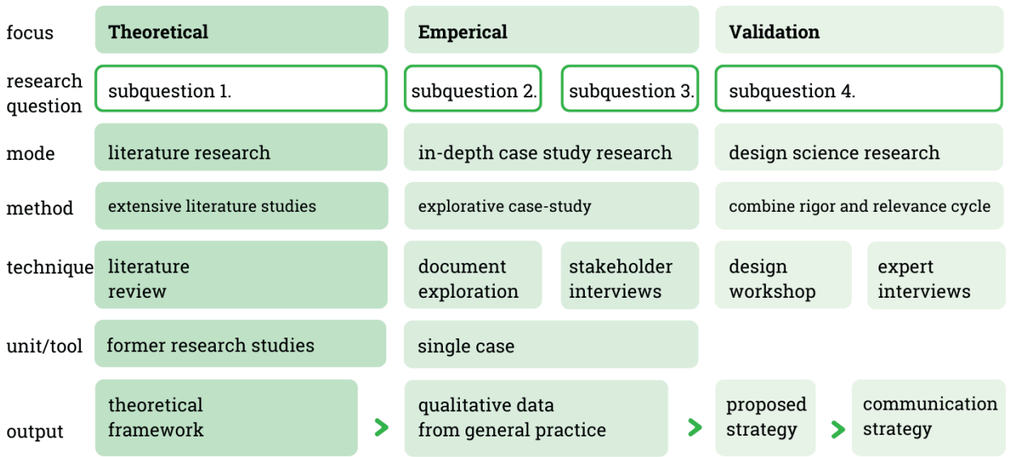

Figure 5. Research Framework (Bourgonjen,2025)

2.3 Data Collection

The primary data collection method for this study is a set of semi-structured interviews with internal stakeholders on the developer's side and external stakeholders involved in the realisation team. The interviews aim to capture a range of perspectives on the process, stakeholder involvement, decision-making dynamics and encountered conflicts. By using open questions, participants are not steered in a particular direction and can respond in language fitting their perspective and expertise. Semi-structured interviews therefore offer flexibility while ensuring consistency on core topics such as stakeholder roles, decision-making processes and project challenges. The goal of these interviews is to identify reasoning behind key events, co-occurring themes and contrasting or overlapping perspectives on realising progressive sustainability ambitions. The interviews include at least three stakeholders from the organisation under investigation and at least two potentially conservative investors, resulting in an estimated total of 10 - 15 interviews. All interviews are recorded with consent, transcribed, and coded in Atlas.ti to identify relevant themes and patterns.

In addition, the final sub-question is addressed through two workshops, which are recorded and documented in detail with participants' consent. Feedback on the final strategy is gathered through an expert-panel evaluation organised as a focus-group discussion. Questions on feasibility, applicability and potential improvements help assess the credibility of the proposal. This discussion is also recorded, transcribed and coded in Atlas.ti to process all feedback. All data collection follows the procedures outlined in the Data Management Plan (appendix H).

2.4 Data Analysis

Data analysis of this research follows a mixed approach, combining deductive and inductive coding techniques. Initially, coding will be guided by the theoretical background conducted within the range of the first research question. However, during the data analysis, open codes may emerge inductively from participants' narratives. Atlas.ti is then used for a detailed examination of co-occurring themes and differences across interviews. The goal of this is to identify reasoning on the events that happened, co-occurring themes and conflicting versus resonating perspectives on the subject of realising progressive, sustainable ambitions. Furthermore, this analysis is abductively, where codes are developed and refined throughout the study. A theoretical framework is used to identify key patterns and themes in the data. Tools to achieve this analysis are: occurrence tables and a detailed code report with specific quotes. Providing insights into a deeper level of the dynamics of collaboration and decision-making.

2.4.1 Codes Used in Analysis

The study used a total of 33 codes in the analysis, most of which were developed through closed coding based on existing literature (deductive coding). The themes that emerged from the literature review were operationalized using various indicators, which also steered the codes used in Atlas.ti. The codes, based on the 5 themes established in the theoretical background, include the following terms.

Mediating Variables
- Stakeholder Alignment
- Goal Clarity
- Perceived Value of Sustainability

Stakeholders
- Developers
- Housing Corporation
- Contractor
- Architect
- Municipality

Direct Actions
- Active Information Sharing
- Feedback Loops
- Alignment Actors
- Alignment Project
- Resolution of Conflict
- Visualisation
- Performance Measurement
- Risk Mitigation
- Evidence of Succes

Appendix E shows the codebook in detail and also includes the quantities in which the codes appeared. Additional codes were added inductively to the already existing ones. These codes ensure that a conclusion can be drawn from the stakeholders' experience rather than just an observation of which themes are occurring regarding the conceptual model. Appendix E includes the total codebook of both deductive and inductive codes.

2.5 Data Plan (DMP) and Ethical Considerations

The objective of this study is to generate valuable insights for stakeholders involved in realising sustainable ambitions. To ensure ethical conduct and minimise risks, this section outlines the key considerations related to potential harm, research validity and the researcher's position. Addressing these risks safeguards participant protection, data integrity and the overall credibility of the study (Blaikie & Priest, 2009). The data plan is added in appendix H.

2.5.1 Potential Harm

For the in-depth interviews, informed consent is required from all participants. This establishes clear agreements regarding the use and protection of personal data (e.g., name, age, role) and confirms the researcher's responsibility to handle this data carefully. The Informed Consent (IC) process ensures mutual clarity about what participation entails and what the researcher will do, legally and ethically, to protect participants' physical, emotional and reputational safety (TU Delft, 2024). All data is stored and processed according to the associated Data Management Plan.

2.5.2 Validity of the Research

Research validity consists of internal and external validity. Internal validity depends on whether the analysis and interviews accurately capture the intended concepts. Carefully constructed questions and a mixed-method approach, linking insights from literature to empirical interviews and project analysis, strengthen this validity. Possible issues, such as stakeholders struggling with terminology, are mitigated by testing the interview protocol and adjusting language where needed.

External validity relates to whether findings can be transferred to similar contexts. By clearly describing the case as representative for projects facing comparable sustainability challenges, the study supports broader applicability. Nonetheless, conclusions based on a single case must be treated as exploratory: this research is a first step toward more generalisable insights on realising sustainable ambitions in the built environment.

2.5.3 Position of the Researcher

Researcher bias is an inherent risk. To mitigate this, the interviewer remains conscious of avoiding involvement during interviews. Recordings are reviewed afterward to check for unintended influence, and interpretations are discussed immediately after the session to ensure accuracy. These measures help maintain objectivity throughout the research process. The HRX Checklist for Human Research and the Informed Consent Form are included in the appendix.

2.6 Research Stages

The research stages of this report are concluded in figure 6 which shows how all parts and outputs of the methodology influence the next step in the process.

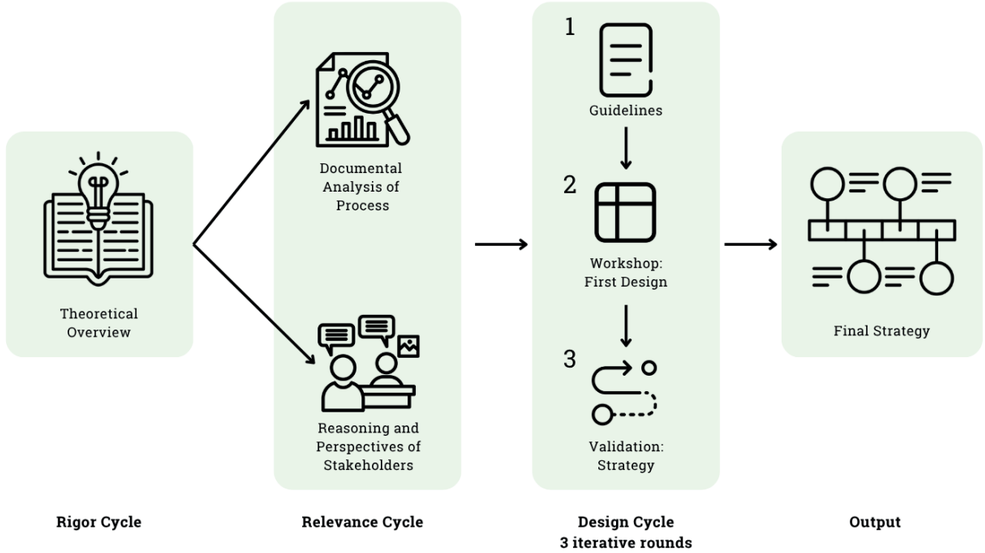

Figure 6. Research Process (Bourgonjen, 2025)

03 theoretical background

This part of the research will focus on creating the knowledge base where this study is executed on, aiming to answer sub question 1. Different themes and definitions within the scope will be discussed, using multiple sources to create a comprehensive overview of former research conducted. The goal of this first sub question is define direct actions that define the outcome of realising sustainability ambitions on project level, using communication practices and the context that is involved throughout the process.

3.1 Ambitions in Area Development - Broad Context

3.1.1 Definitions and existing tensions

Firstly, it is important to identify ambitions and its operations. Figure 7. shows the different operating levels of an organisation and how certain practices have an impact. From this scheme, it becomes clear that ambitions are built up at top-management strategic level, followed by 'programme' and 'projects', each of which has its own goals and management (Alrumaih, 2017). To make change at the highest level, in ambitions, and make impact as company, goals must first be achieved at project level (Buuren et al., 2010; Müller et al., 2019). So to become the 'new normal' in the industry, as much progressive parties aim for, a chain of projects with their specific subgoals, need to succeed. This is the level where project management practices have an impact. It is important to realise that all these projects together might potentially influence the 'programme' and this, might make real impact to meet the company's ambitions (Turkulainen et al., 2015). The process of realising sustainable ambitions flows down and up through the levels of the organisation. This research will consider these levels and recognise the importance of influence-interplay.

Starting a project, ambitions are often set high. Every project should reach the maximum on all aspects. It is often thought that this high stake in ambitions also ensures that the ambitions are all spread out and, at least somewhat, realised. But the opposite is true; often the contradiction in ambitions creates high pressure in the scope of the project (NEPROM, 2024). This becomes an obstacle for realising ambitions and creates discrepancy in ambition and final result. Ambitions should therefore be measurable, coherent and specific. Frequently, ambitions are too vague, which obstructs their implementation (Bjornberg, 2009; Hurlimann et al., 2022). Furthermore, a current tendency in the Netherlands is to seek for solving both the housing shortage, affordability and climate crises with just one project (NEPROM, 2024). This accumulation of ambitions is not realisable, as these often contradict each other and as the focus of a project cannot be everywhere (Ceron Castano & Wadley, 2012; Mohamed, 2023). Another important element in this contradiction is the interaction between single projects and area development. The bigger system in which projects are realised, the area development or the organisation portfolio, should work as one system concerning energy, transport and land-use to ensure the implementation of sustainability (Van den Dobbelsteen et al., 2012; Dur & Yigitcanlar, 2015).

There is barely any consideration of how housing plans can be adapted to local conditions and the industry lags tremendously behind in building homes to meet demand. Minhas (2024) highlights that choices have to be made, because many ambitions nowadays contradict each other instead of motivating the industry to combine coherent elements. It is necessary to find a way of building which both accepts certain risks in ambitions and design in a way that accommodates these risks. Additionally, sustainable ambitions do not stand alone and other ambitions such as affordability and housing supply, often also play a major role (Minhas, 2024). Managing and prioritising sustainable ambitions among all other goals is a supplementary challenge, since there is no limitless stacking of ambitions possible during a project.

The complexity of this challenge is further examined by S. Woertman (personal communication, December 2024). During recent inter-organisational meetings with several Dutch area developers, organized under Bouwend Nederland,

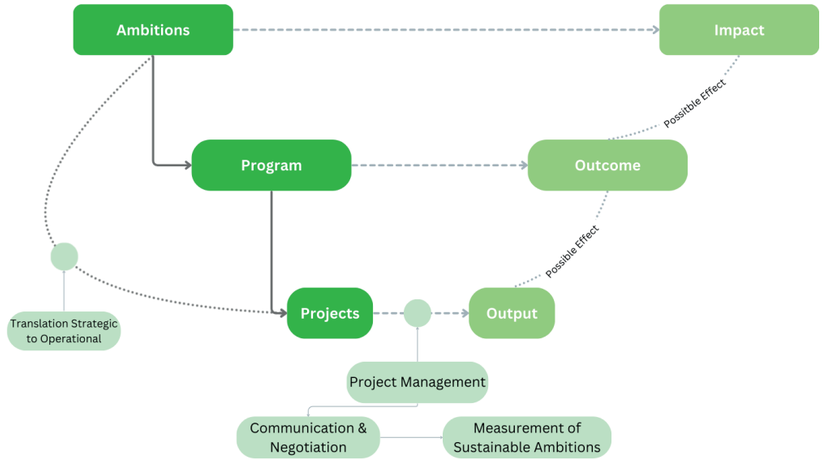

Figure 7. Ambitions – Impact Model (Bourgonjen, 2025)

discussions revolved around simplifying sustainability metrics to balance housing development priorities, affordability and sustainability ambitions. Specifically, the MPG and BENG standards often conflict, making it difficult to streamline requirements. NEPROM advocates focusing on CO2 reduction as a simpler and clearer metric, aligning with EU Whole Life Carbon methodologies set to launch in 2027. Additionally, the Bouwbesluit and MPG are recognized by Woertman (2024) as safeguard for maintaining sustainability in built environment projects despite other pressing factors. So, literature tells us that the challenge does not lie in defining ambitions, but in managing the tensions strictly and both being flexible throughout the process within every specific project context (Winch, 2010). Furthermore, both actors and organisations should work together to ensure effective sustainable implementation. This could be facilitated by creating measurable indicators, monitoring these coherently, but also executing this in a holistic way (Van den Dobbelsteen et al., 2012; Bjornberg, 2009).

3.1.2 Contextual Variables

Variables which have an additional impact on this process lie in the context of the process. These contextual variables set the framework in which the process takes place and offer requirements to this process. Factors such as market dynamics, government policies and the collaboration structure of the executing parties have an impact on the degree to which ambitions can be realised. Market dynamics enlarge or reduce space to execute sustainable ambitions. If the market makes room for it, a lot is possible and sustainability is more and more seen as value in projects (Weitz et al., 2017; Bryson & Bromiley, 1993). Government policies can push certain implementations of sustainable ambitions and can be seen as a top-down method to force this onto all parties involved in the industry (Swain & Wallentin, 2019; Weitz et al., 2017). Additionally, policies sometimes offer certain measurement frameworks which can be used by parties to proof their sustainable impact. These measurement tools are also offered by market dynamics. The CSRD is an example of this. Lastly, the collaboration structure of the participating team determines to which degree responsibilities are divided and parties are willing to work towards a sustainable direction. When analysing a case, this variable is crucial to determine as it gives a starting point and clear boundaries in the relation and opportunities of the involved parties (Vanderkruik & McPherson, 2017; Rosati & Faria, 2019). These three contextual variables offer the context in the perspective of this study, offer sustainability requirements and measurements which the project team need to adhere to or use in realising sustainable ambitions.

3.1.3 Identified Themes

From this part of the examined literature, it can be seen that in defining and realising ambitions, the following concepts are important:

- the level within a business where these ambitions lie and need to be implemented.
- the context in which this study will be executed
- the two-sided need for both measurable, targeted outcomes or indicators and flexible, creative solutions in realising ambitions. This translates in a need for soft management skills which steer strict measurement of these ambitions.

3.2 Collaboration Strategies and Tender Structures

When researching the context of ambitions in building projects, it is significant to recognize the role and reality of procurement, collaboration and tender structures. This context sketches the framework in which certain sustainability implementation methods are feasible or not and can therefore be seen as a control variable.

3.2.1 Collaboration contracts in area development in the Dutch context

Foremost, the definition of the difference in intra- and interorganisational collaboration is essential. When projects are executed by a team, this can be done within one company, or within a contract between several firms which work together. The second option occurs most often. In area development this often results in a public private partnerships (PPP) where both government and private party's work together on one project (Reiswijzer Gebiedsontwikkeling, 2019). Forming partnerships with other organizations, including NGOs or industry peers, can share knowledge, resources, and best practices, fostering innovation and reducing costs (Coolset, 2024).
The difference in collaboration within a company and between companies is an important one and should therefore be acted on. Priorities and tensions lie differently. Intra-organisational cooperation requires coordinated coordination within public agencies to promote consistency in decision-making (Jacobs, 2012). Inter-organisational cooperation is enhanced by transparency, shared goals, and relational governance (Reiswijzer Gebiedsontwikkeling, 2019; Lenferink, 2007). Both of these collaboration structures need their own approach in realising ambitions. Intra-organisational cooperation often suffers from fragmentation between departments with different priorities. It is crucial to translate public objectives, such as sustainability, into concrete actions. Inter-organisational cooperation is hampered by power differences and a lack of joint control. This relation could have great influence in the persuasion of conservative parties to involve in long-term collaborations with a progressive developer. Tensions between public and private interests become more complex in inter-organisational cooperation, highlighting the need for joint decision-making (Jacobs, 2012).

3.2.2 Types of tender procedures in the Dutch context

Tabel 5 shows and overview of main types of tenders in the Dutch context and their characteristics.

The main difference between traditional- (row 1 and 2 of table 4.) and innovative (row 3 and 4 of table 4.) tenders

Table 2. Overview of Tenders in Dutch Context (Retrieved from Examined Literature)

Tender	Characteristics	Benefits	Restrictions
Traditional tenders	Focus on costs and technical specifications	Transparent, good fit for non-complex projects	Little space for innovation
Performance tenders	Focus on achievements and sustainability	Incentive for innovation and long-term value	Requires clear standards and monitoring
Competitive dialogue	Co-creation between parties	Flexible, customised solutions	Time-consuming and expensive
Open-house model	Broad access and participation	More collaboration and knowledge-sharing	Fragmentation, less coordination

is their focus. Traditional tenders focus on estimated price and technical specifications in their structure. Others are more output-oriented, such as competitive dialogues and performance tenders. Innovative models promote collaboration and co-creation, making them a catalyst for innovation and implementing sustainability (Reiswijzer Gebiedsontwikkeling, 2019; Lenferink et al., 2007). This structure should be resistant to changing context. Flexibility in tender structures allows projects to adapt to changing circumstances and integrate innovative solutions (Primus, 2007). However, there also lies an importance in strictly managing measurable and enforceable ambitions (Coolset, 2024). Finding a sweet spot between being flexible, but also setting measurable targets in the collaboration and negotiation strategy is the challenge of this project interplay.

The examined literature suggests a hybrid public-private partnership which combines clear role and risk allocation, early stakeholder involvement and adaptive collaboration models. Procurement methods like the competitive dialogue or a multi-criteria approach encourage iterative interaction between public and private actors to refine project goals, ensuring alignment with sustainability metrics. Flexible scope definition and long-term partnerships post-tender are factors that could enhance this structure even further (Reiswijzer Gebiedsontwikkeling, 2019, Coolset, 2024).

When one of the organisations in this collaboration is more progressive, it is often is a struggle to find a party which is willing to realise sustainability ambitions on the same level. Calculated risk for more conservative stakeholders increases this struggle (Seyfang, 2010; Lovell, 2007). It is not a realistic outcome, but a returning fear within the conservative industry. The minimal coherent government policies do not help solve this (Lovell, 2007). When involved and chosen, parties often work with the same spirit, but involving them is still an obstacle. Becoming a standard chain partner of these conservative partners could be the solution to this re-occurring obstacle (Köhler et al., 2018; Coscia et al., 2020).

3.3 Factors in Implementation of Sustainability

This part identifies all factors contributing to the realisation of progressive sustainable ambitions in building projects. More specifically, factors that influence conservative stakeholders. After a brief introduction on drivers, barriers and indicators that play a role into this process, all literature examined in this section is summarized into one table to indicate the prominent factors driving this research.

3.3.1 Drivers

Drivers of realising progressive sustainable ambitions are all factors that motivate stakeholders to involve in sustainable project practices. Prominent drivers identified in multiple sources are external, such as government regulation. Others are more specific, such as long-term cost efficiencies and high quality, long-term partnerships (Feige et al., 2011; Izquierdo et al., 2024; Varnas et al., 2009).

3.3.2 Barriers

A major barrier to implementing sustainability in building projects is resistance from conservative stakeholders. These parties, such as pension funds and housing associations, value stability and standardisation. This often leads to a preference for traditional contract models and minimal innovation (Feige et al., 2011; Wojewnik-Filipkowska et al., 2019). High initial costs, knowledge gaps and lack of harmonisation in a project team are specific obstacles which prevent these parties to get standardly involved (Ojo et al., 2014).

3.3.3 Indicators

Indicators for implementing sustainability ambitions in building projects are measurable elements used to assess progress towards achieving sustainable goals. These indicators provide benchmarks to monitor, evaluate, and ensure that sustainability measures are effectively integrated throughout the project lifecycle. In the examined literature, the importance of standardized indicators is widely emphasized. Wedding and Crawford-Brown (2007) argue that "systematic measurements of success provides clarity in aligning project goals with sustainability targets". Measurable sustainability criteria enable alignment of diverse stakeholder ambitions, fostering clarity in decision-making processes" (Pol, 2010). But the complexity of these tools is also widely critiqued as for now, systems are still conflicting with each other. Reducing the measurement to just CO2-emission is a step now undertaken in the Netherlands to create clarity (S. Woertman personal communication, December 2024). In 2025, this step was formalized through the adoption of a sector-wide trajectory prescribing target

and ceiling values for short-term embodied emissions (GWPA, Module A). Projects above the ceiling are, in principle, excluded from acquisition, which demonstrates a transition from soft governance to procurement-driven norm setting. The building industry uses several tools to measure and improve sustainability. BREEAM assesses broad environmental performance on different mileu-levels, while HNN standardises circular building (richtlijn.breeam.nl, 2025; copper8.com, 2025). BENG and het Bouwbesluit set statutory energy and environmental requirements (dgbc.nl, 2025; Bouwbesluit, 2024). At the corporate level, ESG criteria and the CSRD provide guidelines for reporting, and MPG supports optimising building performance with providing a platform with tools and guidelines (Corporate Sustainability Reporting Directive, 2025; MSCI, 2025).

3.3.4 Identified Factors

Table 5. highlights the most frequent identified drivers, barriers and indicators in the examined literature. This collection of key factors forms the theoretical basis for this part of the literature review. Interestingly, there are many different ways to measure sustainability, the indicators. This could explain the inconsistency between implementation of sustainability between various projects. In conclusion, the implementation of progressive sustainability ambitions relies both on clear measurable targets and the ability to act flexible and adapt to different phases. This approach results in collaboration and engagement of all stakeholders, making ambitions result in measurable outcomes.

Table 3. Factors & Frequencies in Realising Environmental Sustainability Ambitions (retrieved from examined literature)

Drivers	Regulation	EU Green Deal, SDG's, National directives & Clear requirements	4
	Economy	Cost reduction on the long-term, market demand and investor pressure	4
	Collaboration	Partnerships within the project chain & Supply chain-transparency	4
	Social Factors	Community engagement	2
	High Initial Costs	Sustainable materials, technology and uncertainty about investment returns	4
Barriers	Lack of Knowledge	Expertise and its improvement (training)	5
	Lack of Harmonisation	Inconsistency in measuring methods and limited access to data	5
	Complexity	Multidimensional projects, vague goals and temporary project structures	5
	Conservative Culture	Against change in traditional sector and organisations	3
	Environmental Performance	CO2 emissions, energy use, waste management (BREAAM, Bouwbesluit, BENG, Nieuwe Normaal, CSRD, ESG, SDG)	5
Indicators	BREEAM	An international certification system that assesses the sustainability performance of buildings and infrastructure based on various environmental categories.	
	Het Nieuwe Normaal	A Dutch framework that standardises circular construction principles and makes them measurable in the design and implementation phase.	
	BENG	A set of legal requirements in the Netherlands for new building projects that encourage energy efficiency and renewable energy.	
	Bouwbesluit	A Dutch legislation setting minimum requirements for safety, health, usability, energy efficiency and environment of construction works.	
	CSRD	A European directive requiring companies to report transparently on their environmental and social impact.	
	ESG	Tool to measure CSRD policy that assess the sustainability and social impact of investments in terms of environmental friendliness, social responsibility and good governance.	
	MPG	Calculation, assessing a building's environmental impact based on materials and lifecycle, expressed in euros per square meter/year	

3.4 Stakeholder management and -tensions

3.4.1 Dynamic Nature of stakeholder management

Contradicting to traditional theory, stakeholder relations, -priorities and their behaviour differs throughout the project process. The stakeholder network in a project team is a dynamic web which needs to be managed in a flexible, adaptable way. Moreover, involvement of conservative stakeholders should be ongoing and changing throughout this process (Firth et al., 2021; Wojewnik-Filipkowska et al., 2019; Papagiannakis et al., 2014).

It is important to recognize that stakeholders' interest and approaches to sustainability change throughout the process. Figure 8. shows that in the course of a project, tensions and differences in approaches between stakeholders also fluctuate. This diagram also points out that ambitions for stakeholders all decrease and will end around the status quo level. It is always crucial to keep stakeholders involved and act, especially throughout the design and construction phase. Conservative stakeholders, Pro's, are a difficult party as they have the least interest in realising sustainable ambitions. However, this development fluctuates the least, so could have a more fixed position if their initiation is higher. Influence by project managers in the front-end phase is crucial. Possible clients are most influenced during the preliminary phase. Influence happens effectively through communication in this stage. After this phase, the decision becomes a black box for progressive developers and this 'public consultation' phase is crucial in keeping up the environmental approach. By acknowledging the differences in stakeholder interests, dynamic nature and focus on the specific phase after the preliminary studies, it is possible to anticipate potential outcomes and implement actionable measures within their rate of interest (Herazo & Lizzaralde, 2016). This research may not focus on identifying the fluctuation of stakeholders approach, but the dynamic nature is a crucial concept.

To identify how conservative stakeholders, like housing associations and pension funds, are included in projects which realise progressive sustainable ambitions, their motivation is significant. These parties often have social interest and part of these organisations could already be interested in implementing progressive sustainable measures (Van Bijleveld, 2024; BDO, 2023; Van Schaik, 2021). However, the obstacle still lies in the risk they anticipate on. Sustainability is still seen as something that is not a standard in projects and therefore encloses risk. The conservativity of the building sector enforces this idea more without any substantiation (Eikelenboom en van Marrewijk, 2024). Other ambitions like affordability for housing associations and low risk for pension funds make sustainable projects something to avoid. Identifying and tackling this risk is of utmost importance (Starks, 2023; Mitchell et al., 2023).

3.4.2 Tension as a catalyst for innovation

Stakeholder tensions are inherent in projects. Differences in priorities and behaviour inevitably lead to tensions, but these can be managed and even exploited for better results to encourage value-creation and innovation. Conflicts, when managed effectively, can become drivers of innovation rather than barriers to progress (Lizarralde et al., 2014; Feige et al., 2011). To reach this innovation, the management of stakeholders is crucial and both mapping and acting on the process is indispensable. Managing conservative stakeholders into a more progressive direction consist of push and pull mechanisms. Push mechanisms ensure minimum sustainability requirements. Pull mechanisms create support and motivate stakeholders to go beyond minimum compliance (Lizarralde et al., 2014). When applied in a consistent way throughout the whole project, these tensions can be transformed into innovation (Feige et al., 2011) .

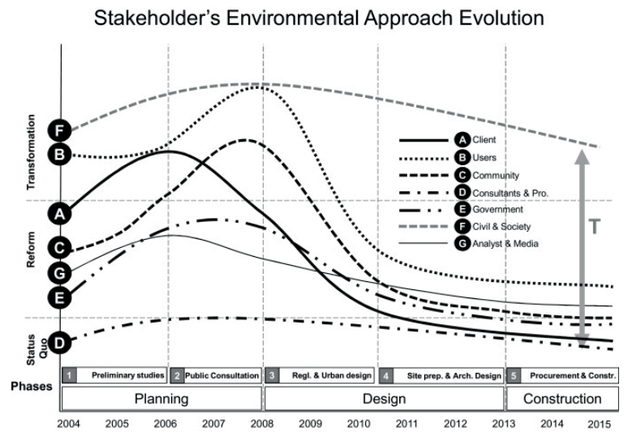

Figure 8. Stakeholder's Environmental Approach Evolution (Herazo & Lizzaralde, 2016)

3.4.3 External versus Internal Drivers

To guide conservative stakeholders toward more sustainable directions, both external influences and internal drivers are important. External factors such as regulations, market pressures and stakeholder expectations stimulate action in realising ambitions (Feige et al., 2011; Papagiannakis et al., 2014). Internal drivers, including values and culture, encourage proactive and innovative approaches (Papagiannakis et al., 2014). These internal drivers can be integrated into a project management approach. For example, transparent communication about goals and decisions increases trust (Wojewnik-Filipkowska et al., 2019), while inclusive participation promotes ownership and reduces resistance (Leyden et al., 2017; Firth et al., 2021).

To involve conservative stakeholders, progressive parties should take a strong leadership role and work proactively to align diverse interests. Acting as bridge builders and problem solvers requires qualities such as empathy, vision and flexibility. Early involvement, mediating between parties, facilitating participation processes and continuous monitoring and evaluation are essential (Lizzaralde et al., 2014).

3.5 Project Management as Tool

This last part of the literature review is about the main practice in safeguarding sustainable implementations during the project process; project management. The focus of this research, communication in project management, is elaborated on.

3.5.1 Communication

For project management to be sufficient, the way a project manager acts and manages the project team is an essential challenge (PMI, 2025; Ballam, 2023). These management strategies could be described as the 'soft skills' of project management. Recognition of the level of influence of these factors is crucial as management works both on individual-, project- and organisational level. Therefore management strategies as well. A project can be influenced by a project manager which has great individual talent in managing, but also by big marketing gestures on strategic level. To identify key factors in this process, the difference between these levels and its specific influence is essential (Marcelino-Sádaba, 2020; Jóhannesdóttir, 2019; Rozhkov et al., 2017; de Jong, 2017; Ballam, 2023). Another important factor is the role of the receiver and sender of communication. This process is not just about the transmission of information, but a process involving mutual understanding. The sender is accountable for anticipating the receiver's context, perspective and capacity to act (Aartsengel & Kurtoglu, 2013). Furthermore, creating an intersection of shared knowledge between the two parties is crucial and finding out clarity in their discipline. It is the sender's responsibility to involve constant feedback loops, transparency and adaptability to reach this goal. Conversely, the receiver plays an equally active role, tasked with interpreting, validating, and responding to information in a way that sustains the project's objectives (Aartsengel & Kurtoglu, 2013;Lent, 2013). This research focusses on developing a communication strategy, concentrating at the sender approach.

The ability of project managers to communicate effectively with conservative stakeholders is a prominent theme that recurs consistently in reviewed literature (Xia et al., 2014; PMI, 2025; Satoinong; 2024). These qualities can be used when working on conflict resolution, stakeholder integration and innovation promotion. Themes that also came forward in the previous themes within this literature review. The broader context of project management is important to mention, because communication is not the only influencing factor in steering a project towards a sustainable direction. Many concepts can have influence, such as decision-making and negotiating (Heurkens, 2012). However, to give this study a clear direction, the focus is on influencing by communication as literature points this out as a crucial factor for steering building projects (Montrucchio & Maneschi, 2012; Heurkens 2012; Kim et al., 2017; Serhan & Dragonov, 2016; Delnavaz, 2012).

To examine the concept of communication in this study, the definition of communication needs to be distinguished, fostering a reliable base to draw conclusions on. The word communication stems from the Latin verb "communis" which means "to share," "to make common," or "to impart." It is derived from "communis," meaning "common" or "shared." It emphasizes the act of making something mutual or shared among people, which is one of the means which allow ambitions to be realised in a project team (Latinlexicon, 2025). This origin shows the importance of the focus of this study; on how communication influences the process of realising ambitions. Furthermore, it is important to identify that there is a 'sender' of communication which is received by the other parties. The other parties receive this communication differently according to their discipline. Communication as a process, is therefore both influenced by how it is sent and how it is received.

The way stakeholders respond to and interpret information about sustainability projects is determined by the communication style of the project manager. Often used as a tool to align stakeholders and identified as the most vital role of the project manager in sustainable projects (Delnavaz, 2012). Landgren et al. (2019) even suggest that tailored communication can bridge a gap between technical outcomes and broad ambitions. Moshood et al (2024) advocates communication as a tool to build support for sustainable innovations by more conservative stakeholders. Additionally, Eikelenboom and Van Marrewijk (2024) identify enabling practices, such as fostering shared visions across projects and actively supporting teams. They also highlight disabling practices, including departmental silos, conflict avoidance, and one-way communication, which hinder the transfer and application of knowledge. This emphasizes the crucial role of communication in project management.

3.5.2 Mediating Variables

Together, identified from all examined literature, communication strategies lead to mediating variables which directly translate to the measurement of sustainable ambitions. These variables include; 'stakeholder alignment', 'goal clarity' and 'perceived value of sustainability' (both implementing and monitoring). Factors which are influenced by the application of communication (Montrucchio & Maneschi, 2012; Herazo & Lizarralde, 2016; Landgren et al., 2019; Xia et al., 2014; Huovila & Bourdeau, 2001). And moreover, they influence the degree to which sustainability ambitions are translated into actionable, measurable outcomes (Li et al., 2018; Montrucchio & Maneschi, 2012; Huovila & Bourdeau, 2001; Gibberd, 2015; Coleman et al., 2018). Stakeholder alignment ensures that different stakeholders' expectations, goals, and concerns are aligned, facilitating collaboration and building trust. Goal clarity addresses the importance of clear, shared sustainability ambitions and process to guide decision-making and reduce ambiguity. Stakeholder alignment and goal clarity define 'succes' for progressive parties, because they could translate to which degree conservative stakeholders involve in long-term collaboration. This is, as examined, one of the main obstacles that progressive developers experience in their ambition to claim a standard position in the industry. Conservative stakeholders, such as pension funds and housing associations, often prioritize financial stability and risk minimization over innovation. By demonstrating the long-term benefits (e.g., cost savings, reputation enhancement, alignment with regulatory trends), developers can persuade these stakeholders to actively participate in sustainability-driven projects (Eikelenboom and van Marrewijk, 2024; Van Uden, 2023). 'Perceived value of sustainability' captures how conservative stakeholders perceive the value of implementing sustainable practices. Communication strategies should aim to shift the perception of sustainability from a "costly risk" to a "value-added opportunity." Improved perception of sustainability increases willingness to invest and collaborate. Communication highlights long-term economic benefits and risk mitigation from sustainable practices. Based on the reviewed literature, it is hypothesized that the mediating variables 'stakeholder alignment,' 'goal clarity,' and 'perceived value of sustainability' strengthen the realisation of sustainability ambitions, providing a foundation for further empirical analysis.

Table 4. provides the direct actions on project level derived from these mediating variables and the examined literature. These actions operationalise the mediating variables and translate them into the realisation of sustainable ambitions. To understand these direct actions, it is important to define them as steps that can be taken on project level and practical measures. Communication on other levels, like individual skills or organisational level, can also have influence and change can also be achieved by these implementations. This process can be described as holistic, because different levels have influence on the same outcome (Marcelino-Sádaba, 2020; Jóhannesdóttir, 2019; Rozhkov et al., 2017; de Jong, 2017; Ballam, 2023). The continuation of this study will focus and test direct actions on project level. Additionally, other possible outcomes, which include the priority of other levels of influence or other communication factors, might give valuable insights and are part of the discussion.

Table 4. Direct Actions within the Mediating Variables of this Research (Bourgonjen, 2025)

Direct Actions (Abstraction)	Clarification	Mediating Variable	Bronnen
Active Information Sharing	Transparency through periodic communication meetings; fostering alignment and dialogue.	Stakeholder Alignment, Goal Clarity	Oguntona et al. (2019), Moshood et al. (2024), Senaratne & Hewamanage (2015), Eliasson & Jakobsson (2023), Kineber et al. (2024)
Feedback Loops	Reflection on progress and decisions during checkpoint meetings; ensuring continuous alignment.	Stakeholder Alignment	Kineber et al. (2024), Eliasson & Jakobsson (2023), Moshood et al. (2024), Senaratne & Hewamanage (2015)
Alignment Actors	Mapping and addressing overlapping ambitions, interests, and values of key actors.	Stakeholder Alignment	Senaratne & Hewamanage (2015), Oguntona et al. (2019), Moshood et al. (2024)
Alignment Project	Synchronizing project deliverables, timelines and shared terminology to prevent ambiguity.	Stakeholder Alignment, Goal Clarity	Sebastian (2011), Brandon et al. (1997), Moshood et al. (2024), Eliasson & Jakobsson (2023), Kineber et al. (2024), Senaratne & Hewamanage (2015)
Resolution of Conflict	Neutralising disputes between stakeholders	Stakeholder Alignment	Lizzaralde et al. (2014), Senaratne & Hewamanage (2015), Burger (2013)
Visualisation	Simulation of goals, long term benefits and attractive preliminary design	Goal Clarity, Perceived Value	Eliasson & Jakobsson (2023), Najafi et al. (2024), Moshood et al. (2024)
Performance Measurement	Establishing quantifiable metrics, Choosing and educating in tools, Reporting, Dividing roles in measuring	Goal Clarity	Sebastian (2011), Brandon et al. (1997), Moshood et al. (2024), Eliasson & Jakobsson (2023), Kineber et al. (2024), Senaratne & Hewamanage (2015)
Risk Mitigation	Ensuring phased implementation, shared investment models, and guarantees to reduce perceived risks.	Perceived Value	Van Marrewijk (2021), Van Uden (2024), Eliasson & Jakobsson (2023), Brandon et al. (1997)
Evidence of Succes	Sharing former project achievements to validate sustainable ambitions and foster trust.	Perceived Value	Oguntona et al. (2019), Lizarralde et al. (2014), Brandon et al. (1997)

3.6 Conceptual Framework

Based on the extensive literature study, a contextual and conceptual model are set up. Figure 9. shows the context of the research and how different dynamics within the research scope work. It outlines the broader context and clarifies the relevance of this study. Giving an overview of the broader environment in which sustainability goals are pursued within built environment projects. It highlights the external variables - such as collaboration structures, market dynamics and government policy which offer requirements and measurement tools - that influence the project team's decisions and processes. Appendix A gives a detailed overview. Figure 10. dives into the theoretical concepts of this research and their interrelations. It focuses on the internal mechanisms driving the realization of sustainable ambitions. It emphasizes the role of communication in shaping key mediating variables - 'stakeholder alignment,' 'goal clarity,' and 'perceived value of sustainability' - that bridge the gap between project ambitions and actual outcomes. Additionally, the conceptual model integrates control variables (e.g., collaborative structure, surrounding environment). Together, these models establish a comprehensive foundation for this research. The contextual model situates the research within its external environment, while the conceptual model identifies the theoretical constructs and relationships that will be analysed.

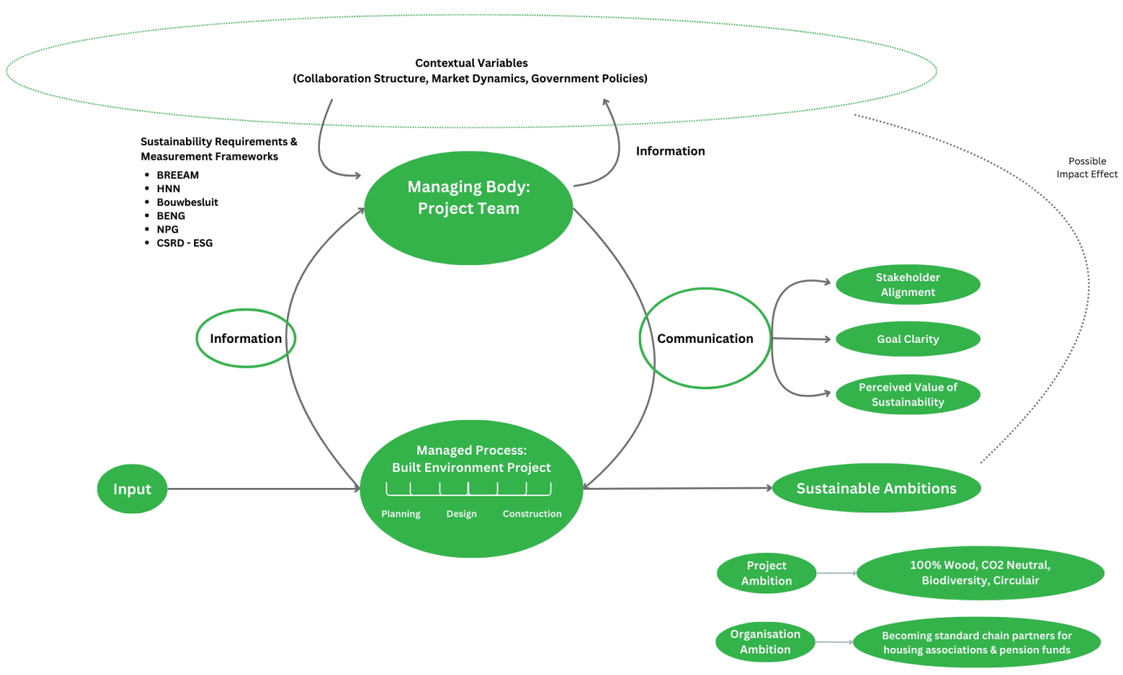

Figure 9. Contextual Framework (Bourgonjen, 2025)

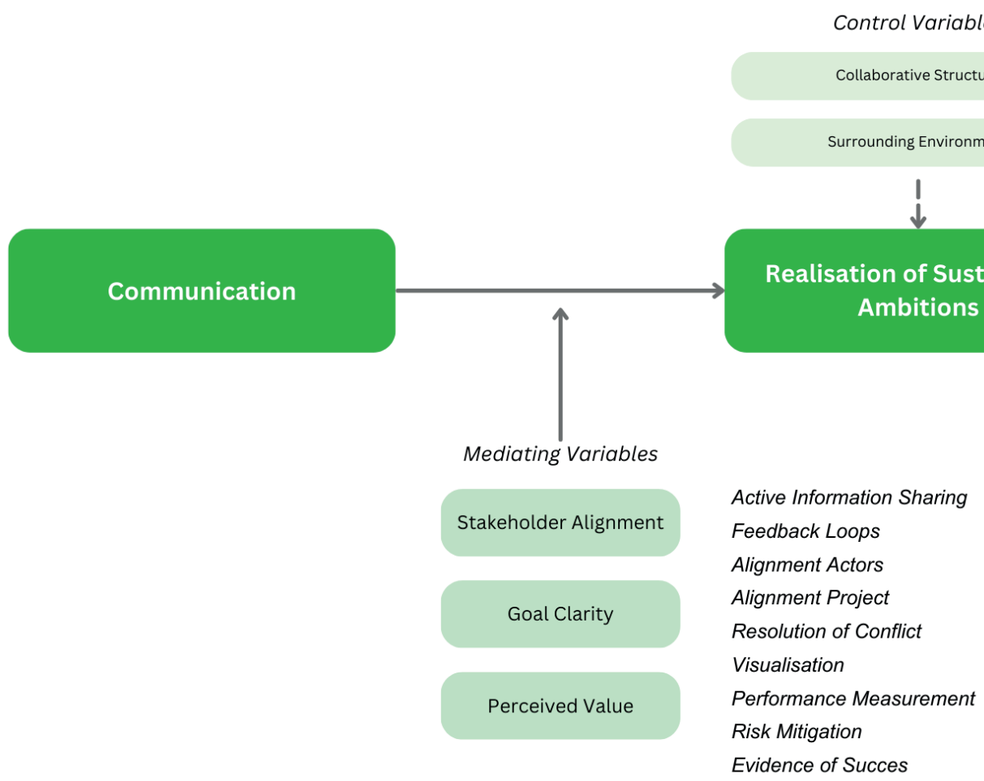

Figure 10. Conceptual Framework (Bourgonjen, 2025)

04 explorative case-study

This chapter will gather all information on the single-case and represents the relevance cycle of this study. The main case study question, objective and methodology are:

Questions:
- How has communication been applied in the selected project to shape the realisation of sustainability ambitions?
- Why did certain communication strategies succeed or fail in realising measurable sustainability ambitions?

Objective: Creating a better understanding of how communication has been applied and how communication could be applied to increase the realisation of the set sustainable ambitions in this case.

Methodology: An explorative single case-study, in which project documents and interviews are analysed to get a better understanding of the process.



Figure 11. Wooden Concept of Nice Developers (Nice Developers, 2025)

4.1 Introduction

NICE Developers is a Dutch property developer focused on creating sustainable and socially inclusive residential environments. The company aims to develop wooden, 'Paris Proof', residential buildings. An example of this is the project SAWA, the first circular wooden high-rise project in Europe. (Nice Developers, 2025)

NICE Developers emphasises climate adaptation and biodiversity in their projects. Their five ambitions on project level are shown in Figure 12. and elaborated on in appendix C.

Their main ambition on organisational level can be described as:

"Becoming a long-term chain partner of multiple social investors such as housing associations and pension funds to scale up their progressive approach to building."

Nice Developers is a relatively young company, operating with a team of seven. Two managing partners act as project managers at both strategic and operational levels, two employees manage specific projects operationally, and three provide supporting services. Fig. 13 illustrates this structure. As a result, the company's strategic ambitions remain closely aligned with project-level goals, and internal communication is swift.

This structure shows that organisational strategy and daily operations are closely linked. Flat hierarchies enable quicker decisions through direct communication, though this may lead to less-considered outcomes that diverge from organisational goals. While such structures foster creativity and engagement, clearer distinctions between strategy and operations are better suited to scalability (Baporikar, 2025).

As for Nice's current strategies, these are not yet formalised or structured. When approaching potential partners, the company presents its latest project and offers a tour as proof of concept. However, the partner's decision-making process remains largely opaque, and the lack of multiple tailored approaches could pose a vulnerability for the organisation.

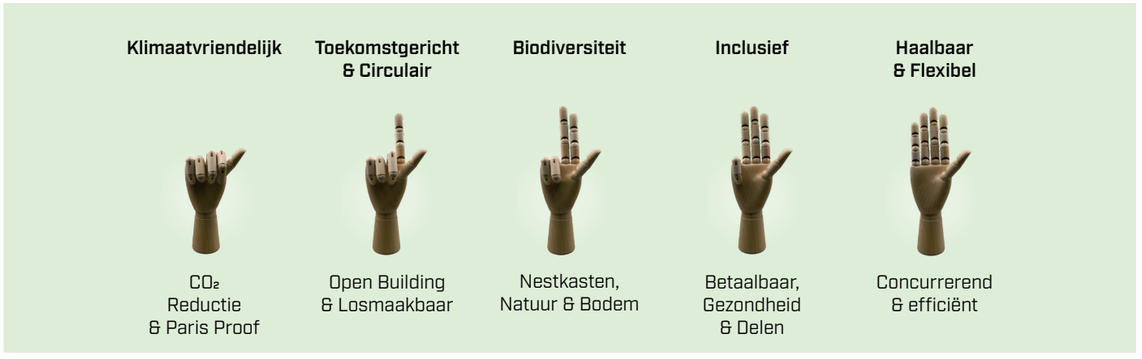

Figure 12. The Five Main Ambitions of Nice Developers (Nice Developers, 2025)

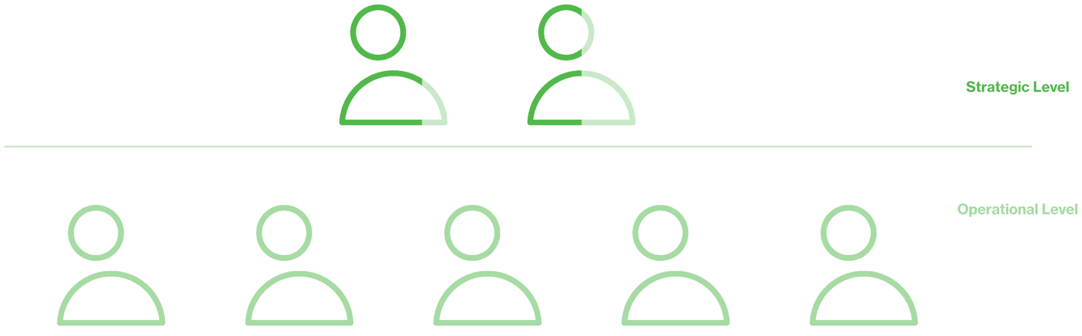

Figure 13. Visual Representation of Organisational Structure Nice Developers (Bourgonjen, 2025)

4.2 Case Selection

The single case in this research is selected based on the criteria outlined in Table 7. appendix C. gives an elaboration on the validity of these criteria. This case provides specific insights into communication procedures, which will help identify overlapping barriers and drivers in achieving sustainable ambitions.

1.	Urban development
2.	Stakeholder Diversity and Data Availability
3.	Involvement of a More Conservative Party
4.	Focus on the Front-End Phase of the Project
5.	Project by Nice Developers Incorporating the Nice Concept
6.	Initiated Within the Last Five Years
7.	Located in the Netherlands

A detailed overview of the case descriptions and selection process is provided in appendix C, where the full quickscan, evaluation table, and justification are outlined. In summary, the Appelaar project in Geldrop was selected as the most suitable case, as it is the only one that meets all defined criteria without uncertainty. Its multi-stakeholder setting, clear link to the Nice Concept, and timely position in the front-end phase provide the strongest basis for observing how sustainability ambitions are shaped, negotiated, and safeguarded within real estate development.

4.3 Case Description

4.3.1 Introduction

The Appelaar project in Geldrop is a redevelopment led by a regional housing corporation, involving the demolition of 82 dwellings and the construction of around 155 timber apartments with green courtyards. Its semi-urban context and a neighbouring healthcare project create opportunities for coordinated participation and integrated sustainability. While demolition participation has already begun, the new-build phase is being prepared with the housing corporation, municipality, sustainability developer, architect, and contractor.

The project pursues ambitious goals on embodied carbon, energy performance, circularity, biodiversity, water, and social inclusion. These align with the sustainability developer's progressive approach but require coordination with more risk-averse actors operating under regulatory and financial constraints. Progressive actors, such as the sustainability developer and architecture firm, collaborate with more risk-averse parties, including a chain partnership between the housing corporation and contractor.

Planning
The planning for the project has been roughly set-up by the developer to identify the most important phases of the case. The 'quickscan' and 'businesscase' have been completed and as becomes clear from figure 14, the development phase is about to start.

Ambitions
To identify the main ambitions and sketch design for the Appelaar location in Geldrop, a SO booklet is created to incorporate the merged perspectives of the stakeholders involved in this project and conclude the core ambitions within this case.

These core ambitions are identified in the SO booklet as:

- CO2 and Nitrogen reduction
- Circular
- Biodiversity and Nature Inclusivity
- Social Inclusivity
- Health and Well-being
- Speed and Realisation

A more detailed overview of these ambitions, with measurable variables, can be found in appendix C.

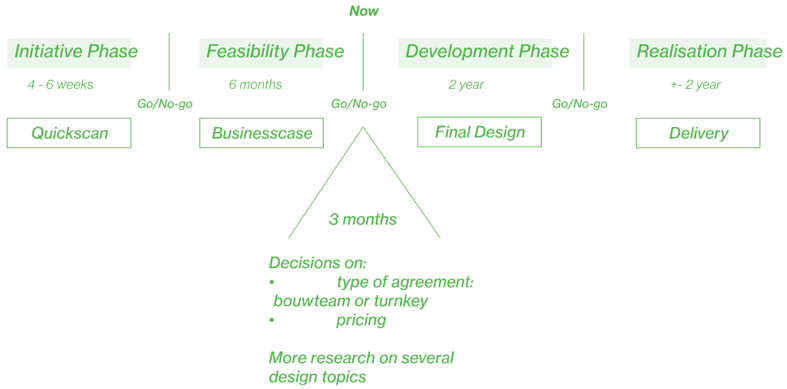

Figure 14. Planning Project Appelaar

Ambitions
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- Biodiversity and Nature Inclusivity
- Social Inclusivity
- Health and Well-being
- Speed and Realisation

A more detailed overview of these ambitions, with measurable variables, can be found in appendix C.

4.3.2 Stakeholder Mapping

Governance Structure
The governance structure of this project is presented in figure 15.

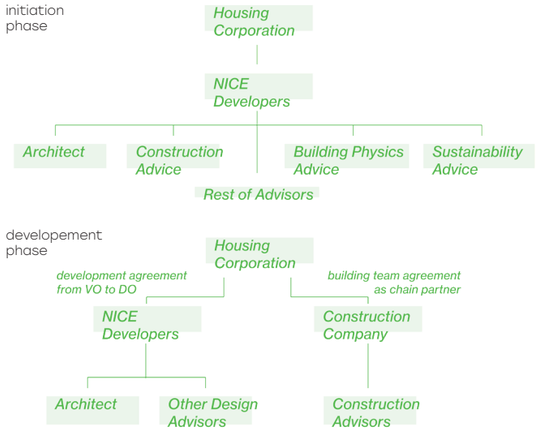

Figure 15. Governance Structure Phases Appelaar

The housing corporation is a standard chain partner of the construction company. The construction company is not very benevolent against Nice developers budget plan, because they foresee higher risks. The housing corporation is eager to believe the construction partner in this case. This is a crucial aspect of the collaboration. Nice developers and the architect are also chain partners. This could result in a stronger position against this more 'conservative' front.

Stakeholder Map
To understand the stakeholder structure, figure 16 shows the configuration of the different parties that are involved in the project. The first circle includes the stakeholders which have the most influence on the case and the second ring consists of stakeholders which set a certain context, but are not directly involved with the decision making process. In this structure the developer sends the communication, the rest of the parties are the 'receivers' of this communication.

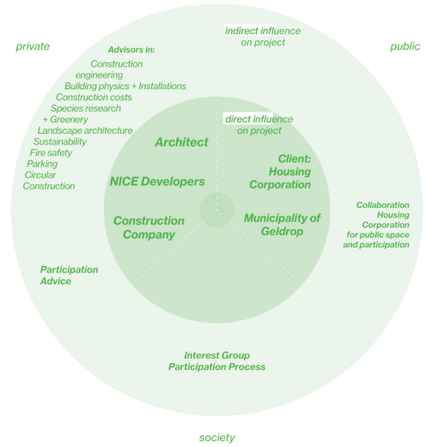

Figure 16. Stakeholder Map Total – Front End Phase

Figure 17 visualises the teams working on Appelaar, showing primary stakeholders and meeting frequency. This structure enables quick decision-making and short communication lines. The internal team meets as needed to discuss the project approach, the project team handles practical matters, and the design team focuses on design details. The municipality is updated monthly to ensure compliance with local guidelines.



Figure 17. Visualisation of Teams and Meetings

4.4 Case Document Analysis

For the first part of the case study, a number of process documents is analysed, overview and timeline included in appendix C, including decision documents as well as meeting minutes. This section reports the process according to the documents, what communication was used through time and how this plausibly sustained sustainability ambitions through mediating variables (MVs). Appendix C includes a detailed overview of this course.

4.4.1 Process

Q2 2024
The client and developer aligned their approach to the municipality, prepared visual materials for a project meetings, and briefed the tenants' committee. Ecological and planning inputs were led by the client, while the developer integrated these into cost estimates.
Key actions: actor alignment, information sharing, visualisation, performance estimates.
Mediating variables: goal clarity, stakeholder alignment, early value framing.

Q4 2024
A revised height allowance required new variant analysis and renewed coordination with the municipality. Technical norms were introduced, including transformer space and minimum on-plot green requirements.
Key actions: risk mitigation, municipal persuasion, accessible analysis, conflict resolution, new performance norms.
Mediating variables: clearer design scope, early municipal alignment.

Q2 2025
The design team formally defined roles and deliverables, the construction partner joined through tendering, and Variant B was selected. Technical work progressed on CLT options, HBS performance, and utility alignment on energy, PV, and grid capacity.
Key actions: actor alignment, structured information exchange, variant selection, performance measurement, risk mitigation.
Mediating variables: norm-based choices, municipal/utility coordination, costed sustainability scenarios.

Q3 2025
Feasibility concluded with an SO design book capturing quality requirements and ambitions. External research was incorporated to reduce risk. Planning included market checks, internal approval, an anterior agreement, and the start of participation. A Q4 2027 realisation deadline was set to secure subsidy eligibility.
Key actions: programme and quality alignment, performance review, coordinated decision-making, information sharing, risk reduction.
Mediating variables: codified SO criteria, scheduled alignment moments, participation framing, and viability checks.

Figure 18, shows a total overview of all actions applied in the process. During the analysis, different discussion points occurred. The actions in the figure are organised within these discussion points.

4.4.2 Conclusion

The analysis shows that Alignment of Actors, Active Information Sharing, and Performance Measurement were the dominant actions shaping sustainability outcomes. Together with stakeholder alignment, goal clarity, and perceived value, these actions helped embed sustainability into concrete design choices such as Variant B and noise scenarios, supported by visualisation and evidence of previous success.

Stakeholder alignment emerged through consistent information sharing across meeting notes, planning documents, and ambition statements. Early coordination with municipal, heritage, and utility partners narrowed the design space and reduced the risk of late reversals. Goal clarity was strengthened by measurable norms - parking, acoustics, BENG/PPI, green and water metrics - and codified commitments in the SO package. Perceived value increased through 3D visualisations, costed environmental scenarios, and references to earlier projects.

Overall, early actor alignment enabled subsequent measurement-led decisions, confirming an "alignment first, measurement next" dynamic. Metrics served as decision currency, reinforcing both clarity and perceived value. Conflict resolution and feedback loops, however, remained ad hoc and moment-specific rather than systematic.

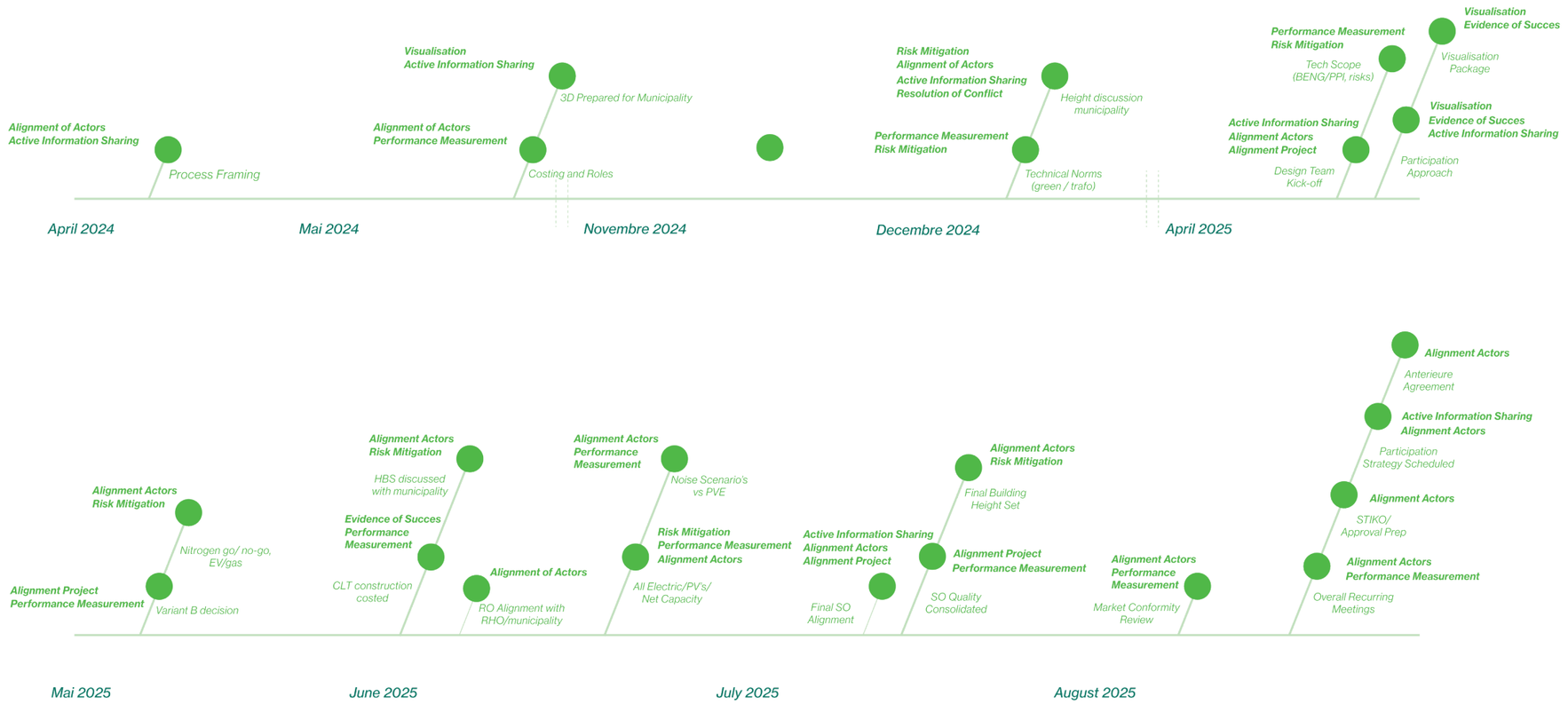

Figure 18. Direct Actions per Discussion Point over Time

4.5 In-depth Case Interviews

4.5.1 Introduction

Figure 19 shows the interviews held during this analysis. The key stakeholders are interviewed about the project and the direct influence they have on the decision making process. The second ring shows the stakeholders that are not directly influencing the process, but do set a certain context and have expertise in the examined situation. This is essential, because the process cannot be seen as its own 'island' without context influencing it. Furthermore, the involvement of stakeholders is important. Eight of the interviewees were directly involved in the decision-making process and the rest is external. This will also come forward in the analysis of the conversations. Lastly, it is important to identify that the developer is the 'sender' of communication which is received by the other parties. The other parties receive this communication differently according to their discipline.

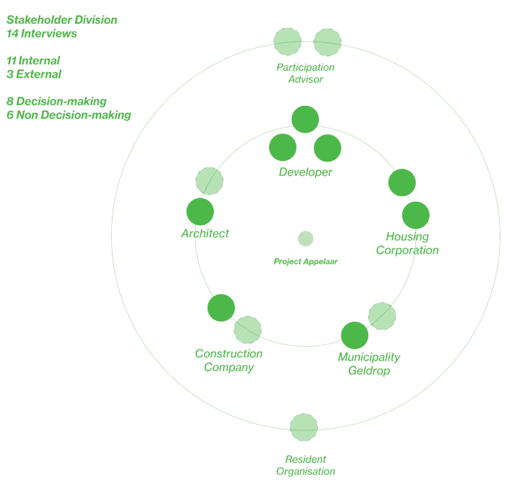

Figure 19. Interviews held

To reach full understanding of the project, an overall timeline of the project is created, based on the interviews. All interviewees involved in the project were asked to give their perception of the process, resulting into the process in figure 20. This clarifies the overall perception of how the project evolved, according to the interviewees: a subjective layer on the more objective project process retrieved from the documents.

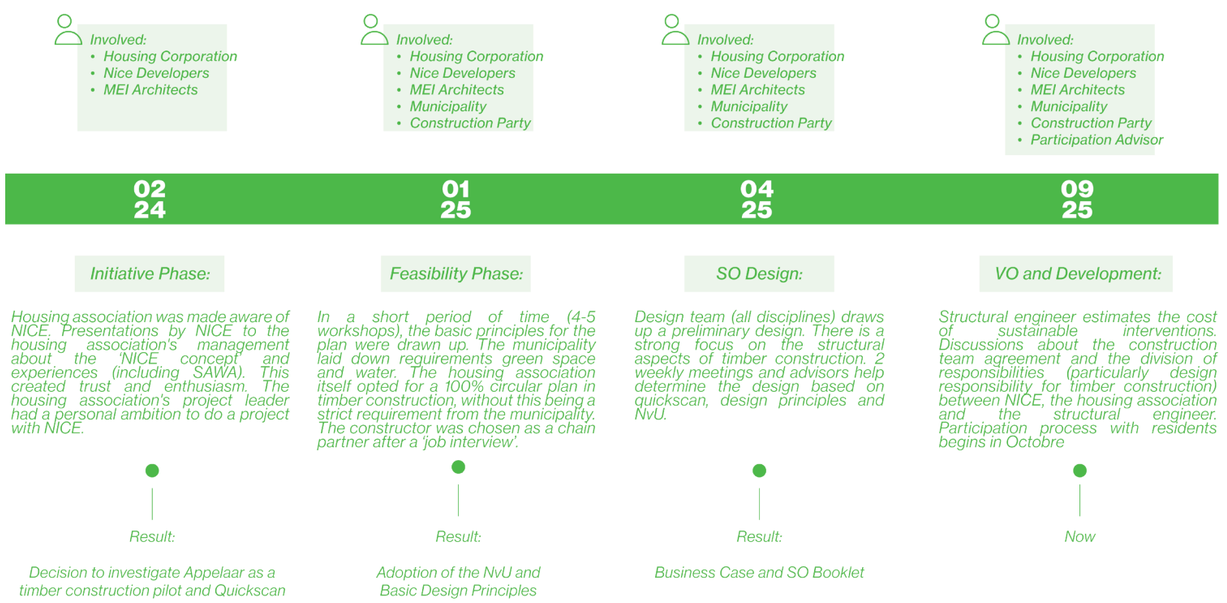

Figure 20. Timeline Project Retrieved from Interviews

4.5.2 Stakeholder Perspectives

This section summarises the perspectives of key stakeholders, focusing on their roles, attitudes, and positioning toward the project's sustainability ambitions. Details are clarified in appendix E.

The Client – Housing Corporation

The housing corporation initiated Appelaar as a strategic pilot to gain experience with timber construction and circularity. Sustainability targets are welcomed but strict measurable goals feel restrictive:

"...because the pilot project is about experiencing what it's like. ...we are precisely investigating what is possible... What has too little ambition? Or what has too much?" (Client – quotation 1)

Financial feasibility remains the dominant concern:

"Look, if that business case doesn't hold up... then it can also be that the choice is made for it not to go ahead." (Client – quotation 2)

Risk management is essential, and collaboration must remain anchored in their familiar chain-partner model:

"... that our chain partner agrees to it. So if the chain partner is on board...They'll have the design responsibility soon and will have to take it over." (Client – quotation 3)

Overall, the client supports innovation when risks are controlled and financial boundaries respected.

The Developer – Nice Developers

Nice Developers act as the driving force behind sustainability, guided by five non-negotiable values (CO_2 reduction, circularity, nature inclusivity, community building, affordability):

"...if we can't do it that way, we won't do it at all. So we don't do concrete projects, or projects that don't contribute to neighbourhood diversity or that aren't socially inclusive. We just don't do them. No." (Developer – quotation 5)

They emphasise measurable goals as necessary to steer the process:

"...you need to set a goal on the horizon, otherwise no one will go anywhere." (Developer – quotation 6)

SAWA serves as proof of feasibility, strengthening trust. Nice seeks influence over money flows to safeguard ambitions:

"...it is important that you control the money... it is extremely important to us that we are not used as a marketing tool to get an area development off the ground, but that we start it and also finish it." (Developer – quotation 7)

They actively involve all organisational levels:

"It is important that the decision-making types, management, direction, a board of directors, a supervisory board are present." (Developer – quotation 8)

Nice's position is ambition-driven, proactive, and strategically assertive.

The Municipality – Geldrop Mierlo

The municipality takes a facilitating and reviewing role, with policy frameworks (GPR 8, green quotas, water norms) forming minimum requirements. While supportive of higher ambitions, its priority is housing delivery:

"We have a housing challenge, and that is more important to us than the environmental ambition." (Municipality – quotation 9)

They deliberately place responsibilities with external partners:

"We are actually... as a kind of pilot, ...placing as many tasks and responsibilities as possible with the external party." (Municipality – quotation 10)

Internal fragmentation and reliance on developers' financial arguments limit their ability to safeguard sustainability:

"If we don't lay it down in writing, it often ends up not being very ambitious." (Municipality – quotation 11)

The municipality is encouraging but largely reactive and risk-averse.

The Contractor – Chain Partner of Client

As the client's long-term chain partner, the contractor approaches the project pragmatically and with caution toward technical and financial risks associated with timber construction. A core issue is the unusual shift in design responsibility toward an external developer:

"Of course, both parties are used to working in a certain way, and I notice that this is still causing some friction." (Contractor – quotation 12)

Their position is clear: whoever leads technical decisions should bear formal responsibility:

"Then take responsibility for the design, because then you will dare to stand behind it?" (Contractor – quotation 13)

They argue for early, explicit prioritisation of sustainability ambitions:

"if you set your ambitions very sharply from the beginning... This is a must-have, and this is a nice-to-have... that's an important one" (Contractor – quotation 14)

The contractor is open but risk-led, requiring clarity and stability.

The Architect – Chain Partner of Developer
The architect operationalises Nice's ambitions into a feasible design while balancing the client's and contractor's constraints. Alignment of values across the team is essential:

"You're not wearing each other out with a discussion about whether it's necessary... You want to put your energy in 'how do we do it smartly?'" (Architect – quotation 15)

Despite ambition, economic constraints repeatedly dominate design decisions:

"It's almost always about money." (Architect – quotation 16)

The architect emphasises vision alignment but acknowledges that budget ultimately shapes outcomes. Figure 21 (below) shows the interpretation of the biggest risks the interviewed stakeholders see in the project and how they perceive the best outcome of this case.

Regarding participation, discussions with the participation advisor and residents show that opposition mainly concerns building height, parking pressure, privacy loss, and the arrival of new residents from outside Geldrop. Sustainability, by contrast, is viewed positively and can even strengthen support for the project.

"That you can really capitalise on the sustainability aspect... you can really reinforce the sustainability aspect in such a case." (Participation Advisor – quotation 17)

Residents respond favourably to timber construction, added greenery, and communal outdoor space, though concerns such as fire safety require clear explanation (personal communication, 09-10-2025).
Communication plays a crucial role: simple, practical messaging reduces perceived impact, while overly detailed communication increases resistance.

" ...writing a long letter of 2 pages... makes the intervention bigger... A small card with a simple/practical message... is more likely to bring citizens on board." (Participation Advisor – quotation 18)

	Construction Company	Housing Corporation	Developer	Architect	Municipality
Biggest Fear	• Financial surprises and additional costs • Taking on design responsibility for timber construction without sufficient control or compensation	• No financial feasibility • Complaints from renters • Problems on maintenance after delivery	• The project not adhering the 5 core values • Lack of trust from other parties and conflict with the construction party	• Too much consession on architectural and sustainable quality • Beng used as sale pitch for sustainabiity, while not reaching this	• Compromise on established policy • A project that is financially not feasible and does not tackle the housing challenge
Best Outcome	• Clear agreements on shared responsibilities and risks • The opportunity to influence the design • Early distinction between "must-haves" and 'nice-to-haves' in sustainable ambitions	• Feasible plan • Appelaar as example project for other developments • Happy residents and no complaints • Construction party taking on design responsibility	• Realisation of 5 core values • Collaboration succes which ends up in long term relation • Inspiring and changing the rest of the building sector	• Realisation of sustainable ambtions in combintion with aesthetic architecture • Long term chain integration with the developer.	• Minimum sustainability standards of Municipality achieved or higher, without financial help of Municipality • Affordable houses which tackle the housing challenge

Figure 21. Biggest Fear and Best Outcome of Key Stakeholders

4.5.3 Critical Themes within the Case
Communication becomes most visible when tensions arise throughout a project. Originating from the Latin term communicare, the concept refers to smoothing out conflicts. Critical themes are moments in which communication intensifies and can therefore serve as central indicators for steering sustainable ambitions. These recurring themes emerged after zooming out from the interviews and identifying the common thread throughout this case without time-framing. In this study, a theme is considered recurring when it is mentioned by multiple stakeholders and has a significant impact on the process and the overarching ambitions.

Financial feasibility and risk perception
Financial feasibility is a recurring tension, with stakeholders interpreting costs and risks differently. Nice Developers challenges the assumption that timber construction is more expensive, arguing that prefabrication reduces "tail costs" and shifts the contractor's role from builder to coordinator. They therefore advocate a lower coordination fee (~5%) instead of the conventional 15%, presenting a financially grounded alternative to traditional costing.

Meanwhile, the contractor and housing corporation emphasise higher upfront costs, weather sensitivity, insurance challenges, and uncertain long-term maintenance. Their risk-averse perspective contrasts with Nice's optimisation strategy. The municipality acknowledges the difficulty of "stacking ambitions" and relies heavily on developers' claims due to limited internal insight. The architect notes that cost pressure quickly overrides sustainability ambitions, stating that it is "almost always about money."

These divergent risk perceptions weaken both perceived value of sustainability and stakeholder alignment, as no shared financial model exists to balance short- and long-term value.

Unusual collaboration and unclarity in roles
The collaboration structure, housing corporation (client), Nice Developers (specialist developer), and the contractor (chain partner), creates structural friction. The established client-contractor chain is disrupted by Nice's strong role in design and ambition-setting. On the other hand, Nice feels overruled by the contractor and its chain partnership with the client.

Communication lines are inefficient; information sometimes reaches the contractor late or indirectly:

"I notice that I sometimes don't get information that [housing corporation] already has... If I don't get them, I can't have an opinion on them." (Contractor – quotation 19)

Responsibilities are fragmented. The contractor feels ultimate accountability without sufficient influence over design decisions, while Nice and its advisors lead the technical process. This fuels mistrust, late document flows, and the absence of an open cost structure ("open stiko"), resulting in stacked risk margins across parties.

These dynamics reduce stakeholder alignment, encouraging defensive budgeting and risk-aversion. They also harm goal clarity, as stakeholders spend considerable effort navigating process ambiguities rather than advancing shared sustainability aims.

Reserved role of municipality
The municipality adopts a facilitative but cautious posture. Although supportive of sustainability, ambitions are not enforced. Circular and biobased goals remain solely the housing corporation's initiative:

"the ambition of the housing association to develop a circular building is an ambition of the housing association and not an ambition of the municipality." (Municipality – quotation 20)

"They think it's fantastic. You're happy to embrace it, but they're not going to impose it as a duty." (Architect about Municipality – quotation 21)

Municipal requirements (GPR 8, 8 m^2 green, 60 mm water) function as minima rather than drivers. Internal fragmentation - described as organisational "islands" - weakens proactive management, making sustainability secondary to housing supply and affordability.

The municipality's cautious stance affects all three mediating variables. Without enforceable circularity standards and external pressure, goal clarity remains limited: delivering homes is priority, while circular construction stays optional. The perceived value of sustainability is positive but insufficient to justify higher costs or stricter requirements, offering weak institutional backing for ambitious pilots. This results in poor stakeholder alignment, as the municipality emphasises housing output while Nice focuses on circular methods, leaving responsibility for sustainability largely with market actors.

Synthesis
Across all themes, financial uncertainty, fragmented roles, and a cautious municipal stance constrain both the perceived value of sustainability and stakeholder alignment, serving as key conditions for safeguarding ambitious outcomes. The lack of a shared financial logic, combined with structural ambiguities in collaboration, consistently weakens goal clarity and increases the risk that sustainability ambitions become secondary to cost, procedure, or organisational boundaries.

4.5.4 Analysis of Direct Communication Actions

A detailed analysis of the occurrence and perceived importance of direct communication actions is provided in appendix E. This appendix brings together the checklist

results, normalised percentages, interview-based coding and inductively derived communication actions. Together, these data sources offer a multi-layered understanding of how communication practices shape the project's ability to safeguard sustainability ambitions.

Key Findings from the Checklist
The deductive analysis, based on predefined action categories, reveals a distinct divide between actions that are well-integrated into project practice and those that are underdeveloped.

Actions such as Active Information Sharing, Visualisation, Performance Measurement and Evidence of Success demonstrate strong alignment between perceived importance and actual occurrence. In some cases, such as Visualisation and Alignment of Project, reported occurrence even exceeds perceived necessity, indicating that these behaviours are structurally embedded and function as procedural strengths. These actions collectively support clarity, shared understanding, and informed decision-making.

In contrast, Feedback Loops and Risk Mitigation show substantial gaps. Feedback loops did not occur at all among the core decision-makers (0%), despite being rated important by more than half the respondents. Risk mitigation displays a similarly large discrepancy. These gaps indicate the absence of systematic reflection, learning cycles and proactive management of uncertainties, precisely the mechanisms needed to safeguard sustainability in complex, multi-actor environments.

Findings from the Interviews (Deductive Frequencies)
Coding of interview transcripts reinforces these patterns. Active Information Sharing (29 mentions) emerges as the most dominant theme, confirming the project's reliance on open knowledge exchange as a key operational strategy. High frequencies for Visualisation (19) and Risk Mitigation (19) highlight the perceived importance of transparent explanation and managing uncertainties. Though risk mitigation appears far stronger in discourse than in practice, mirroring the checklist gap.

Less frequently mentioned actions - Alignment of Actors, Conflict Resolution, Performance Measurement and Feedback Loops - suggest that these practices are present but not consistently embedded. Their lower visibility indicates areas where strengthening communication routines could improve coherence and adaptation capacity.

Inductive Codes: Additional Communication Needs
Beyond the predefined deductive categories, interviewees identified further communication behaviours that could enhance collaboration. Frequent inductive codes include:

- Involving All Hierarchical Levels (5)
- Explaining the 'Why' (5)
- Open Communication Culture (4)
- Making Sustainability Practical (4)
- Repetition (3)
- Communicating Financial Arguments (3)

These inductive themes highlight a desire for deeper contextualisation ("why are we doing this?"), more consistent vertical communication, and clearer translation of sustainability ambitions into operational choices. They also show a need to connect high-level ambitions with the financial and procedural realities of the project, pointing to persistent gaps in alignment and shared value framing.

Table 6. Frequency Percentages Deductive Actions

Direct Action	Happened (% of 8)	Important (% of 14)	Gap (%-punten)
Active Information Sharing	87,5%	85,7%	-1,8
Feedback Loops	0,0%	57,1%	57,1
Stakeholder Alignment	50,0%	64,3%	14,3
Project Alignment	75,0%	57,1%	-17,9
Conflict Resolution	50,0%	50,0%	0
Visualisation	100,0%	78,6%	-21,4
Performance Measurement	75,0%	71,4%	-3,6
Risk Mitigation	37,5%	78,6%	41,1
Evidence of Succes	87,5%	78,6%	-8,9

Overall Conclusion Actions
The combined deductive and inductive analyses point to three core conclusions:

1. Information sharing and visualisation are strong, structurally embedded practices.
These actions effectively support understanding, transparency and alignment during moments of decision-making.

2. Feedback loops and risk mitigation are critical weaknesses.
The complete absence of feedback loops among key decision-makers and the importance gap in risk mitigation indicates a lack of structured reflection and adaptive learning. Both essential for projects with high sustainability ambitions and uncertainty.

3. Stakeholders recognise additional communication needs not yet embedded in practice.
Inductive codes show consistent calls for:

- clearer explanation of motives ("why"),
- involvement of decision-makers across hierarchical levels,
- translation of sustainability into concrete choices,
- more open discussion of financial assumptions.

Together, these findings suggest that while the project performs well in communication aimed at informing, it performs less well in communication aimed at learning and strategic adjustment at all levels. Strengthening these missing components would significantly improve the project's ability to realise its sustainability ambitions under uncertain and multi-actor conditions.

4.5.5 Total Timeline – Critical Moments and Actions

Critical Moments
By means of the critical themes that occurred, supported by the action analysis, a timeline with critical moments – including these themes – is constructed. Figure 22. shows this timeline and the involved actors per moment. The following section includes a clarification per moment.

1. Encounter
The moment of decision for the project is the starting point. Informal conversations with both the municipality and the client led to this initiative. This is a crucial moment because of its decisive character. Only two parties are involved yet, so there is no complexity in various opinions. However, this might be the moment with the most important choices; will this project be executed together and if so, how will this look like and which ambitions are set. The ambitions in this case were set quite high; 100% circular and complete construction in wood. This moment established a high ambition as a non-negotiable starting point, even before the financial or technical feasibility had been validated in the context. This creates an unstable base for trust and stakeholder alignment.

Involved:
- Developer
- Client (Housing Corporation)

2. Strategic Brief
In order to translate the high initiated ambitions to specific design principles, a series of atelier-sessions was organised. This was a new approach, initiated by the municipality, intended to arrive at a widely supported Nota van Uitgangspunten (NVU) within a short period of time. The sessions focused on making choices between different spatial ambitions, such as parking, green spaces and the number of homes, rather than simply 'stacking' all the wishes. This led to an important moment when the municipality formally established its position. They formalised in this strategic brief (NVU) that the sustainability ambitions of the client included no requirement from the municipality itself. The municipality would just test the project against their own less extensive ambitions. The impact of this moment was crucial. By labelling the ambition as that of the client, an important external pressure factor was removed. However, this was more than just passive positioning; it was an active strategy to manage the municipality's financial exposure. The success of the pilot thus became entirely dependent on the internal conviction and financial strength of the housing association itself and there was no written agreement with the municipality to refer back to during the process.

Involved:
- Developer
- Client
- Municipality
- Architect

3. Concept Design
The next phase evolved around specific design content more than overall goals. The developer assembled a team of parties that have an affinity for and experience with sustainable construction, such as their chain partner, the architect firm. Several moments of discussion appeared on different parts of the 'sustainable' part of the design. An example; One of the core values was the flexibility of the building. An open support structure would make it possible to easily adapt the layout of the homes in the future. This principle came under pressure as the design became more concrete and a subcontractor offered that it would be easier to not apply this. These type of obstacles have been overcome because of the clear goals set in the beginning and motivated subcontractors. However, it stays an obstacle and focus is needed to keep the set ambitions. In this phase the challenge lies in translating loose ambitions into design

implementations. Another challenge is comparing different options and their financial- and sustainable effect on the project.

Involved:
- Developer
- Client
- Architect
- Contractor

4. Contract Forming and Roles
Apparently, constructing with wood needs new ways of collaboration as roles are not in the same relation as in traditional ways of building. Because of this new 'expertise' the subcontractor, which delivers the wood and constructs the building on-site, is getting more responsibility. This results in a more reserved role for the contractor, who simultaneously wants more control over the design, as there is then more control over this "new" way of building. And in this was the design responsibility remains with the main contractor. These occurring concepts result in the need for more careful relationship building, contracting and setting up the collaboration model. For the contractor it makes more sense that the developer, which brings up these new ideas and want this innovative method, takes on a part of the design responsibility and therefore the risk. Another important factor regarding the collaboration is the need for early involvement of parties (subcontractors) with expertise in sustainability. This results in more discussion in the beginning of the process and more parties at the table when discussing ambitions. This could, however, result in more trust along the way.

Involved:
- Developer
- Client
- Contractor

5. Pricing
After completion of the preliminary design (SO), various cost estimates showed that the project was likely to be considerably more expensive than anticipated. It is important to note here that the estimates differed and that the more traditional parties calculated more risk at this point. This became a direct point of criticism: continue with the high ambitions or save money by compromising on sustainability. Frictions in this moment consisted of different aspects; lack of transparency, conflicting cost models and stacked risk perception. Without a transparent, shared risk register, parties began to calculate and "stack" their own risks. Real risks such as weather influences, insurance issues and the assumption of design responsibility for an innovative concept. From the contractor's perspective, they were "stuck with the burdens but not the benefits": full responsibility for a design they had not created themselves, for a lower fee than usual. There was no shared cost estimation or risk mitigation. This led to suspicions among the developer that risks were being double-counted, which unnecessarily drove up the price. All sustainability ambitions that were seen as "extras" came under pressure. Elements such as bio-based insulation and green facades were the first candidates to be scrapped. The option of abandoning the entire timber construction ambition and returning to a traditional concrete shell became a real possibility.

Involved
- Developer
- Client
- Municipality
- Contractor

Appendix E. elaborates on this timeline and its relation to occurred (deductive) and suggested (inductive) actions. This is used as input for the design guideline of the strategy, explained in chapter 7.

4.5.6 Conclusion

Table 7. concludes all data retrieved from the interviews and represents the first explorative round of this study. This explorative case-study revealed three main characteristics which offer a base for the strategy design; the main obstacles of the project through time, the existing management approach and remaining gap.

This analysis shows that certain interventions are not only moment-specific, but have a project-wide character. In particular, active information sharing and alignment projects recur at every moment and are applied consistently. This suggests that transparency and an open culture form structural conditions for realising sustainability ambitions. A further pattern in the data is that tensions do not manifest uniformly across the five project moments. Moments 1–3 primarily function as alignment phases in which issues may accumulate but remain latent, whereas moments 4 and 5 are the points where unresolved misalignments typically surface and become explicit obstacles.

At the same time, the analysis shows that actions aimed at embedding and safeguarding are often missing. This applies in particular to feedback loops and risk mitigation. Both emerge as suggested solutions on several occasions, but are not applied structurally. This points to a gap: there is openness and coordination in the moment, but insufficient systematic feedback, reflection and external substantiation to protect the high ambitions from diluting.

The patterns therefore show that communication in this project is mainly focused on initiating cooperation, while maintaining ambitions has not yet been sufficiently incorporated. The greatest opportunity for strengthening the approach lies in embedding feedback- and evidence communication throughout the project, combined with a risk approach. This will not only create alignment, but also ensure that the ambition is sustained throughout the entire front-end.

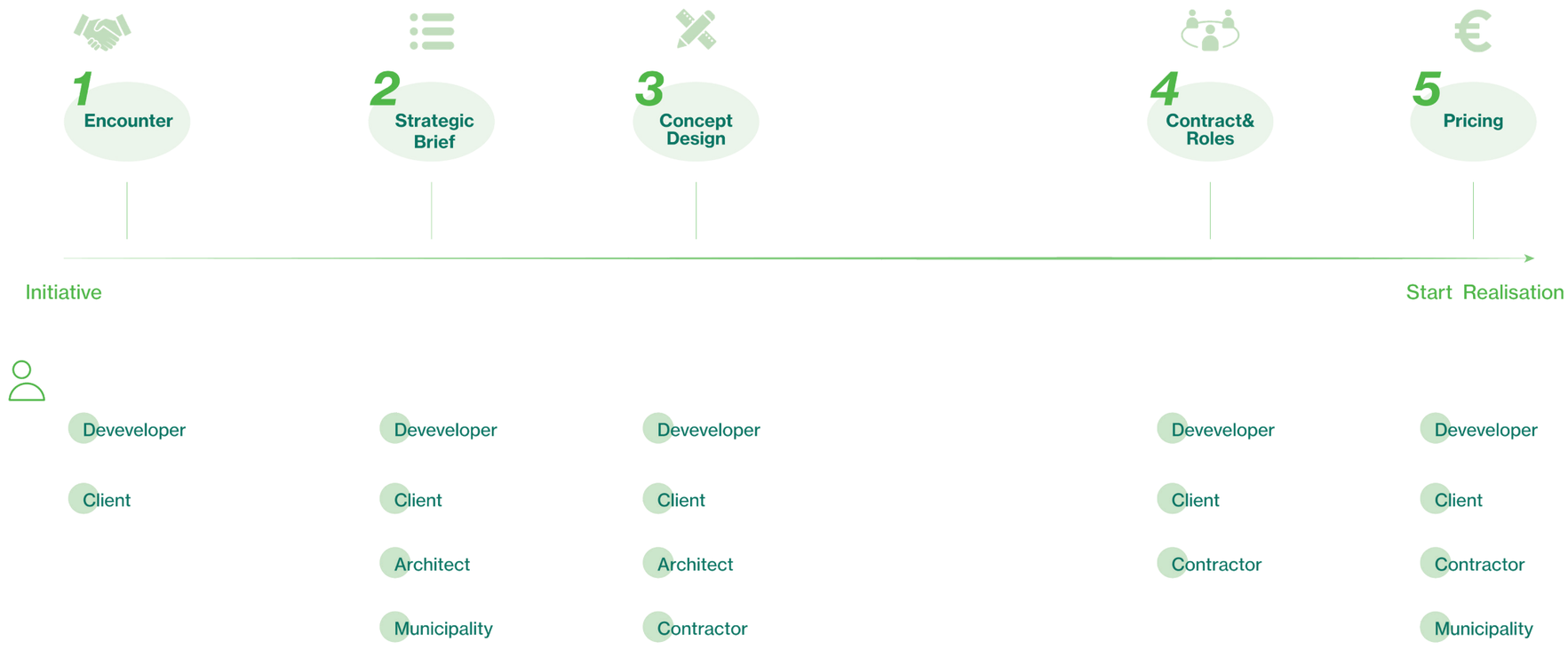

Figure 22. Timeline Critical Moments Appelaar

Table 7. Case Study Findings

Critical Moment	Abstracted Problem	Responsible Actors	Applied Approach	Applied Actions	Used Tools	Remaining Gap
1. Encounter	High sustainability ambitions are set immediately without assessing feasibility and risks, so ambition may be diluted later on.	Developer Client	Communicate high ambitions early; inspirational storytelling and measurable targets; involve multiple organisational levels	Active information sharing, Alignment actors, Alignment project, Performance measurement, Evidence of success	Presentations & visuals, quick scans, measurable KPI's, informal alignment meetings	Communication creates enthusiasm but no credibility: Risk mitigation is missing. No structured dialogue on feasibility or barriers, leading to over-ambitious framing without trust foundation. MV's at stake: Goal Clarity, Stakeholder Alignment, Perceived Value of Sustainability
2. Strategic Brief	Municipality distances itself from ambitious goals → responsibility shifts and goals are not secured.	Developer Client Municipality Architect	Facilitate dialogue through ateliers and visual option studies; communicate spatial principles and record in the NvU document.	Active information sharing, Alignment actors, Alignment project, Visualisation	Atelier sessions, visual drawing of variants, mail updates, meetings and NvU doc	Dialogue is open but diffuse: responsibilities and ownership are not explicitly communicated; lacks Feedback loops and Performance measurement to maintain clarity and accountability once ambitions are set. MV's at stake: Goal Clarity, Stakeholder Alignment, Perceived Value of Sustainability
3. Conceptual Design	Design choices under pressure from practical/cheaper solutions. Risk of sustainability ambitions diluting.	Developer Client Architect Contractor	Maintain intensive communication and frequent coordination meetings; refer to the NvU as a shared reference point during design conflicts; document decisions	Active information sharing, Alignment actors, Alignment project, Resolution of conflict, Performance measurement,	Meeting notes, SO booklet, NvU references during meetings, direct email comm., involving subcontractors	Communication supports inclusion but lacks Feedback loops and Evidence of success; design decisions are not systematically reflected upon or supported with data / benchmarks /value. MV's at stake: Goal Clarity, Perceived Value
4. Contract Forming and Roles	Innovative timber construction changes roles. This creates uncertainty about the distribution of risks and responsibilities undermines trust.	Developer Client Contractor	Conduct open discussions about collaboration and risk-sharing; use declarations of intent to frame trust and shared direction; iterative negotiation meetings.	Risk mitigation	Minutes of negotiation meetings, letter of intent, informal conversation records	Cooperative effort but weak structure: lacks Active information sharing (full transparency of contracts and decisions) and Risk mitigation (explicit role and risk communication); trust depends on personal goodwill, not system. MV at stake: Stakeholder Alignment
5. Pricing	Costs are higher and risks are counted separate per actor. This results in mistrust and pressure on sustainability ambitions, threat of a return to traditional construction methods.	Developer Client Contractor Municipality	Promote transparency by openly sharing budget calculations and explanations; hold clarification meetings to discuss cost overruns; attempt to maintain ambition through design optimisation.	Alignment actors, Alignment project, Resolution of conflict	Open cost sheets (STIKO), budget conversation, optimisation sessions, explanation on tail-end costs	Communication is reactive: lacks Feedback loops (structured reflection) and Evidence of success (proof that sustainability can be cost-effective). Without shared risk communication, mistrust and price stacking persist. MV's at stake: Stakeholder Alignment, Perceived Value of Sustainability

These directions will be used as input for the first iterative round, creation of strategy guidelines, the second iterative round, the strategy workshop, and the third iterative round, validation by experts on several disciplines.

05 results strategy design iterations

5.1 1st Iteration: Design Guidelines

Through both the rigor cycle (theoretical research) and the relevance cycle (the empirical study), knowledge is gained in order to design a communication strategy for the realisation of sustainable ambitions in the front-end of a project. The two cycles foster foundations based scientific theories and perspective for the application domain, involving people and systems. This combination can be seen as the first iterative design round and provides design guidelines. Consisting of a primary approach, main tasks of the strategy, time orientation and initial ideas of actions to be taken.

5.1.1 Main Tasks

The main tasks that follow both from theory and the interviews are written down below. These goals are not time-specific, but should form the red thread throughout the communication approach.

1. Informal trust and alignment first to heighten commitment, measurement next
2. Radical transparency in costs and risks
3. Evidence led decision making
4. Clear governance and role clarity
5. Structural conflict safeguards and repetition of feedback

5.1.2 Action Interventions (Rigor Cycle)

This part gives an overview of the nine actions, that were establishes in the conceptual framework, the rigor cycle. Divided in measures that needed improvement in the project and measures that were already incorporated well.

Table 8. Action Evaluation

Actions that need improvement	**How to make main prioritisation**
Feedback Loops	Decision review after critical moments including decision log and go/no go of ambitions
Risk Mitigation Communication	Joint risk register and meetings, risk workshop, explicit mitigation discussion per decision, informal moments to express worries
Performance Measurement	standard KPI-set per variant, communication on cost and future value of options
Evidence of Succes	standard realistic references ready for discussions and communication with pri-ce/performance per option, more information provision on how to
Conflict-resolution protocol	meetings to express worries and misalignments, more informal meetings to ‘bond’ and prevent conflicts
Actions that are working well	**How to persist standardisation**
Active Information Sharing	An open document drive, changelog per decision, clear information update for all stakeholders
Visualisation	aligning visualisations with phases, direct impact of decisions on images
Alignment Actors	formal more ownership per ambition and responsibility division, informal moments to build trust
Alignment Project	conversation on prioritising of ambitions and goals, referring back to this during meetings

5.1.3 Actions Interventions (Relevance Cycle)

The inductive actions appearing in the interview data, are measures from the relevance cycle, see table 9. The last column articulates the causal link between each inductive code and the actual realisation of sustainable ambitions to show its validity.

Table 9. Inductive Communicative Actions

Action	Effect on MV	How it Influences Steering on Realising Ambitions
Open communication culture	Stakeholder Alignment	Transparency → trust → joint decision-making → sustained ambitions
Involving all hierarchical levels	Perceived Value	Vertical coherence → shared ownership → consistent implementation
Explaining the why	Goal Clarity, Perceived Value	Purpose clarification → legitimacy → maintained ambition level
Repetition	Goal Clarity, Stakeholder Alignment	Continuous reflection → learning → ambition safeguarding
Prioritising Roles and Ambitions	Goal Clarity, Stakeholder Alignment	Clear ownership → reduced ambiguity → coherent sustainability focus
Making Sustainability Practical	Goal Clarity, Perceived Value	Measurability → actionability → realisable outcomes
Communicating Financial Arguments	Perceived Value	Value framing → risk acceptance → investment in sustainability

5.1.4 Critical Moments and Initial Actions

Table 10 presents critical moments of the process, identified through the document- and interview analysis. Also showing initial ideas of inductive and deductive actions to be applied, differing per moment. Some actions are not time specific, but appear to play a crucial role. Conflict resolution occurred ad hoc in the case. Informal moments and an open tone support this approach, so it does not have to be applied at fixed times. Instead, this forms a third layer of context, enabling the team to feels safe in sharing thoughts and preventing conflict. Informal moments and regular feedback loops, highlighted as important in the analysis, could be integrated to build trust after each critical moment.

Table 10. Summarized Phases Overview

Phase	Observed gap (H6)	Deductive Actions	Inductive actions
Encounter	High aimed ambitions without testing of risks	Risk Mitigation Communication, Alignment Actors, Visualisation, Evidence of Success	Explaining the why, Making Sustainability Practical, Involving All Levels
Strategic Brief	Roles and priotities unclear, ambitions not safeguarded	Alignment Actors, Performance Measurement, Visualisation	Prioritising Roles & Ambitions, Repetition, Open communication culture
Conceptual Design	Risk of diluting ambitions due to pragmatic pressure	Performance Measurement, Risk Mitigation, Evidence of Success, Visualisation	Repetition, Explaining the why, Making Sustainability Practical
Contract Forming & Roles	Unclear responsibilities, new forms of working due to timber construction	Active Information Sharing, Alignment Actors, Evidence of Success, Risk Mitigation	Open communication culture, Involving all hierarchical levels
Pricing	Distrust, no joint risk strategy or total transparency in budget calculations	Risk Mitigation, Performance Measurement, Evidence of Succes, Active Information Sharing	Involving all hierarchical levels, Explaining the why, Communicating Financial Arguments

5.1.5 Fundamental Strategy Approach

The case study and literature research indicated that communication aimed at early actor involvement is a necessary aspect in creating measurement-led design choices, a distinctly person-centred component. These established measurement frames then act as decision currencies within the process, representing the content-driven foundation. This is followed by the need for preservation to uphold them. So there is lack of actor alignment, goal specification and continuity of persistence.

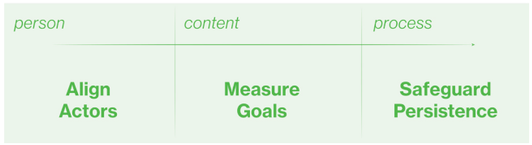

Figure 23. Principal Approach (person, content, process)

This can be summarised in the following necessary approach: Align, Measure, Safeguard. This approach also acknowledges that different types of tensions surface at different stages: alignment issues often emerge early and implicitly, whereas commitment-related risks tend to materialise later in the process. The three horizons therefore structure not only the communicative intent but also the temporal dynamics through which obstacles arise and must be addressed.

5.1.6 Output - Shaping the Design

The knowledge gathered from the rigor and relevance cycle in this first iteration, results in the design components of the strategy, shown in figure 24. This forms input for the second iterative round; the workshop.

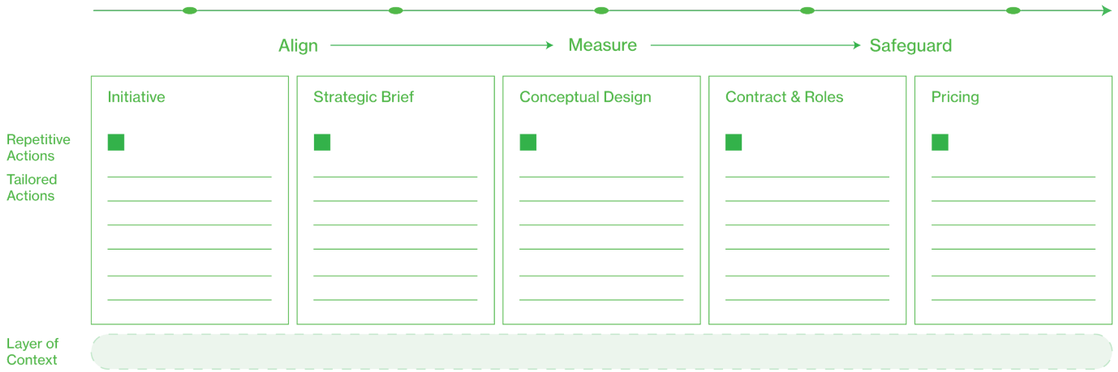

Figure 24. Strategy Components Preliminary Strategy

5.2 2nd Iteration: Workshop

5.2.1 Process

The workshop with the developer's internal team followed the set-up in appendix F, using the Double Diamond framework to alternate between divergence and convergence toward the goal of creating a communication strategy for critical moments in the front-end phase. Figure 25 outlines the four stages, and the detailed course of the workshop is provided in appendix G. The strategy is adaptive, combining insights from literature, the conceptual model, the workshop, and expert interviews.

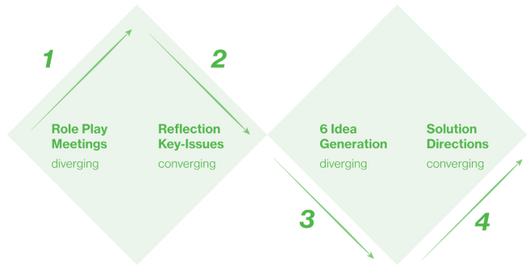

Figure 25. Double Diamond Framework used in the Workshop

5.2.2 Overall Feedback

Feedback gathered from discussing the overall case and preliminary strategy includes the following comments of workshop participants. Appendix G. includes elaboration on these comments.

- Moments 4 and 5 are closely linked and could be swapped.
- Participants highlighted the importance of involving hierarchical layers within the client organisation.
- Neighbouring residents are key stakeholders and cannot be excluded from process evaluation.
- Participants advised renaming 'Concept Design' to 'Design', as all design phases (SO, VO, DO) share similar challenges.

5.2.3 Idea Generation

Roleplaying through all moments gave the participants insight into the key-issues, appendix G shows the results of this part. During the second phase of the workshop, all participants generated 6 ideas in 6 minutes. The focus was on quantity to generate as much ideas as possible. Appendix G shows the results of this part.

Table 11. Solution Ideas Generated in Workshop

Moment	Solution Actions
Encounter	1. Define shared ambitions of municipality, corporation, developer. Regular feedback loop / check with higher levels 2. Early Insight into financial model of all parties 3. Presenting / enthusiasm for all involved parties at all levels 4. Conversation on roles and responsibilities
Strategic Brief	1. Define document, tasks and goal before starting the brief 2. Process agreements and action list on planning: versions, feedback loop, completion 3. Use brief as document to divide roles and cost-bearers, create transparency in costs 4. Prioritisation of ambitions
Design	1. Share a dashboard with design options, connected numbers and effects on price 2. Future proof taxation, higher perceived value of sustainable ambitions in calculations 3. Prioritising ambitions and define lower limit
Contract Forming and Roles	1. Appoint benefits for corporation and contractor in collaboration options, higher perceived value Nice 2. Informal moments throughout the whole process, transparency to build trust 3. Back to agreements of moment 1; core values 4. Be clear about roles, costs, profit and risk early on
Pricing	1. First shared and supported building cost estimations (transparency), then back to corporation 2. Define the lower limit of the project in the beginning 3. Informal moments throughout the whole process, on all levels 4. Clear communication on options with prices, know where the money is

2

After the quantity-aspect, the group came together again and took part in a joint discussion per moment. The goal of this non-structured conversation was to share ideas and come up with a set of solutions, actions or other implementations to make an attempt in solving the key-issues. These are summed up in Table 11.

5.2.4 Output

The feedback given during the workshop resulted in additional suggested actions, adding onto the strategy sketch out of the document- and interview analysis. As for the design, the participants suggested a clear layout for using the strategy. This means text instead of numbers and icons, so it is directly visible what is needed and when. The actions should then be explained in an attachment, including sub actions, examples and elaboration.

Interestingly enough, the participants also pointed out that the workshop on its own really helped with seeing the struggle more clear and getting a zoomed-out overview of the project they are working with. This workshop could therefore be involved in the strategy.

Figure 26 shows the output of the second round and therefore input for the third and last iterative design round; expert validation.

Figure 26. Preliminary Strategy Design

5.3 3rd Iteration: Design Validation

5.3.1 Participants

Finally, the strategy sketch was evaluated using the opinions of experienced in the field of several disciplines: team collaboration, design and construction management, communication and strategy design. The last two are from the practical work field. The feedback and new ideas gained from the participants of the workshop were introduced and discussed in a semi-structured conversation. The experts commented on these results and gave their opinions for further implementations on the strategy (Appendix G.) The purpose of expert validation is to assess whether the strategy developed is substantively correct and complete. By conducting validation expert interviews, data triangulation for the design is achieved, combining insights from the literature review, exploratory and expert interviews, document analysis, and the validation interviews themselves (Yin, 2009).

5.3.2 Findings

The team collaboration-expert stressed identifying who initiates and receives each communicative action, as this varies per project phase and affects collaboration quality. Actions should be categorised, considering context factors like openness and repetition. He advised comparing the strategy sketches from interviews and the workshop to detect misalignments that reveal where collaboration stalls. Moments 1–3 should build team strength for the critical challenges in Moments 4–5. He also noted a methodological bias since only the developer participated in the workshop, which must be acknowledged in the limitations.
The design & construction management-expert argued that communication problems mainly reflect a commitment problem, not an information one. Commitment should be tracked through the three mediating variables, Stakeholder Alignment, Goal Clarity, and Perceived Value of Sustainability, showing how it develops or erodes. Communication must be seen both as information exchange and speech acts that build commitment. Each action should specify sender, receiver, goal, and intended commitment effect. The collaborative structure (roles, contracts, partner choice) functions as an external control variable shaping this process.

The expert from the strategy design work field commented mostly on the design and readability of the strategy. The readability needed to be improved, in order for the strategy to become more clear for the future users how to act and when. The goal of the strategy needs to be clear immediately, so often text works best in these overviews over time. Another comment was about the explanation. This expert, just as the participants in the workshop, emphasised the importance of an attachment to fall back on when applying the communication strategy. She also recommended changing ‘align, measure, safeguard’ into ‘align, assess, assure’.

The communication expert mostly stressed the applicability of the strategy and the elaboration on how certain actions should be executed. The sub-actions might be the right ones, but the way (for example the tone of voice and improvement of trust) in which they are executed is highly important and could results in the success or failure of the strategy. So there is need for a clear distinction of how these actions are expressed per moment. This shows the importance of the alignment in the theoretical and practical part. Adding the actors to every phase in the attachment was another concrete tip. The strategy is directed at a developers, but who’s is at the decision table as well and who should be affected by the communication?

5.3.3 Overlap and Implementations

The most important shared opinion of the three experts is that the strategy needs to be clear, explicit and structured in how communication takes place. Not just acting as a visual sketch, but a practical applicable instrument with actors, goals, phasing and elaboration. All four experts emphasise:

1. Roles and purpose of every communicative action should be explicit;
2. De strategy needs to help improve collaboration by giving insight over time;
3. A supporting attachment or elaboration is necessary to apply the strategy right.
4. The tone of voice and informal moments throughout the project set the success of the strategy, not the overly structured actions. There should be a focus on building trust and commitment.
5. Theoretical structure should be aligned with practical application for the strategy to succeed

Main adjustments based on expert feedback:

- Changing ‘align, measure, safeguard’ into ‘align, assess, assure’;
- Categorisation of actions into three communication types: information transfer, speech act, and context setter;
- Addition of attachment detailing actors present, sub-actions, examples, and tailored outcome per moment;
- Inclusion of the collaboration structure (roles, contract form, partner choice) as an external control variable;
- Improvement of readability with a larger title, more explanatory text on the main page, and clearer phasing/ context blocks.
- Addition of specific actions that make room for informal trust building and commitment

5.3.4 Conclusion

Based on the Rigor, Relevance and Design cycles, enough data is gathered to create a final design. The final design elaborates on the findings conducted from literature, various expert interviews, the workshop and the design validation. All suggested communication actions, both inductive and deductive, are consolidated into eleven final actions to create clarity and usability. This consolidation is explained in appendix G. The lay-out, approach and all components are clarified in chapter 6.

06 final strategy

6.1 Output Design Cycle

Figure 27. on the next pages displays the final communication strategy which answers the main research question:

“How can communication steer the realisation of sustainable ambitions in the front-end phase?”

This final strategy and its content were developed based on testing of the conceptual model (rigor cycle) and inductive emerging of communication measures (relevance cycle) through interviews, workshop and validation. So, the design cycle is driven by the input from both the Rigor cycle and the Relevance cycle.

First, the nine original actions were tested as deductive actions, after which inductive actions also emerged. These inductive actions emerged in both the interviews and the workshop, and they provide the strategy with a practical perspective. The final adjustments were made based on expert feedback. This resulted in a consolidation of the nine original and the newly emerged inductive actions into eleven final actions, structured within three purposes. The original actions were not removed or entirely changed but merged into broader, overarching categories to better reflect their combined scope. Their implementation and sub actions differ per moment.

A detailed overview of this consolidation is provided in appendix G and the attachment of the strategy, serving as a practical guideline when using the strategy. Figure 27 (and appendix A2) shows the output and comprises a manual for the front-end phase of a project. It lists five critical moments with corresponding solution directions. A distinction is made between the purpose of the action: providing information, strengthening the team or setting the context. Providing information serves a communication which transfers information form the sender to the receiver. Strengthening the team involves speech acts; acts that bond the team, without literally transferring information. A figuratively way of using communication.

Furthermore, three actions are implemented as a base throughout the whole project to set a context, without being moment-specific. The attachment to the strategy contains an overview of each obstacle with an explanation and sub-actions for each measure, as suggested by the future user: a progressive developer who wants to guide partners in the front-end phase towards realising sustainable ambitions.

Finally, the strategy is divided in three main solution directions, involving aligning the team, assessing goals and; assuring commitment. Via these horizons communication contributes to the realisation of sustainable ambitions. Each horizon highlights the conditions that need to be established to support the realisation of sustainability ambitions. The attachment of this strategy clarifies how the same consolidated actions represent different sets of practices depending on the critical moment they are applied to. It can be used as a reference layer, so readers and practitioners can see what each action actually entails if applied in practice.

COMMUNICATION STRATEGY
Realising Sustainable Ambitions

Align

INITIATIVE

Start Initiative

Repetitive Actions

Information Transmission Actions

1a **Explain and Align Purpose**
State the Shared Purpose Clearly
Check Project Alignment

2a **Make Sustainability Tangible**
Turn Ambition into Concrete Examples
Show Importance for Actors

3a **Share and Visualise Information**
Use Visuals to Build Clarity
Share Proof to Increase Belief
Make Information Accesible to All

Team Strength Actions

6a **Align Roles and Ambitions**
Surface Ambitions Before Solutions
Compare Priorities Openly

7a **Engage and Commit the Team**
Include All Organisational Layers
Mark Shared Commitment Openly

8a **Discuss and Manage Risks**
Make Risks Shared Early
Link Risks to Responsible Actors

STRATEGIC BRIEF

1b **Explain and Align Purpose**
Translate Ambition into Brief Requirements
Check if All Actors Agree

3b **Share and Visualise Information**
Use Visuals to Structure Choices
Make Assumptions Explicit Early

4a **Demonstrate and Measure Success**
Define Indicators for Later Evaluation
Link Goals to Measurable Outcomes

6b **Align Roles and Ambitions**
Clarify Who is Responsible
Compare Priorities Before Finalising Brief



Assess

DESIGN

2b **Make Sustainability Tangible**
Link Design Choices to Impact
Show Practical Consequences of Ambition
Connext Choices to Cost Logic

4b **Demonstrate and Measure Success**
Test Concepts Against Key Metrics
Use Data to Compare Proposals

5a **Offer and Evaluate Options**
Present Multiple Design Variants
Visualise Trade-offs for Discussion

7b **Engage and Commit the Team**
Decide Together on Design Direction
Confirm Shared Responsibility Publicly

8b **Discuss and Manage Risks**
Identify Design Related Risks and Mitigation Early
Link Risks to Responsible Actors



Assure

CONTRACT & ROLES

1c **Explain and Align Purpose**
Link Contract Terms to Shared Purpose
Confirm Alignment Before Formalising

3c **Share and Visualise Information**
Keep Documents Transparent and Shared
Make Decisions Traceable for All Actors

4c **Demonstrate and Measure Success**
Use Precedents to Justify Agreements
Link Commitments to Future Value

6c **Align Roles and Ambitions**
Define and Divide Roles
Match Ambition with Brief and Scope

7c **Engage and Commit the Team**
Secure Commitment Across Organisations
Ensure Decisions are Backed Internally

8c **Discuss and Manage Risks**
Risk Ownership in Collaboration Doc
Make Mitigation and Buffers Explicit

PRICING

2c **Make Sustainability Tangible**
Connect Sustainability to Future Value
Show Cost Impact Relation Clearly

4d **Demonstrate and Measure Success**
Use Metrics to Justify Pricing
Prove Credibility with Past Results

5b **Offer and Evaluate Options**
Provide Price-Preformance Alternatives
Let Actors Compare Scenario's Transparently

7d **Engage and Commit the Team**
Involve Finacial Decision-Makers Early
Ensure Internal Approval Before Closure

8d **Discuss and Manage Risks**
Make Risk-Cost Relation Explicit
Adress Incentives Openly



Start Realisation

Communication Actions

Context Setters

A **Transparency**
B **Repetition**
C **Open Communication Culture**

★ Informal Moment to Build Trust
Establish Feedback Loop

Figure 27. Final Communication Strategy

07
discussion

7.1 Summary of Key Findings

This study researched how communication can steer the realisation of sustainable ambitions during the front-end phase of development projects. Based on a single case of Nice Developers, supported by interviews, document analysis, workshops, and expert validation, the research identified communication as both information provision and management mechanism. This study builds upon the conceptual model introduced in Chapter 6, proposing that communication steers through three mediating variables; stakeholder alignment, goal clarity and perceived value of sustainability. These mechanisms describe de conditions that are influenced by communication. Findings show that, while sustainability ambitions are supported through information sharing and visualisation, it tends to dilute later in the project due to weak feedback structures and risk dialogues. Communication actions therefore function not as isolated interventions but as a system that, together, sustain ambition across time. This reflects the Design Science Research logic of the rigour-relevance loop. Theory informed the design of the mediating variables and communicative actions, which were then empirically tested and refined into a strategy.

The developed strategy translates these findings into a practical framework structured around five project moments; Encounter, Strategic Brief, Design, Contract & Roles and Pricing. These all contain a tailored set of actions that respond to its specific challenges. Moreover, the nature of the five critical moments warrants clarification. Each moment embodies a different type of tension: some are testing in character, revealing misalignments or uncertainties, while others build upon insights gained in earlier stages. Critical moments 1 to 3 are essential for establishing alignment and shared understanding, yet miscommunications in these phases do not immediately lead to major breakdowns; their effects are subtle and often accumulate over time. In contrast, critical moments 4 and 5 are the stages in which such accumulated issues typically surface, making underlying tensions explicit and requiring more decisive communicative intervention. Consequently, the communicative function shifts across phases: in the first phase communication aligns people, in the second it assesses goals, and in the third it assures commitment. These communicative functions correspond to the three overarching horizons of the strategy - Align, Assess and Assure - which together form the temporal logic through which mediating variables are reinforced throughout the front-end. The strategy operationalises the bridge between communication and the realisation of sustainable ambitions. It structures when and how the three mediating variables can be developed and maintained.

7.2 Interpretation of Key Findings

The results show that communication acts as a structuring system, shaping the continuity of sustainability ambitions through alignment, assessment and assurance. Rather than a tool for message delivery, communication becomes a process that enables sustainable ambitions to persist.

The mediating mechanisms are dynamic processes continuously shaped through communication. Across the project, communication actions need to interact to strengthen alignment, clarify goals, and enhance the perceived value of sustainability. This dynamic was expressed through the evolving horizons of Align, Assess, and Assure, each reinforcing the mediating variables in distinct yet interconnected ways.

Communication as structural alignment
The data reveals that early alignment of actors and roles is foundational. Actions such as ‘Explain and Align Purpose’ and ‘Active Information Sharing’ build trust and coherence between developers, client, contractor and municipality. This confirms Herazo & Lizarralde’s (2016) argument that sustainability depends on early cognitive alignment. Yet, in the Appelaar case, this alignment was primarily relational, based on personal trust, instead of regulated, making it vulnerable when pricing and risk tensions emerged.

So, trust precedes measurement: without a communicative foundation, formal indicators (e.g., MPG, BENG) remain procedural instead of transformative. This insight extends Aartsengel & Kurtoglu’s (2013) view of communication as co-creation of meaning rather than information transmission.

Communication as evidence and persuasion
Effective communication translates abstract ambitions into tangible arguments through visuals, criteria and measurable impacts. These actions legitimise sustainability to sceptical stakeholders, as Kim et al. (2017) describe on the persuasive role of visualisation. By offering several options and showing its financial and sustainable effect, vague ambitions transform into tangible goals and choices. Individual risk perception enforces short-term cost logic rather than long-term value. Thus, persuasion requires a shift from proving feasibility to negotiating shared, future value.

Communication as reflection and learning
The absence of structured feedback loops and risk conversations revealed obstacles in the Appelaar project. In the case, risk was handled individually, producing ‘stacked risk perception’. Feedback moments were formal rather than conversational. This lack of iterative and free dialogue explains why sustainability ambitions often decline after the concept phase. It reinforces Van Uden (2023) and Eikelenboom & Van Marrewijk (2024); conservative behaviour is sustained by communicative avoidance.

Communication actions as a codependent system
Each phase of the project combines communication actions differently, creating a synergistic effect that addresses and handles each critical moment differently. During the ‘Encounter’ and ‘Strategic Brief’, alignment and transparency are crucial (Align); in ‘Design’, visualisation and joint commitment dominate (Assess); in ‘Contract & Roles’ and ‘Pricing’, persuasion and risk-sharing become central (Assure). These phase-specific configurations of

actions show that communication actions cooperate in a system. Their effect lies in how they interact with each other and with the context, depending on timing and contextual factors. Each set contributes to the broader Align, Asses, Assure cycle. In this study, communication is understood as a system insofar as its steering capacity does not come from individual communicative actions, but in the interaction between them over time. Communication functions systemically because meaning, alignment, and commitment emerge through repetition, mutual adjustment, and feedback across multiple project moments, rather than through isolated interventions.

Communication as Transformative Instrument
This research shows that communication steers the realisation of sustainability ambitions not primarily through the transmission of information, but through what can be described as transformative communication, or the 'speech acts'. While the term was not explicitly defined at the outset of the research, it emerged as a conceptual lens to explain why certain communicative interventions proved decisive. Reflecting on the empirical findings, it became clear that communication only contributed to sustained ambition when it operated at a deeper, relational level. When shaping shared understanding, trust, and commitment among actors. In the context of this study, transformative communication functions as the underlying mechanism through which actors' perceived value of sustainability and their willingness to commit are influenced. Without this transformative layer, the strategy risks remaining instrumental and insufficient to support long-term ambition realisation.

7.3 Implications

Theoretical
This research studies the gap between the necessity of achieving hard measurable goals, with soft governance, using communication as the link between both. During the research process, communication was initially approached as a managerial instrument to support alignment and decision-making. Only in the later stages of analysis did it become clear that its most decisive role lay in its transformative capacity: an insight that reshaped both the interpretation of findings and the final strategy. This introduces a strategy model - following aligning, assessing and assuring - reframing communication as a structured management process consisting of:

1. Information Provision, creating transparency and shared perspective;
2. Speech Acts, performing commitment and shared values;
3. Repetitive Actions, fostering feedback and trust
4. Context Setters, which create a reliable environment to build upon

These categories form a lens through which communication can be studied as part of organisational design. This contributes to existing theories by extending the socio-technical understanding of project- and process governance (Heurkens, 2012) and providing a communication-based approach to steering sustainable ambitions.

Practical
For progressive developers, the strategy offers a practical system for maintaining ambition in complex, multi-actor collaboration:

1. Establish trust before metrics: open communication early prevents defensive behaviour;
2. Use measurement as dialogue: data and visuals should start reflection, not closure;
3. Institutionalise feedback: regular, informal reflection sustain ambition beyond deadlines;
4. Embed risk-sharing conversations: transparency enhances resilience and share ownership;
5. Synchronise actions across moments: treat communication as a continuous ecosystem of interdependent actions.

Lastly, implementation issues are often framed as a result of ambition stacking. This study indicates that the core challenge is not the quantity of ambitions, but the quality of the conditions that enable them. Misalignment, unclear roles and fragmented communication created friction, whereas strong qualitative conditions allowed ambitions to coexist without conflict. This suggests that ambition stacking is less a cause than a symptom of insufficient governance conditions in the front-end phase.

7.4 Methodological Reflection and Limitations

The accuracy of this study lies in its iterative design characteristic of Design Science Research. By combining multiple qualitative methods – interviews, workshop, validation reviews – the research grounded theory in practice and translated findings into a validated and useable strategy. However, several contextual and methodological considerations shape this specific interpretation:

Top-down and external pressure
External instruments such as municipal regulations, subsidy schemes and taxation can significantly shape the realisation of sustainability ambitions. Their influence extends beyond project-level and bottom-up management by setting the broader strategic and regulatory conditions in which decisions are made. In this case, such external forces provided an important backdrop to how actors interpreted feasibility, risk and responsibility. This highlights that ambition realisation is not only driven by internal project processes, but also by the wider institutional and policy environment in which a project operates.

Chain partnership dynamics
In this case, two chain partnerships—the long-standing collaboration between the client and contractor and the partnership between the architect and developer—shaped project dynamics and introduced an implicit hierarchy among actors. These relational structures at times blurred the distinction between communicative effects and broader power and management dynamics. While such partnerships are common in the built environment, the case demonstrates how they can strongly influence early project dynamics, both positively (e.g., trust and efficiency) and negatively (e.g., informal power structures).

A key lesson is that steering sustainability ambitions is heavily influenced by early choices in partner selection and collaboration structures. When limited intrinsic motivation for sustainability and traditional risk perceptions are present from the outset, the steering capacity of communication becomes constrained. Collaboration is therefore not a neutral starting condition: where fundamental misalignment in values or motivation exists, communicative interventions tend to serve damage control rather than progression. Conscious partner selection and early assessment of motivational alignment are thus critical for effectively steering sustainability ambitions.

Changing Ambitions
Although this study focused primarily on realising sustainability ambitions, the case study shows that these ambitions are not static during the front-end phase. At several points, such as when the municipality positioned its ambitions, during risk discussions with the contractor, and when design choices were reconsidered, ambitions shifted under the influence of communicative interactions. Communication is not only a means of reinforcing ambitions, but also a factor that can change them. This is in line with literature that considers sustainability in projects to be a dynamic, process. Although the data clearly showed that ambitions shifted during the process, the focus was mainly on realisation rather than on this dynamic itself. Maybe change of ambitions is inherent to realising them. The case indicates that such shifts should not always be read as a loss of ambition. Steering rigidly toward the 'optimal' ambition can stall progress when cost, risk or feasibility pressures intensify, whereas adjusting ambitions toward what is collectively desirable can keep the project viable without abandoning sustainability. Often seen as necessary in social processes.

Workshop set-up
The workshop used in this research consisted of a role-play executed by the employees of the developing company. The role-play was set up to help these employees understand the perspectives of other actors in the project. However, it is possible that there was still a bias and that the suggested actions were therefore also based on the developers perspective. When interpreting the strategy, it is important to keep this in mind.

Action Consolidation
An important reflection concerns the level of abstraction chosen for the consolidated actions. Rather than prescribing a long list of highly specific, context-dependent measures, the strategy groups them into a smaller set of higher-order actions. This follows directly from the empirical findings: highly detailed actions proved to translate differently across moments, actors, and tensions, and therefore lacked consistency as steering mechanisms. In contrast, the more global consolidated actions repeatedly influenced stakeholder alignment, goal clarity and the perceived value of sustainability. Their strength lies not in prescribing exact behaviour but in providing clear direction that can adapt to the conditions of each critical moment. Which is elaborated on in the strategy booklet. This makes the strategy both coherent throughout the whole process and flexible within each moment, which is essential within the dynamic context of front-end project development.

Wickedness
A mentioned in the introduction, realising sustainable ambitions can be described as a wicked problem. Communication is a tool to steer this process and this concept is well-researched throughout this study. However, it might not do justice to the wickedness of the whole. Because wicked problems unfold differently across contexts, understanding them may require a broader, contingency-based lens that acknowledges that no single managerial or communicative approach is universally effective. Next research could focus more on finding a solution with an approach of wickedness as study lens. The problem might be more complex than initially anticipated on, as project-specific circumstances and contextual influences can shape both the nature of the wickedness and the effectiveness of possible interventions.

Theoretical connection of academic concepts
A conceptual distinction can be made between the mediating variables identified in the theoretical model and the strategic horizons proposed in the final communication strategy. The mediating variables - stakeholder alignment, goal clarity, and perceived value of sustainability - represent the conditions through which communication influences the realisation of sustainability ambitions. They describe what communication needs to achieve in order to steer outcomes.

The proposed strategy - structured around Align, Assess, and Assure - addresses how communication operates in practice to influence these conditions over time. While Align and Assess largely correspond with concepts already emphasised in existing literature, such as alignment among stakeholders and clarification of goals, the empirical findings also highlight Assure commitment as a crucial communicative challenge. This suggests that while current literature focuses on achieving alignment and clarity, it pays less explicit attention to the sustained maintenance of commitment once initial agreement has been reached.

The findings of this study indicate that commitment cannot be assumed to persist automatically, but requires ongoing communicative enforcement, particularly as

project conditions, risks, and interests evolve. In this light, the mediating variable ‘perceived value of sustainability’ is not ignored and could be seen as an underlying motivational driver within this commitment. By steering on commitment, perceived value of sustainability is necessary. Assuring commitment represents the communication required to stabilise this motivation across project phases. Distinguishing these concepts extends existing insights by highlighting sustaining commitment as a critical dimension in sustainability-oriented project management.

Programme Approach to Projects
The findings of this study also invite reflection on the future organisation of development practices. While this research focused on a single project context, the observed dynamics suggest that steering sustainability ambitions may become more feasible when projects are embedded within longer-term programmes or system-oriented development structures. A programme-based approach reduces the need to repeatedly establish alignment, shared understanding, and commitment from scratch, allowing these conditions to stabilise over time.

Longer-term collaboration and extended project lifecycles may offer particular advantages for sustainability ambitions, as goal clarity and stakeholder alignment can be anchored at programme level, while individual projects retain flexibility to adapt ambitions to situational contexts. Such arrangements may also support shared risk management, learning across projects, and the distribution of financial and organisational uncertainties over time.

At the same time, this shift introduces new challenges. Reduced flexibility and routinisation may limit innovation if feedback loops and reflective practices are not actively maintained. This underlines the importance of continuous communication, learning, and commitment assurance within programme-oriented development.

7.5 Transferability

In this research, a single case study is analysed. In this analysis, it is very important to be aware of the specific context and obstacles that come up. This gives character to the project which is not always applicable on other contexts, settings, or stakeholders.

Project context
The involvement of a housing corporation influenced the nature of sustainability ambitions. On the one hand because within these organisations, affordability and amount of production will often win over sustainability. This is not the case with other companies. On the other hand, social value will be chosen over investor returns. This orientation strengthens collective motivation but limits replicability in financially risk-averse contexts, in which sustainability measures are seen as more expensive.

Developers motivation
Nice’s progressive approach, willing to step back from projects misaligned with its values, represents a value-driven mode of development. While this strengthened ambition, it also limits generalisation to more commercially constrained developers and normalised project teams in the industry. However, the transferability of the proposed communication strategy depends less on the type of developer involved and more on the presence of intrinsic motivation to pursue sustainability ambitions. While the case organisation can be characterised as a progressive developer, the findings indicate that the strategy itself functions as a generic guide for using communication to steer sustainability ambitions within project contexts.

The empirical findings also reveal clear boundary conditions. When key actors lack motivation or continue to operate from strongly traditional risk perceptions, the capacity of communication to steer ambitions becomes limited. In such cases, responsibility for driving sustainability cannot easily be assumed by a single actor. At the same time, communication may play a role in setting these conditions under which the strategy can be applied. Communicative interventions aimed at individual internal motivation and articulating the underlying ‘why’ of sustainability can contribute to building perceived value and intrinsic motivation prior to project initiation.

Sustainability Topics
The sustainability ambitions in the examined case mainly focused on wooden construction, which is often perceived as a costly and risky choice. This raises the question of how transferable the findings are to projects with other sustainability ambitions, such as biodiversity enhancement or energy-neutral buildings. The communication strategy demonstrates that steering towards sustainability relies on aligning stakeholders, clarifying shared goals, and maintaining commitment throughout the project. Although this case centred on the implementation of wood, these underlying mechanisms are rooted in internal motivation and are therefore likely to apply to other sustainable measures as well. Nevertheless, it is important to acknowledge that the specific focus on wooden construction may influence how the results can be transferred to different contexts, and this potential effect should be taken into account when assessing transferability.

08 conclusion & recommendations

8.1

Subquestion 1

What does existing theory reveal about how communication influences the realisation of sustainability ambitions on project- and organisation level?

Based on the literature review, it becomes clear that communication strategies contribute to the realisation of sustainable ambitions by enforcing three mediating variables of the managed process: Goal Clarity, Stakeholder Alignment and Perceived Value of Sustainability. This process has an input and an output; realisation of sustainable ambitions. Ambitions can be categorized by project- and organisation ambitions. Communication acts as mechanism that reduces uncertainty and creates collective meaning. This mechanism is steered by a managing body; the project team, contributing by communication and receiving back information, learning from its projects. (Contextual Model) Within the three mediating variables, nine direct actions are defined in order to describe the practical translation of the mediating variables to the realisation op sustainable ambitions: Active Information Sharing, Alignment of Actors, Alignment of Project, Visualisation, Feedback Loops, Risk Mitigation, Evidence of Succes, Performance Measurement and Resolution of Conflict. (Conceptual Model)

8.2

Subquestion 2

How has communication been applied in the selected projects to shape the realisation of sustainability ambitions?

In the studied case, communication in the front-end phase appears to play a mixed role: it is essential for collaboration, but rarely used strategically to embed sustainability. Alignment sessions and decision-making moments often contain little explicit discussion of sustainability goals; the focus is on feasibility, risk and planning. Where communication was effective, it was through clear information flows and visual aids that made the goals concrete (such as visualisations and measurable requirements). However, this appeared incidental throughout the case rather than structural. The case analysis indicates that communication as a steering tool, is more reactive applied than proactive. As a result, ambitions remain implicit and lose priority when financial or organisational pressure increases.

In other words, the communication strategies were unbalanced in the case-study: they succeeded in building a shared understanding but lacked a procedural structure needed to translate that understanding into trust and motivation, consisting sustained decision behaviour. The project's communication was strong in early conceptualization but faded during iterative design and decision cycles. This pattern confirms that current communication practices tend to be informative and persuasive, rather than reflective and structurally implemented throughout the whole project. While it promotes short-term coordination, it does not yet function as a mechanism for long-term learning or ambition protection.

8.3

Subquestion 3

Why did certain communication strategies succeed or fail in realising measurable sustainability ambitions?

The empirical findings from the Appelaar case reveal a communication approach that is active in information dissemination and visualization, but relatively weak in structured reflection and feedback. Communication was primarily used to convey project data, visualize design options, and ensure progress visibility toward stakeholders. Actions such as Visualisation, Project Alignment and Active Information Sharing were consistently present and considered effective by the project team.

However, Feedback Loops, Risk Mitigation Dialogues and the right approach to Performance Measurement, which are essential for adaptive learning and ambition safeguarding, were largely absent or informal. While actors valued transparent updates, few mechanisms existed to revisit earlier sustainability intentions once cost or planning pressures emerged and there were no implementations on shared risk and budget calculations. As a result, ambitions that were initially explicit became increasingly implicit as the project advanced.

Successful communication implementations share characteristics: they are pro-active, evidence-based and mutual. Additionally, strategies succeeded when they linked trust with evidence and made space for reflection. Successful practices built trust and collective confidence in sustainability, followed by assessing and assuring performance while making project decisions in design, price and roles. Steering sustainability with this management tool mostly depends on the timing, structure, and continuity. It is crucial to create a specific context that encourages transparency, and open culture and repetition of actions. These lay the right foundation for the rest of the strategy.

Implementations failed when communication was treated as a transactional activity rather than a an ongoing management process. Once the project entered phases of financial negotiation and contracting, communication shifted from collaborative exchange to defensive justification. The absence of total transparency, feedback loops and risk mitigation dialogues meant that earlier commitments were not sustained when external pressures arose. Consequently, sustainability goals, though well-defined, lost their relevance in between cost concerns and procedural frictions. The analysis suggests that earlier improvements in communication practices benefit later project phases by sustaining shared interpretations of risk,

preserving explicit sustainability ambitions, and reducing defensive behaviour during financial negotiations. The lack of reflection caused short-term reasoning and individualised risk perception.

The analysis shows that the realisation of sustainable ambitions does not just depend on the
presence of communication, but on its structure, persistence and involvement of all hierarchical levels. Communication aligns and informs, effective communication also reflects, reassesses and safeguards. The empirical case demonstrates that without including feedback and risk dialogues, even well-communicated ambitions eventually dilute under pragmatic and financial pressure.

8.4

Subquestion 4

How can communication strategies be designed to engage conservative stakeholders and operationalise sustainable ambitions?

Chapter 6 gives an overview of how to design a communication strategy for the realisation of sustainable ambitions in the front-end phase. This strategy consists of several layers and components. First, to identify the right strategy, the critical moments of the process need to be distinguished. After classifying these, communication can be applied on different levels: as context factor throughout the whole process, actions that provide information, actions that build team strength and finally repetitive actions that build trust and create room for feedback. The phases have the same solution set-up, but per moment the exact actions and approach differ. Additionally, the importance of explanation and examples in the strategy became clear from feedback of the future user. This is why the strategy includes an attachment that elaborates on each moment, its related sub-actions, and adds practical quotes. In this way, the strategy is explicitly designed for practical application in professional practice.

8.5 Answer to main research question

How can communication steer the realisation of sustainability ambitions in the front-end of a project?

This research demonstrates that communication steers the realisation of sustainability ambitions not through isolated communicative moments, but by shaping the conditions under which collaboration, clarity and commitment can persist. Across the rigor and relevance cycles, findings show that communication functions as a structuring system that determines how actors develop shared understanding, translate ambitions into decisions, and sustain these commitments as pressures arise. In this way, communication steers by continuously reinforcing three mediating variables that determine whether ambitions are realised or diluted: goal clarity, stakeholder alignment, and the perceived value of sustainability. The study shows that communication becomes most effective when organised through three horizons of management: Align, Assess and Assure. Together, these horizons provide a systematic answer to how communication guides the realisation of sustainability ambitions.

1. Align: Steering through shared purpose and mutual understanding
Communication first steers by establishing collaboration strength and shared perspective. Actions such as explaining the underlying purpose, involving all organisational layers, and making sustainability tangible generate collective meaning-making. Through alignment of people, actors understand not only what the ambition is, but why it matters to their roles. This shared perspective in a project creates the trust and relational stability required for later complex decisions.

2. Assess: Steering through clarification and decision structure
Once alignment is achieved, communication steers by converting ambitions into assessable, comparable and credible options. Through actions such as visualisation, evidence sharing, performance measurement and explicit articulation of assumptions, sustainability becomes integrated into the project's decision-making logic. Effects of several design choices on sustainable, financial and practical level are made interconnected. Communication thus operationalises ambition, shifting it from an abstract value to a concrete criterion. Resulting in clear, tangible goals the project team agrees on.

3. Assure: Steering through continuity, reflection and safeguarding
Communication also steers by maintaining ambition commitment over time. This involves establishing feedback loops, creating an open environment for risk dialogues, and embedding repetitive actions that reinforce earlier agreements. These communicative processes help prevent erosion of sustainability commitments when confronted with cost pressures, procedural constraints or competing priorities. With this horizon of assurance, clearly defined ambitions are maintained as the project progresses.

Across these three horizons, communication operates through three types of actions:

- Information provision, enabling shared visibility and transparency of goals, criteria and progress;
- Speech acts, strengthening team cohesion, commitment and collaborative identity;
- Repetitive and context-setting actions, which cultivate a culture of openness, trust and ongoing reflection, embedding sustainability into the project's behavioural routines.

In practice, communication steers not by the volume of messages exchanged, but by how collaboration is structured, guided and sustained over time. By making sustainability understandable (explaining), credible (evidence), actionable (structuring options), and resilient (safeguarding commitment), communication connects the subjective domain of trust and collaboration with the objective domain of measurable performance and documented decision-making.

Communication steers the realisation of sustainability ambitions by systematically aligning actors, assessing ambitions, and assuring commitment. These horizons reinforce goal clarity, stakeholder alignment and perceived value. Forming the conditions that allow ambitious sustainability goals to persist and translate into concrete outcomes in the front-end phase.

8.6 Final Strategy

The final communication strategy (Figure 28) answers the main research question: "How can communication steer the realisation of sustainable ambitions in the front-end phase?"
The strategy is developed through testing of the conceptual model, combining the nine original actions with additional insights that emerged inductively from interviews, the workshop, and expert feedback. This process led to a consolidated set of eleven actions, structured around three purposes: providing information, strengthening the team, and setting the context.

The strategy addresses five critical moments in the front-end phase, each linked to specific solution directions, while three overarching actions apply throughout the entire process. The three core directions – aligning the team, assessing goals, and assuring commitment – form the central guiding principles. The appendix offers a practical elaboration of each action, illustrating how the same measure can take on different communicative forms based on combination of actions and the moment in which it is applied.

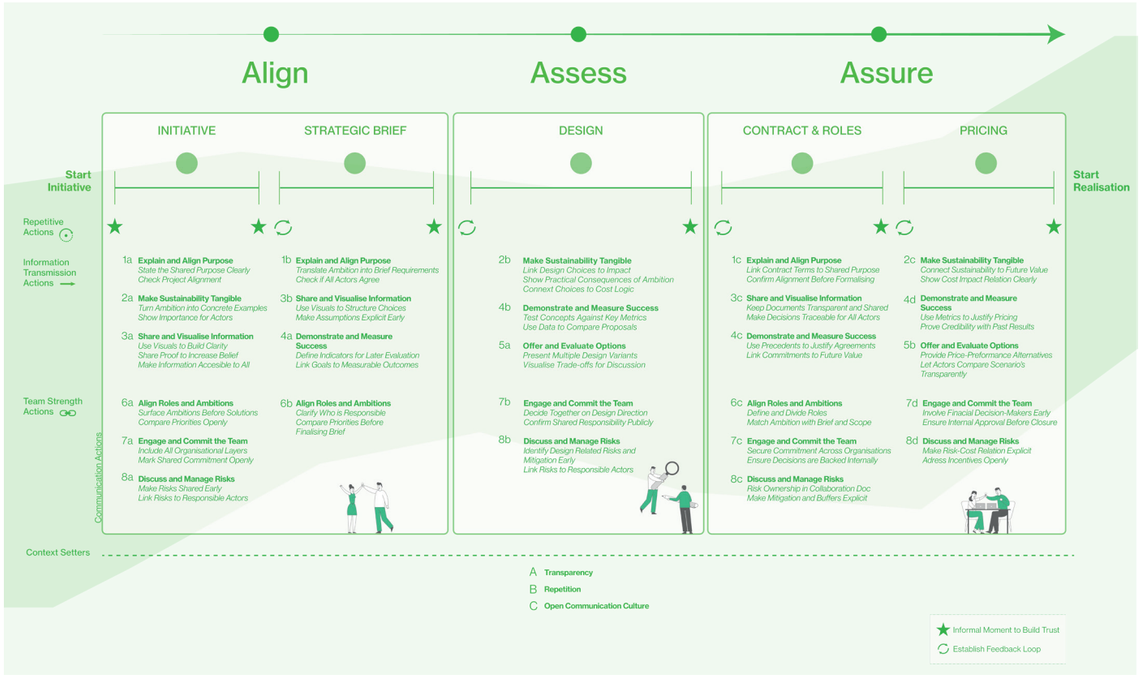

Figure 28. Final Communication Strategy

8.7 Recommendations & Further Research

8.7.1 Academic recommendations

Investigate Interdependencies Between Communication Actions
This research has shown that communication can successfully steer the realisation of sustainable ambitions, yet several unexplored concepts came up through the study. Future research could investigate how the actions, identified in this research, interacts and influence each other. It is likely that certain actions reinforce or even trigger others. Understanding these interdependencies could refine the communication strategy.

Incorporate Multiple Stakeholder Responsibilities in Future Management Strategies
Another direction lies in exploring different stakeholder perspectives. This research studied communication primarily through the lens of the developer, but sustainable ambitions are influenced by multiple actors; designers, municipalities and contractors for example. Each of these hold their own responsibility and future studies could look into how other roles could shape this realisation, creating management strategies from multiple perspectives.

Explore Overlap Across Management Practices and Organisational Levels
This study zoomed in on communication, yet project management involves broader concepts such as negotiation and decision-making (Heurkens, 2012). Examining how these management forms overlap could provide a better understanding of how ambitions are steered. A promising direction for further research lies in examining communication as an underlying managerial layer that operates within negotiation and decision-making processes for example. From this perspective, communication does not have the same function as negotiation or decision-making, but functions as a mechanism through which these practices are executed.

Building on the findings of this study, future research could also differentiate between communicative practices aimed at information transmission and those functioning as speech acts that shape trust, perceived value, and commitment. While the former has been widely examined within technical approaches to negotiation and decision-making, speech acts may offer additional value by highlighting how deeper perspective shifts and relational dynamics influence outcomes.

Explore Prior Conditions
Expanding beyond project scale and study how individual motivation (person level) or strategic business operations (organisation level) influence the same process, could be interesting as well. Further research could explore how intrinsic motivation for sustainability is developed prior to project initiation, and to what extent communication can play a role in this process. While this study indicates that intrinsic motivation functions as a necessary precondition for steering sustainability ambitions, it remains unclear how such motivation emerges and how it might be influenced before formal project structures are established. Future studies could investigate preparatory or organisational communication strategies aimed at shaping perceived value and sustainability-related orientations.

In depth Exploration on Theoretical Concepts
Future research could further explore the relationship between perceived value of sustainability and sustained commitment over time. While this study suggests that perceived value functions as an important motivational condition, the findings indicate that maintaining commitment requires distinct communicative efforts as project dynamics change. Longitudinal or comparative studies could deepen understanding of how these mechanisms interact across different project phases and governance contexts.

8.7.2 Practical recommendations

In current development practice, communication is often approached as an ad-hoc, mostly informative, and as a linear activity. While this approach aligns with traditional risk-oriented management, it offers limited capacity to steer sustainability ambitions in complex, multi-actor projects. The proposed communication strategy addresses this gap by introducing structure, timing, and feedback as core organising principles.

Embed Communication as a Structural and Early Project Practice
From a practical view, the main recommendation is that communication is not ad-hoc, but a structural facilitator from early on. Early alignment and trust-building result into practical performance later in the project and should therefore be implemented as structural practices. Proactive management during the initiative phase creates transparency, shared financial understanding and risk distribution; all crucial for maintaining ambition when tensions arise. By embedding communication structurally from the initiative phase onwards, early alignment and trust-building reduce uncertainty and create shared understanding, which is crucial for stakeholders operating from risk-averse or traditionally conservative perspectives.

Invest in Communicative Project Management and Organisational Awareness
Organisations could therefore invest in structured training on communicative project management about the capacity to manage sustainability through structured dialogue, evidence exchange and reflective coordination. Especially smaller and younger companies that often still rely on ad-hoc responses, rather than prepared and informed communication management. Building a culture of consciousness allows the team to anticipate challenges rather than react to them in their day-to-day operations.

Apply Communication Actions as a Context-Dependent System
Finally, this research underlines that no single action is a standalone solution. The proposed communication actions in the strategy function as interrelated components within a system. Especially in complex and ‘wicked’ problems like sustainable development, solutions work best as sets of actions tailored to a specific moment and challenge within the timeline of a project. The strategy’s strength lies precisely in this system thinking: where value emerges through each action defined, by its connection to others and adjustment per challenge. This aligns with a contingency perspective, which recognises that effective management depends on the specific circumstances at hand rather than the application of universal, fixed methods. Therefore, applying the communication actions as a set and specified in each moment is crucial for success, as their impact is shaped by the unique contextual factors present in each project phase. This system-oriented approach allows communication to function as a stabilising mechanism in uncertain project environments, making sustainability ambitions more manageable for actors used to linear processes.

09
reflection

This reflection is written from three perspectives; role as student, intern and researcher. This red thread is indicated per reflection subject to clarify point of view.

Relation to the MSc Track (Role as student)
During my graduation process, I explored how soft management skills and informal strategies influence the realisation of sustainable ambitions in the construction sector. This interest reflects the “grey” areas of management: where collaboration, communication, and ambition meet practice. Within the MSc track Management in the Built Environment (MBE), I learned to approach construction and urban development as management processes shaped by people, communication, and shared ambitions. My project examined how these informal dimensions can either strengthen or obstruct sustainability goals in a conservative sector. Through this project, I came to see management not as a set of formal instruments, but as a process of shaping conditions under which collaboration, clarity, and commitment can emerge. At the level of the MSc AUBS, my project connects management and design thinking to societal responsibility. It reflects the programme’s ambition to create a more sustainable built environment by focusing on human interaction and organisational learning.

Approach and Methodological Reflection (Role as researcher)
The methodological approach combined different types of data and perspectives to understand management in its real context. The research started with a literature review, which formed the conceptual base of the study. This was followed by a document analysis and interviews to explore both formal and informal dimensions of the process. A workshop with future users was then added to introduce a more practical layer, after which expert validation provided an additional round of reflection and divergence.
This combination proved effective because each method highlight a different aspect of the research question, while the process remained open to adjustment. Working iteratively, shifting between divergence and convergence, was demanding. I often felt the urge to fix conclusions too early, to “finalise” the research as if it were a project plan. I learned that qualitative inquiry does not work that way. Some of the most relevant insights appeared when the process was still open, and ambiguity was uncomfortable. Accepting that research cannot always be managed gave meaning to the connections between data rather than isolated results. Iteration became a learning mechanism that refined both the model and my understanding of research. This experience shifted my understanding of research from a controllable process towards one in which meaning emerges through iteration rather than linear progression.

Reflection on Feedback (Role as student)
Feedback played an important role throughout the process, both from my university mentors and from external experts. Academic mentors helped structure the work, while experts questioned my assumptions often in opposing ways, initially causing confusion. Over time, I learned to see these divergent inputs not as contradictions but as an inherent part of working in a multi-perspective context. Instead of seeking a single “correct” view, I treated feedback as dialogue, deciding what to integrate, what to question, and why. This process strengthened my ability to position my own argument.

Learning from the Process – (Balancing role of researcher, intern)
My dual position as researcher and trainee forced me to move continuously between analytical reflection and practical action. I began the project eager to plan and control every stage, but this conflicted with the open nature of qualitative work. Ambiguity felt unproductive at first. Gradually, I learned to use that uncertainty as a space for thought rather than something to be solved. Taking breaks, stepping back, and re-reading my own work often revealed new connections. The project also became my first real experience in managing a process: planning interviews, structuring data, coordinating feedback, and integrating different methods. This demanded both academic reasoning and a sense of leadership in guiding a non-linear process. From an intern perspective, this was a lesson in dealing with complexity. I experienced that management is less about control and more about creating alignment.
Balancing my roles as intern, student, and researcher proved to be one of the most demanding aspects of this graduation process. Each role carried different expectations: the intern was confronted with organisational dynamics and practical constraints; the student felt the pressure to perform academically; and the researcher sought methodological rigour. At times these roles reinforced each other, but also created tension. Detaching myself to analyse objectively was not always easy. When operating too abstractly as a researcher, I risked losing sight of the organisational realities that shaped the case. The student in me had to learn to navigate these shifts. Over time, this became part of the learning process itself: it taught me to articulate my position clearly, to justify my choices, and to remain transparent about my own influence in the research. This led me to redefine management not as the ability to control outcomes, but as the capacity to create alignment in uncertain and evolving situations.

Academic and Societal Value (Role as researcher)
The research adds to the field of management in the built environment by emphasising informal processes as legitimate mechanisms of influence. It complements existing studies on control and measurement by showing how informal trust and communication underpin measurable outcomes. Methodologically, it shows how the combination of literature, document analysis, interviews, and participatory workshops can reveal these subtleties. Conceptually, it advances the idea of management as an ecosystem: not a sum of discrete actions, but a system where interrelated behaviours, context, and timing together shape outcomes. For developers and change agents in the field of timber

construction, the findings identify critical moments in which sustainable ambitions are at risk, clarify why these moments occur, and show how attitudes and communication can sustain progress. The study also exposes the ethical tensions between sustainability promises and economic or habitual realities. Recognising these frictions helps actors act more consciously rather than defaulting to routine. Finally, this research contributes to broader work that frames management in the built environment as a systemic and relational practice, rather than technical or procedural.

Transferability (Role as researcher)
This research is based on one case study, with a specific chain-partnership of actors: a housing corporation, developer, contractor and architect. The context of timber implementation and the progressive nature of the developer strongly influenced the findings. These conditions make the results less directly transferable to every project, yet they highlight a reality many progressive organisations face. The study helps explain why sustainable ambitions often stagnate in practice and how informal mechanisms, such as communication and trust, contribute to either success or frustration. Its relevance lies in showing the dynamics of an actual case. Rather than offering universal rules, the value of this research lies in translating patterns and mechanisms that may overlap with similar contexts.

Looking Ahead (Role as intern and student)
This process reshaped how I see my professional role: ambiguity can be constructive if handled consciously. Sustainable progress depends on openness and collaboration across disciplines and perspectives, even when this creates friction. In my future work, I want to continue operating at the intersection of different disciplines: connecting people and ideas. I value honesty and transparency, especially in contexts where ambitions can easily drift away from real impact. For me, responsible management means creating the conditions for alignment, not perfection. I have learned that sustainable change rarely happens through one decisive action, but through many small, connected steps that together make a difference. Aligning people, perspectives and commitment over time.

Self-Identified Reflection Questions
Perspective of researcher: How can a researcher balance the need for structure and clarity with the openness required in qualitative inquiry?

This project showed me that iteration and uncertainty are not signs of failure but opportunities for depth. By acknowledging ambiguity while still moving toward a converging conclusion, the research gained more substance and realism.

Perspective of intern: What does it take for a manager to act ethically in an environment that often rewards speed and compromise?

Ethical action in management is rarely about making one moral choice, but about remaining conscious of intentions while managing complexity. In practice, it requires honesty, self-reflection, and courage to prioritise long-term value over immediate efficiency. I learned that integrity in management is not a static quality but a continuous act of balancing, between what is possible, what is expected, and what is right. Sometimes small steps towards the right direction are preferred over strictly sticking to one goal and not achieving anything.

In conclusion; this thesis taught me that managing sustainability is less about steering outcomes, and more about designing conditions in which alignment and commitment can emerge over time.

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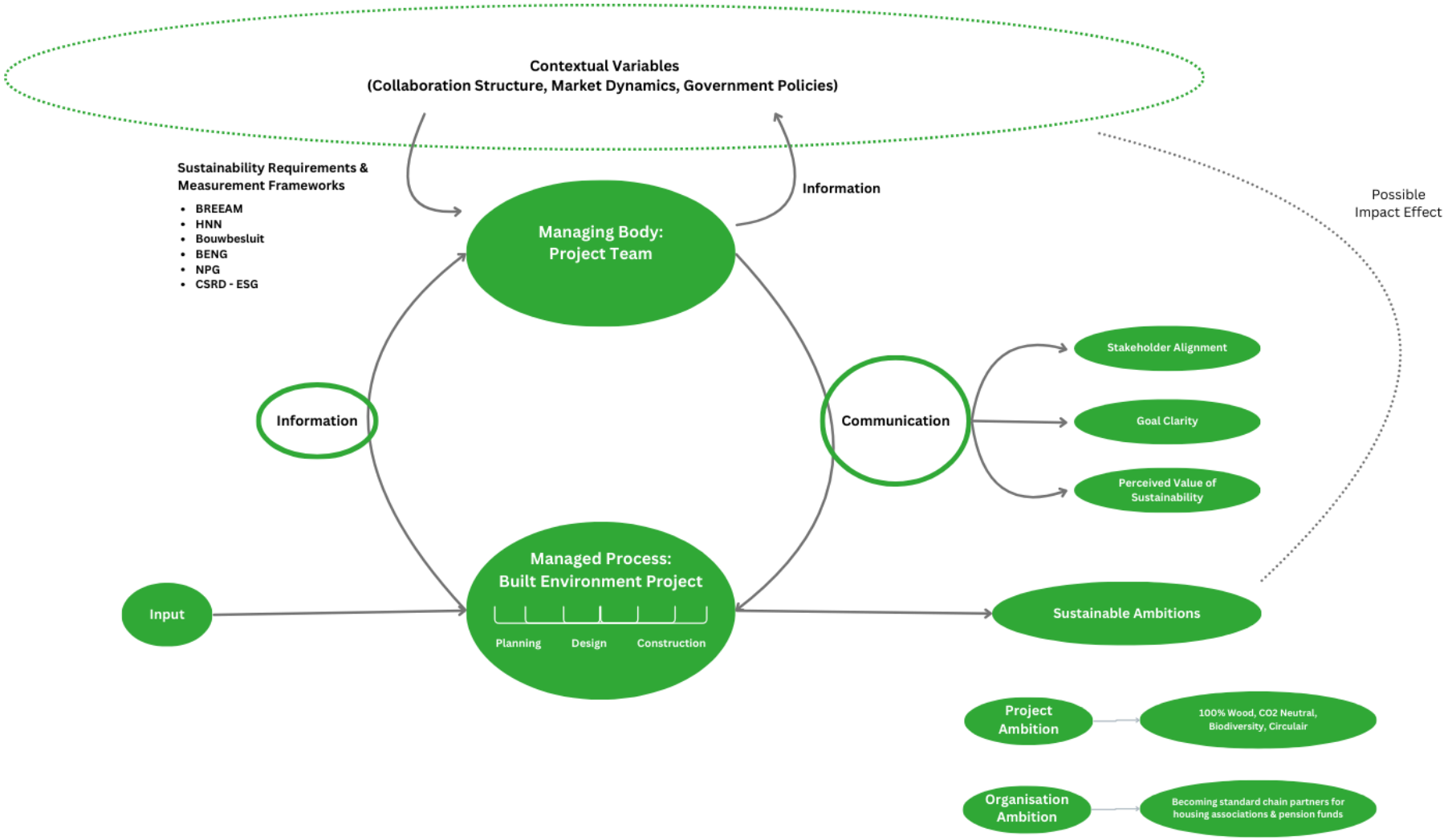
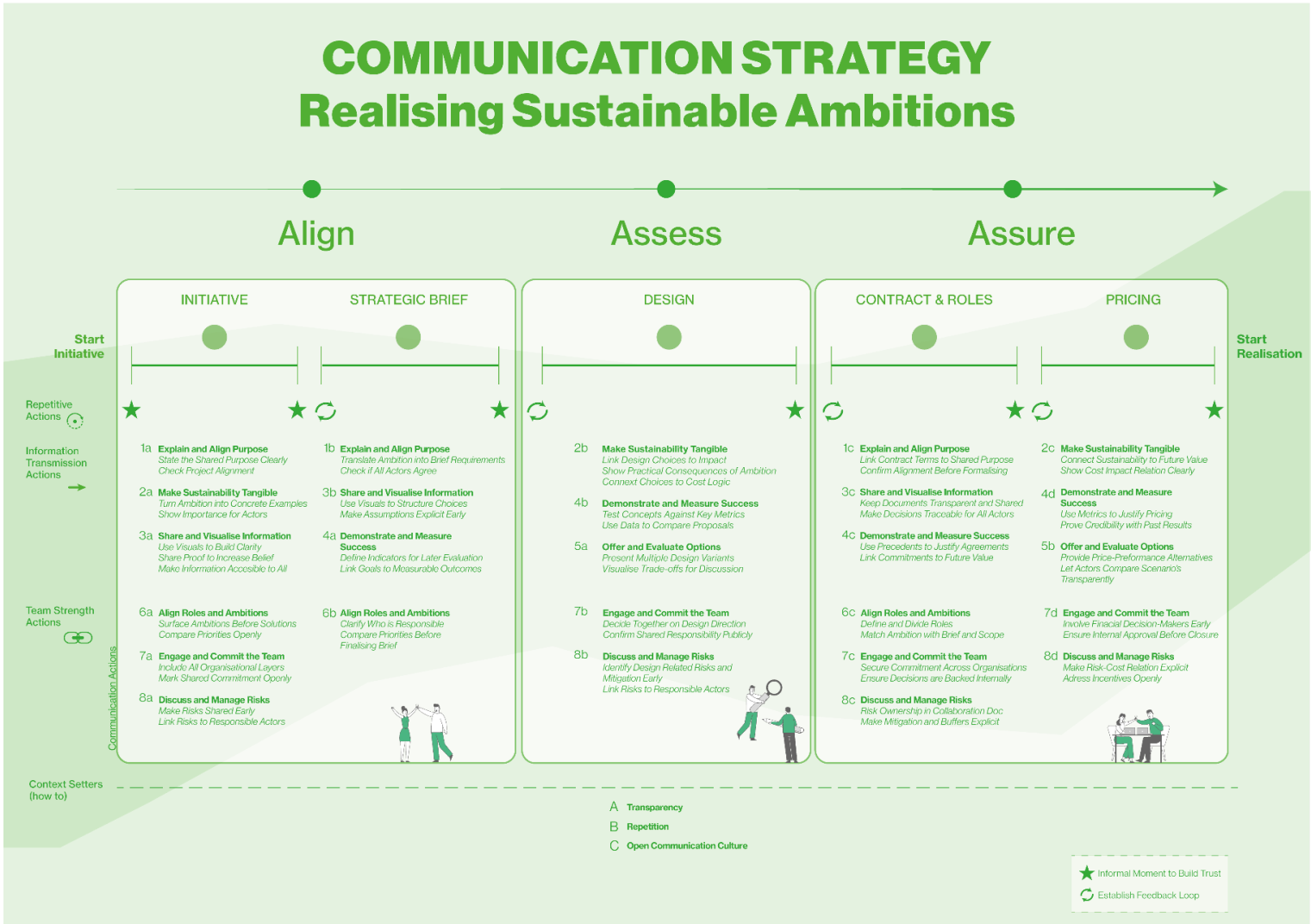
appendix
A t/m I

Appendix A1: Contextual Model



Appendix A2: Final Strategy



Appendix B: Literature Research Approach

Elaboration Literature Research

The goal of this first research question is to find broad supported theories which define different themes within the main concepts of this research. The primary sources of evidence will be scientific or academic research and papers, articles, news reports. It provides the theoretical foundation for understanding the relationship between communication and measurable outcomes. This ties directly to the "how" in the main question, focusing on theoretical insights into:

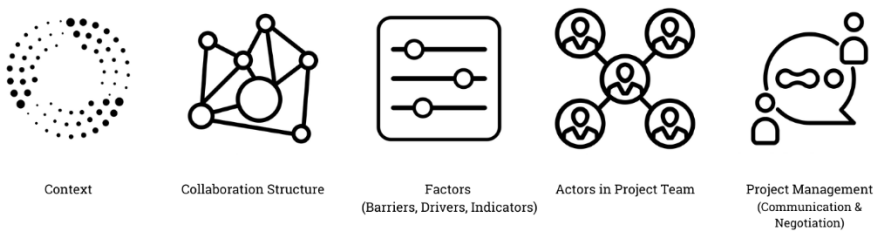
- How communication strategies help define measurable sustainability ambitions and align stakeholder interest.
- How communication processes help execute the ambitions during the process with quantifiable outcomes and solve stakeholder conflicts.

This theory study is crucial when executing this research. To do field analysis, form opinions, draw conclusions and even offer solutions to some extent, there must be some form of background knowledge on which these concepts are based. Otherwise, this research could not claim to be academic and the conclusion lacks credibility. The existing theory will be compared, looking for differences and similarities. This results in a base to build the research up; a conceptual model, which will be tested during the empirical part; an explorative case-study. The method for this sub question is therefore an extensive, systematic review of former studies to construct a cohesive, theoretical background and establish what has happened yet in this field of research.

Methodology of Literature Review
This reviews identifies 5 main themes as:

- Ambitions in Area Development
- Collaboration Strategies and Tender Structures
- Factors in Maintaining Sustainability
- Stakeholder Management and -Tensions
- Project Management as Tool

It starts with the general context (area development, ambitions) and works towards specific topics (strategies for niche developers). Each topic builds on the previous one, creating a logical sequence:



The 5 Main Themes of Literature Studies (Bourgonjen, 2025)

The main question revolves around realising progressive sustainability ambitions. This sequence helps to systematically explain what the challenge is, what influences these interactions, and how a solution could be offered. It works with keywords and their synonyms. Per identified main theme a describing code is set up using these keywords. Each code has its own unique set of keywords which aim to provide research within the searched theme. By constructing a code which consists of these keywords, their synonyms and the link words ‘AND’ and ‘OR’, a comprehensive search query will cover all findable research within each of

the main 5 themes. The used keywords, their synonyms and eventual search query are listed in table 1. and table 2.

Concept 1.	*Built Environment*			
Concept 2.	*Sustainability*	*Environmental*		
Concept 3.	*Ambitions*	*Goals*		
Concept 4.	*Realisation*			
Concept 5.	*Urban Development*	*Urban Planning*		
Concept 6.	*Factors*	*Drivers*	*Barriers*	*Indicators*
Concept 7.	*Stakeholder*	*Conservative Stakeholder*	*Stakeholder Management*	
Concept 8.	*Collaboration*	*Partnership*		
Concept 9.	*Tender Structure*	*Procurement*	*Contracting*	*Chain Partner*
Concept 10.	*Dutch*			
Concept 11.	*Project Management*			
Concept 12.	*Measurement*			

Table 1. Concepts & Synonyms Identified in this Research

Code 1.	*"Built Environment" AND "Sustainability" OR "Environmental" AND "Ambitions" OR "Aspirations" OR "Goals" AND "Realisation" AND "Urban Development" OR "Urban Planning"*
Code 2.	*"Built Environment" AND "Collaboration" OR "Partnership" AND "Urban Development" OR "Urban Planning" AND "Tender Structure" OR "Procurement" OR "Contracting" OR "Chain Partner" AND "Dutch"*
Code 3.	*"Built Environment" AND "Sustainability" OR "Environmental" AND "Factors" OR "Drivers" OR "Barriers" OR "Indicators" AND "Realisation" AND "Urban Development" OR "Urban Planning"*
Code 4.	*"Built Environment" AND "Sustainability" OR" Environmental" AND "Stakeholder" OR "Conservative Stakeholder "OR" Stakeholder Management" OR "Stakeholder Engagement"*
Code 5.	*"Built Environment" AND "Sustainability" OR "Environmental" AND "Project Management" AND "Realisation" OR "Execution" OR "Implementation" AND "Measurement"*

Table 2. Used Search Queries per Theme

This search query is put into Scopus and to focus this literature a little further, the subject area is set to 'Engineering', 'Environment Science' and 'Business, Management and Accounting'. Recent news and certain trends about this subject happening in the last years will only be selected if existing in Dutch context. After the first outcome of sources, the abstract of all papers is examined and classified on relevance. The purpose of this filtering is to neutralise possible wrong outcomes of the search query and thereby achieve a good base of literature. This last selection will then be read through and possible findings may be used in the literature review of this research. All literature and its examination notes will be tracked in the Zotero software. Additionally, the literature collected at this stage provided an initial basis of themes and insights, which were further expanded upon through a snowball effect. As more papers are analysed, additional relevant research is identified, contributing to the breadth and depth of the literature base. This iterative process allows the study to refine its focus and continuously incorporate new insights, ensuring a comprehensive understanding of the subject matter. After collecting all research and going through it, the papers are classified in terms of relevance. This part of the research will finish with a conceptual framework which lays out the base for the rest of the research. Within this deductive framework the specific case-study is examined and the interviews are set up. Open for other input, the study moves from theory to data abductively. In total, 77 papers were examined during this study of former research. The table below provides an overview of the distribution of papers across these themes. This categorization helps ensure a structured and well-founded literature review.

Appendix C: Case Materials

Appendix C1 – Case Selection

Possible Cases

1. SAWA, Rotterdam

This project is a residential development located in Rotterdam's Lloydkwartier district. The project aims to demonstrate how circular and climate-adaptive principles can be fully integrated into the built environment, particularly through its wooden structural design. Interestingly, the project is being realised in collaboration with a private investor with a shared sustainability perspective. SAWA comprises approximately 100 dwellings, with a significant portion allocated to mid-segment rental housing. Sustainability ambitions go beyond energy performance and include biodiversity, community building, and healthy urban living. The project has received multiple design and sustainability awards, reinforcing its role as a frontrunner in progressive real estate development.

2. Appelaar, Geldrop

The Appelaar site in Geldrop is a redevelopment project led by a housing corporation active primarily in the Eindhoven region. The plan involves the demolition of 82 existing dwellings and the construction of approximately 155 new apartments, distributed across three timber buildings with green inner courtyards. The project is situated in a semi-urban context and offers potential for integrated sustainability measures. Participation will take place on multiple topics and in different phases. Demolition participation, already initiated by the client through another department, focuses purely on the demolition process. Participation preparations are ongoing and are expected to start at the time of the research internship.

3. Franz Leharstraat, Rotterdam

The Franz Leharstraat project in Rotterdam concerns the transformation of an existing care facility into care studios, complemented by social and mid-market rental housing. The redevelopment will result in approximately 104 apartments within a single building, featuring rooftop gardens. The project is located in a socially vulnerable area, which may increase the likelihood of resistance from the local community. Given the project's combination of a sensitive target group and potential community concerns, it offers a valuable opportunity to examine stakeholder interaction, alignment processes, and the influence of early-phase communication on the prioritisation of sustainability.

4. Sectie C, Eindhoven

Sectie C is a post-industrial site in Eindhoven that has been partially acquired by an investor, with parts of the location being developed under the initiative of the investing partner of Nice. Although the initiative embraces sustainability as a central theme, its implementation has proven challenging. The original progressive ambitions appear to be diluted, due to the fragmented ownership structure and the surrendering of decision-making power to external stakeholders. Nice Developers is involved in this site but struggles to take a leading role due to limited control. Other stakeholders, including co-owners, may prioritise different values, complicating alignment and management of long-term sustainable outcomes.

Evaluation Table

Table 10. shows the four cases and their alignment to the defined selection criteria:

Case	1. Urban Context	2. Stakeholder Diversity	3. Nice + Concept	4. ≤5 yrs	5. NL	6. Conservative Party	7. Front-End Focus
SAWA, Rotterdam	✓ Urban district	✗ Limited diversity	✓ Yes	✓	✓	✗ Limited conflict	✗ Delivered
Appelaar, Geldrop	✓ Urban	✓ Multiple parties	✓ Yes	✓	✓	✓ Likely	✓ Starting
Franz Leharstraat, Rotterdam	✓ Urban	✓ Multiple parties	✓ Likely	✓	✓	✓ Yes	✓ Starting
Sectie C, Eindhoven	✓ Urban site	✓ Multiple parties	✗ Unclear	✓	✓	✓ Yes	✗ Not Yet Started

Table 10. Evaluation Table Selection Criteria

Justification

Based on the selection criteria, the Appelaar project in Geldrop was chosen as the case study. It is the only case that meets all seven criteria without uncertainty. The project takes place in a semi-urban context, involves multiple stakeholders with differing priorities (including a housing corporation, construction company, municipality, and Nice Developers), and applies the Nice Concept. As it is currently in the front-end phase, with participation processes beginning during the research period, it allows direct observation of ambition-setting and negotiation.

Alternative cases were considered but found less suitable. Franz Leharstraat (Rotterdam) was a strong candidate, but its focus on care studios introduces added complexity from healthcare regulations and accessibility requirements, shifting attention away from sustainability. SAWA (Rotterdam) was excluded due to limited stakeholder conflict, reducing opportunities to study communication between progressive and conservative actors. Sectie C (Eindhoven) was not selected because it is beyond the optimal front-end phase and Nice Developers' influence is limited. Therefore, Appelaar, Geldrop offers the most suitable context to examine how communication and negotiation strategies can safeguard and realise sustainability ambitions in real estate development.

Appendix C2 – Five Main Ambitions Nice Developers

1. Climate Friendly

Thanks to wood construction and the use of biobased and recycled materials, NICE Buildings have a lower footprint and save CO2 instead of emitting. In doing so, the NICE Buildings make a positive contribution to the climate.

2. Socially inclusive

By uniting diverse income groups in a mix of affordable housing in the social and middle rental segment and free-sector housing, NICE contributes to a socially inclusive society. as. In addition to the housing offer, the emphasis is on community facilities to encourage encounters between residents and local residents, contributing to mutual responsibility and loneliness prevention.

3. Promoting biodiversity

By developing green buildings, we contribute to improving biodiversity. By incorporating abundant and appropriate selection of plants and nesting boxes into the building, NICE Buildings provide safe shelter and food for insects and birds.

4. Future-proof and circular

The NICE Concept is based on the principle of "open construction": a flexible system of columns and beams, creating maximum freedom of layout and making the buildings adaptable in the future. Moreover, the concept is circular: the buildings are demountable, allowing the materials to be reused in the long term.

5. Feasible and fast

Building in wood offers opportunities for a fundamental change in the development and construction chain, allowing the NICE Concept to be faster and competitive compared to traditional (concrete) construction. (Nice Developers, 2025)

Appendix C3 – Elaboration Case Selection Criteria

1. Urban Development Context

As established in the literature review, a project always operates within a specific urban development context. Recognising its connection to a broader system—rather than viewing each project as an isolated entity—is essential for effectively implementing sustainable ambitions.

2. Stakeholder Diversity and Data Availability

The selected case must involve a diverse range of internal and external stakeholders, as differing opinions, perspectives, and interpretations of sustainability are a crucial factor in its realisation. In addition, sufficient data must be available, and stakeholders must be willing to participate in interviews, ensuring robust and reliable analysis.

3. Involvement of a More Conservative Party

A significant challenge in realising sustainable ambitions is the need to shift perspectives on this topic. This process is particularly relevant when more conservative parties -such as housing corporations or pension funds- are involved, as changing their stance can have a notable impact. Including such a party increases the realism and applicability of the research findings.

4. Focus on the Front-End Phase of the Project

The front-end phase plays a decisive role in determining how ambitions are realised in later stages, as supported by the literature review. The study will therefore examine how ambitions are shaped immediately before realisation, with particular attention to the role of communication in achieving these ambitions.

5. Project by Nice Developers Incorporating the Nice Concept

The case must be a project developed by Nice Developers in which the Nice Concept is applied. This ensures direct relevance to the internship context and alignment with the company's broader ambitions.

6. Initiated Within the Last Five Years

The empirical component of this research requires a recent case to ensure the applicability of conclusions drawn from the literature review. Older cases would risk producing results that are unreliable or unrealistic.

7. Located in the Netherlands

Given that the majority of the literature reviewed is based on the Dutch context—including a dedicated section on Dutch projects and systems—the case must be located in the Netherlands to ensure a coherent link between the literature, the conceptual model, and the empirical findings.

Appendix C4 – Detailed Ambitions SO Booklet Appelaar

The booklet also provides a more detailed overview of the objectives of various topics within sustainability:

Climate and Materials

- Paris Proof (embodied carbon) until 2029. 149 kg CO2e/m2 BVO as estimation of material-bound emissions
- MPG: 0.297
- Circularity / bio-based:
    - wooden main supporting structure
    - re-use of existing buildings as dry ballast in floors, biobased façade construction (wood fibre board, clay, straw panel), reused hardwood decking/azobé
    - dismountable construction
    - open floorplan

Energie

- BENG-results (SO):
  - BENG 1 = 69,97 kWh/m²jr
  - BENG 2 = 37,20 kWh/m²jr
  - BENG 3 = 65,4%

Greenery, Biodiversity & Heat

- Biodiversity as facade- and roof strategy:
  - nest boxes/bee hotels, three-layer principle (grass-hedge-tree), roof substrate + irrigation, façade greenery on growing wires from open ground
- Green space requirements:
  - ≥200 m² of cool green space accessible to the public within 100 m of the entrance.
  - ≥8 m² of green space per new home to be added on own property.
  - Compensation for lost green space: total of 3,126 m² to be added (576 m² in connection with 8 m²/new home + 2,550 m² compensation for green courtyards).
  - Conclusion of feasibility study: requirements are met via 3× courtyard gardens (each ~730 m² usable green space = 2,190 m²) + ~936 m² roof greenery (actually ~3,000 m² available).

Water

- Roof retention:
  - 60 l/m² over entire roof surfaces (excluding galleries/bicycle parking) ⇒ approx. 57 m³ (example calculation 950×60 l).
- Inner gardens/ground level:
  - wadi capacity ~84 m³ (per courtyard) with 30 cm storage, area ~280 m²

Social Inclusion

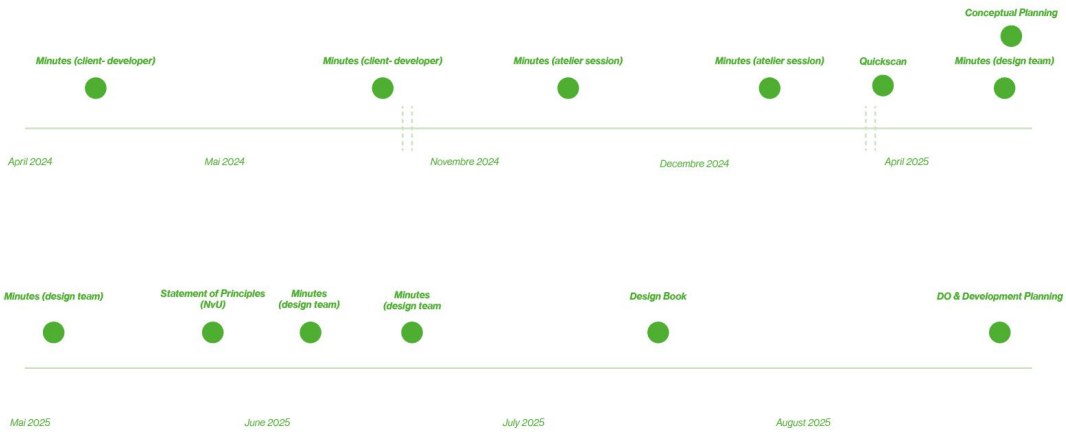
- Program:
  - 155 apartments within 3 buildings
  - 100% social rent
  - 20 – 30% seniors
  - 10% studios (students)
- common area (plinth) communal indoor gardens (possibly vegetable garden/bee garden)

Context and restrictions

- No ‘welstand’ – requirements
- Mill biotope ‘t Nupke (range of 400m)
  - building height/volume limited influence on wind exposure
- Possible protected species
  - Bats
- Imbalance in neighbourhood development
  - Need for social resilience
- No municipal budgets for redevelopment of public (green) space

Appendix C5 – Document Overview

Analysed Documents



Overview of Analysed Documents through time

Doc ID	Type	published
Doc-A01	Minutes (client-developer)	2024-04-12
Doc-A02	Minutes (client-developer)	2024-05-29
Doc-A03	Minutes (atelier-external)	2024-11-18
Doc-A04	Minutes (atelier-external)	2024-12-16
Doc-A05	Quickscan	2025-04-01
Doc-A06	Minutes (design team)	2025-04-24
Doc-A07	Conceptual Planning	2025-04-25
Doc-A08	Minutes (design team)	2025-05-08
Doc-A09	Statement of Principles	2025-05-22
Doc-A10	Minutes (design team)	2025-06-05
Doc-A11	Minutes (design team)	2025-06-19
Doc-A12	Design Book (SO)	2025-07-17
Doc-A13	Planning	2025-08-22

Table X. Overview of Analysed Documents through time

Appendix C6 – Process retrieved from Documents

Q2 2024

The client (housing corporation) and developer started talking, defined their approach to the municipality and planned participation after feasibility and decided to brief the tenants' committee first. Visual products were prepared for a municipal meeting in June 2024. The client took the lead on ecological and planning inputs and the developer planned on integrating these in the cost estimates.

Actions

- Alignment of Actors: client, developer and municipal interfaces
- Active Information Sharing: briefing route, materials, minutes
- Visualisation: 3D model and drawings
- Performance Measurement: estimate inputs, measurable ambitions

Mediating Variables

- Goal Clarity: process and approach
- Stakeholder Alignment: clear roles and timing
- Perceived Value of Sustainability: early visual sense-making & proof of former project

Sources : Doc-A01 (2024-Q2); Doc-A02 (2024-Q2).

Q4 2024

An external office registered a lower allowance in building height. This made the team make a new variant analysis which would be shared with the municipality to get approval. Technical norms on the project were also created: a transformer footprint (~30 m²) and ≥ 8 m² of on-plot green per dwelling (including green roofs/facades).

Actions

- Risk Mitigation: permit and external influences
- Alignment Actors: persuasion municipality and heritage interfaces
- Active Information Sharing: making analysis accessible for everyone
- Resolution of Conflict : height vs. massing

- Performance Measurement: norms for space and green

Mediating Variables
- Goal Clarity: tightened design scope
- Stakeholder Alignment: early municipal involvement

Sources: Doc-A04 (2024-Q4); Doc-A05 (2024-Q4)

Q2 2025
The design team kick off meeting took place after the quick scan was delivered and formalised the roles and deliverables per advisor so the SO-package. A tender between different chain-partners of the housing corporation was organised and a construction partner joined the chain. A decision on the variant, type B, was made, which fixed parking norm as a binding constraint (160 units). Technical specifications also progressed: three CLT options with a preference for on-grade foundation (CO_2) were both costed; the HBS (parking/green/water-retention) was reviewed with the municipality in June 2025; the utility was engaged on all-electric feasibility, PV area, and net congestion.

Actions:
- Alignment Actors: kick-off governance, municipal/utility alignment
- Active Information Sharing: deliverables, exchange on HBS
- Alignment Project: Variant B, PVE linkage
- Performance Measurement: BENG/PPI/noise/costs, costed structure options, HBS metrics
- Risk Mitigation: nitrogen go/no go, grid capacity

Mediating Variables:
- Goal Clarity: norm-anchored choices
- Stakeholder Alignment: municipal/utility coordination, kick-off
- Perceived Value of Sustainability: costed CO_2 scenario's, comfort

Sources: Doc-A07 (2025-Q2); Doc-A09 (2025-Q2); Doc-A10 (2025-Q2); Doc-A011 (2025-Q2)

Q3 2025
Feasibility phase was completed with a SO design book as finished product. This booklet consisted of quality requirements (wooden construction, biodiversity, area of green, zero-threshold) and clients ambitions. External research is also concluded in this paperwork to minimise risk from external influencing factors. The concept planning specifies market conformity checks in August 2025, preparation for internal approval and an anterior agreement, and scheduled participation strategy with an initial public moment. To reach the Beethoven subsidy, in which the client is very interested, a start realisation deadline is now fixed at Q4 2027.

Actions
- Alignment Project: programme/quality coherence SO, anchoring municipal access, two-sided orientation
- Performance Measurement: market conformity review, SO+/businesscase as decision package, requirements SO as testable criteria
- Alignment Actors: repetition of 'afstemmingsmomenten', preparation for STIKO/approval; anterieure OVK, final SO alignment meeting
- Active Information Sharing: notes, final SO alignment meeting scheduled; information regarding participation shared actively
- Risk Mitigation: reiteration of design regarding external risk, preparation for STIKO/approval, meetings on discussion of budget

Mediating Variables

- Goal Clarity: Codified SO quality requirements, explicit municipal criteria, Market Conformity gate. STIKO/approval preparation with defined inputs
- Stakeholder Alignment: Scheduled “Afstemmingsmomenten”, anterieure OVK trajectory, participation strategy timing and set up.
- Perceived Values of Sustainability: Participation strategy (audiences, timing) to frame benefits for neighbourhood, Market Conformity as viability/value check for proposed solutions (STIKO).

Sources : Doc-A12 (2025-Q3); Doc-A13 (2025-Q3)

Appendix C7 – Deductive Action Analysis (Documents)

9.1.1 Effect of observed actions

Across the analysed documents, the most consistently evidenced actions are Alignment Actors, Active Information Sharing, Performance Measurement, and, when exposure increases, Risk Mitigation. Table X. shows an overview of the effect.

Action	Mediating Variable	Elaboration	Sources
Alignment of Actors	Goal Clarity and Stakeholder Alignment	Alignment across primary and secondary stakeholders reduced possible conflict and clarified external constraints. This prepared Variant B acceptance and SO consolidation.	Doc-A01; Doc-A02; Doc-A04; Doc-A06; Doc-A11; Doc-A12; Doc-A13
Active Information Sharing	Perceived Value and Stakeholder Alignment	These two direct actions often occur together and also support each other in improving communication. The factor ‘evidence of success’ also appears often as a connection. Early 3D-visuals during municipal meetings, shared analysis and up-to-date information sharing create transparency throughout the process and kept everyone informed and thus involved.	
Performance Measurement	Goal Clarity and Perceived Value	The documents show a systematic use of BENG/PPI/noise/m2green with different calculated options. This informed all stakeholders but also made the aware of the effect, so increased perceived value of sustainability. HBS metrics helped translating sustainability into decision-grade evidence.	Doc-A02; Doc-A04; Doc-A07; Doc-A13
Risk Mitigation	Perceived Value	This direct action helps protecting the feasibility boundaries and mostly comes forward in the process as minimizing external risks. This appears in subjects like Nitrogen and grid capacity. Risk mitigation between stakeholders involving sharing risks when trying new innovative building methods are discussed, but clear agreements are not yet made in this stage of the project.	Doc-A08; Doc-A11; Doc-A09
Alignment of Project	Goal Clarity	This action often appears in the process when combines with ‘alignment of actors’. Variant B and the noise scenario approach translated external constraints into internal design commitments while keeping the sustainability target clear.	Doc-A08; Doc-A01; Doc-A012
Evidence of Succes	Perceived Value	This factor demonstrated feasibility of the set goals during the project. Mentioning an already succeeded project is the base for the construction and sustainability goals. CO_2-motivated	Doc-A10; Doc-A07

		foundation preference was costed (proof of effect), while visuals and existing projects supported legitimacy throughout the meetings.	

Table X. Observed Actions Document Analysis

9.1.2 Underused Actions

Feedback Loops

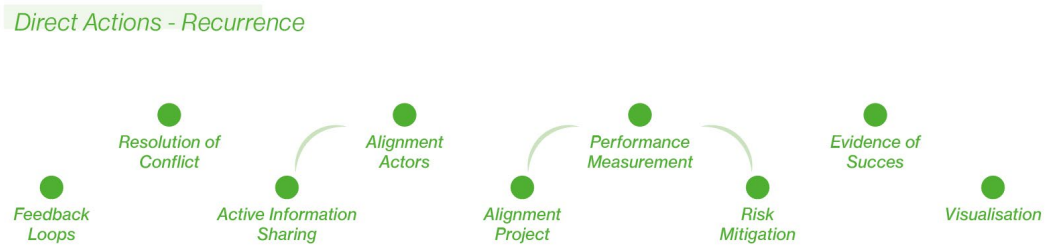
This factor is under specified in the documents. Meetings itself are in a loop-structure, but content not really. There are no signs in the reports of making decisions as a team and later looking back on how it went. Feedback documents are not delivered during the process. Iteration is implicit via the team meetings and go/no go moments. (Doc-A06; Doc-A08; Doc-A10; Doc-A011; Doc-A13).

Resolution of Conflict

This action is more situational and ad-hoc applied when necessary than as a broad protocol during the whole process. It comes forward a little bit in notes on height and nitrogen, but there is no main approach on conflict documented. (Doc-A10; Doc-A07)

9.1.3 Interdependence of Actions

Two consistent pairings emerge across events. Active Information Sharing often coincides with Alignment Actors (7 events), showing that disclosures such as analyses or visuals occur within alignment moments rather than separately. Alignment Project frequently co-occurs with Performance Measurement (e.g., Variant B linked to norms or noise scenarios tied to PVE), indicating that design choices are typically measurement-based. A smaller pattern appears between Performance Measurement and Risk Mitigation, where checks on BENG, cost, or noise align with nitrogen or grid constraints.



Appendix D1: Interview Materials Process

Appendix D1 – Information regarding the interview

Informatie voorafgaand aan het interview

Algemene informatie

Onderzoek	Masterscriptie naar *"The realisation of sustainable ambitions through improved communication."*
Universiteit	Technische Universiteit Delft
Master	Management in the Built Environment
Onderzoeker	Isis Eva Sophia Bourgonjen

Alle aspecten van deelname aan dit onderzoek voor u als ondervraagde worden in deze informatiebrief toegelicht.
Na het lezen hiervan wordt u vriendelijk verzocht het geïnformeerde toestemming formulier in te vullen. Mocht u nog vragen of opmerkingen hebben, dan hoor ik dat graag.

Het onderzoek

U wordt uitgenodigd om deel te nemen aan een onderzoek genaamd 'Realising Environmental Sustainability Ambitions in Built Environment Projects', door middel van een interview. Dit onderzoek wordt uitgevoerd door Isis Bourgonjen, masterstudent aan de Technische Universiteit Delft, in samenwerking met Nice Developers B.V. De bouwsector staat voor grote uitdagingen als het gaat om duurzaamheid. Hoewel er ambitieuze duurzaamheidsdoelen worden gesteld, blijkt het in de praktijk vaak lastig deze doelen ook daadwerkelijk te realiseren. Dit wordt mede beïnvloed door de samenwerking en afstemming tussen verschillende belanghebbenden, zoals projectontwikkelaars, investeerders en publieke partijen. Vooral *communicatie* speelt hierbij een cruciale rol in 'soft management strategieen'. Dit onderzoek richt zich op het ontwikkelen van een communicatie- en onderhandeling strategie om duurzaamheidsambities beter te realiseren, zowel op individueel, project- als organisatieniveau. Het doel is om te achterhalen hoe communicatiestrategieën kunnen bijdragen aan het bereiken van meetbare duurzaamheidsdoelen, en hoe samenwerking tussen progressieve en conservatieve stakeholders hierin verbeterd kan worden. De bevindingen zijn gebaseerd op een literatuurstudie, case analyses en interviews met betrokken stakeholders.

Het doel van het interview is om uw ervaringen, inzichten en standpunten rondom *communicatie* en *samenwerking* in projecten te verzamelen. Deze vertalen zich namelijk naar overeenstemming met belanghebbenden, duidelijke doelen en waargenomen waarde van duurzaamheid. Het interview zal ongeveer 60 minuten in beslag nemen. U wordt gevraagd om vragen te beantwoorden over onderwerpen zoals duurzaamheidsambities, besluitvorming, samenwerking tussen stakeholders, en communicatieprocessen. Tijdens het interview wil ik uw inzichten verzamelen over acties die mogelijk invloed hebben op het behalen van deze duurzame ambities. Uw deelname aan dit onderzoek is volledig vrijwillig, en u kunt zich op elk moment terugtrekken zonder opgaaf van reden. Alle gegevens die tijdens het interview worden verzameld, worden anoniem verwerkt en uitsluitend gebruikt voor dit onderzoek. De resultaten van het onderzoek kunnen bijdragen aan praktische aanbevelingen voor het verbeteren van communicatie- en samenwerkingsstrategieën in duurzame bouwprojecten.

Met vriendelijke groet, Isis Bourgonjen

Appendix D2 – Informed consent

Naar aanleiding van uw positieve reactie om deel te nemen aan dit onderzoek, vraag ik u om onderstaande ‘geïnformeerde toestemming’ te ondertekenen. Dit doen we zodat u zeker weet dat we vertrouwelijk omgaan met uw gegevens en antwoorden. Wij maken een algemeen en anoniem verslag over de ervaringen van meerdere betrokkenen bij het project. Uw antwoorden in dit onderzoek zullen naar ons beste vermogen vertrouwelijk blijven. We zullen eventuele risico's minimaliseren door de audio-opnames te vertalen naar geanonimiseerde transcripten. Deze transcripten worden opgeslagen op de beveiligde Project Storage van de TU Delft. De geluidsopnamen worden na transcriptie verwijderd. Uw deelname aan dit onderzoek is geheel vrijwillig en u kunt zich op elk moment terugtrekken. Het staat u vrij om vragen achterwege te laten. Als u uw antwoorden wilt intrekken, kunt u dit binnen 30 dagen doen. Voor overige vragen of opmerkingen kunt u gebruik maken van onderstaande contactgegevens van de onderzoeker.

Als u vragen heeft over dit onderzoek, kunt u contact met mij opnemen (Isis Bourgonjen) via de volgende kanalen: i.e.s.bourgonjen@student.tudelft.nl en +316 -- -- -- --. Ook kunt u contact opnemen met de verantwoordelijke professor Erwin Heurkens (Technische Universiteit Delft, E.W.T.M.Heurkens@ tudelft.nl).

Met vriendelijke groet,
Isis Bourgonjen

Vul de antwoorden in die op u van toepassing zijn

	Ja	Nee
A: Algemene deelname aan het onderzoek		
1. Ik heb de onderzoek informatie van [XX/XX/2025] gelezen en begrepen, of deze is mij voorgelezen. Ik heb vragen kunnen stellen over het onderzoek en mijn vragen zijn naar tevredenheid beantwoord.	☐	☐
2. Ik geef vrijwillig toestemming om deel te nemen aan dit onderzoek en begrijp dat ik kan weigeren vragen te beantwoorden en dat ik mij op elk moment, zonder opgaaf van reden, uit het onderzoek kan terugtrekken.	☐	☐
3. Ik begrijp dat deelname aan het onderzoek gepaard gaat met: [een audio-opname van het interview en schriftelijke aantekeningen zullen worden gemaakt door de interviewer. De audio-opname zal worden getranscribeerd en alleen de geanonimiseerde transcriptie zal worden gebruikt in het onderzoek].	☐	☐
4. Ik begrijp dat het onderzoek zal eindigen nadat het onderzoek is gepubliceerd in februari 2026.		
5. Ik begrijp dat deelname aan het onderzoek de volgende risico's met zich meebrengt: mentaal ongemak in het geval van gevoelige proefpersonen. Ik begrijp dat deze worden beperkt door de mogelijkheid om het interview op elk moment te stoppen.	☐	☐
6. Ik begrijp dat deelname aan het onderzoek ook het verzamelen van specifieke persoonlijk identificeerbare informatie met zich meebrengt, met het mogelijke risico dat mijn identiteit wordt onthuld.	☐	☐
7. Ik begrijp dat de volgende stappen zullen worden ondernomen om de dreiging van een datalek te minimaliseren en mijn identiteit te beschermen in het geval van een dergelijke	☐	☐

inbreuk: anonimisering van transcript; beperkte toegang tot gegevens; veilige gegevensopslag en verwijdering van opnames na transcriptie.		
8. Ik begrijp dat over mij verzamelde persoonlijke informatie die mij kan identificeren, zoals [bijv. mijn naam, leeftijd, geslacht, studiefase of waar ik woon], niet buiten het onderzoeksteam zal worden gedeeld.	☐	☐
9. Ik begrijp dat de (identificeerbare) persoonlijke gegevens die ik heb verstrekt, zullen worden vernietigd na transcriptie van de audio-opnames	☐	☐
C: Publicatie van onderzoek		
11. Ik ga ermee akkoord dat mijn antwoorden, meningen of andere input anoniem geciteerd kunnen worden in onderzoeksresultaten.	☐	☐

Handtekeningen

Naam Deelnemer	***Handtekening***	***Datum***

Naam Onderzoeker	***Handtekening***	***Datum***

Voor vragen, onderzoeksgegevens of nadere informatie, kunt u een e-mail sturen naar i.e.s.bourgonjen@student.tudelft.nl

Appendix D3 – List of interviewees

Nr. Interviewee	Stakeholder	Level
1.1	Developer	Strategic
1.2	Developer	Strategic
1,3	Developer	Operational
2.1	Architect	Operational
2.2	Architect	Strategic
3.1	Client	Operational
3.2	Client	Operational
4.1	Municipality Geldrop	Operational
4.2	Municipality Geldrop	Strategic
5.1	Contractor	Strategic
5.2	Contractor	Operational
6.1	Participation Advice	Operational
6.2	Participation Advice	Operational
6.3	Surrounding Citizens	-

Appendix D4 – Interview Protocol

Interview Protocol

The purpose of this interview protocol is to outline the processes involved in conducting the interview, including how to begin, conduct, and end the interview (Jacob & Furgerson, 2012). A list of questions has been developed beforehand to (semi-)structure the interview. There is room for modifications during the interview because the questions are open-ended and the interview procedure is not binding.

General Information

Research Title	*"Realising Environmental Sustainability Ambitions in Built Environment Projects."*
University	Delft University of Technology, Faculty of Architecture and the Building Sciences
Masters	Management in the Built Environment
Researcher	I.E.S. Bourgonjen
Date	DD.MM.YYYY

Interview Characteristics

Type	Semi-structured interview
Style	Behavioural interview
Duration	60 - 90 minutes
Location	Offline if possible. If not, online (Micorsoft Teams)

Introduction

Hartelijk dank voor uw deelname aan dit onderzoek naar het realiseren van duurzaamheidsambities in bouwprojecten. Dit onderzoek is onderdeel van mijn afstudeerscriptie voor de MSc-track Management in the Built Environment aan de Technische Universiteit Delft.

Het doel van dit interview is om uw ervaringen en inzichten te verzamelen over communicatie en samenwerking bij het behalen van duurzaamheidsdoelen. Het gesprek duurt ongeveer 45 minuten. De verzamelde data wordt gebruikt om strategieën te ontwikkelen voor betere samenwerking tussen stakeholders in bouwprojecten.

Uw deelname is volledig vrijwillig. U kunt zich op elk moment terugtrekken zonder opgave van reden. Er zijn geen goede of foute antwoorden en u bent vrij vragen niet te beantwoorden.

Algemene Vragen Project Betrokkenen

1. Opening: Oriëntatie & algemene waarden

- Kun je kort vertellen wie je bent en wat je doet?
- Wat betekent duurzaamheid voor jou persoonlijk?
- Hoe speelt duurzaamheid doorgaans een rol in projecten waar je bij betrokken bent?
- En hoe leeft duurzaamheid binnen jullie organisatie – is het structureel ingebed of projectafhankelijk?

2. Narratief en Proces:

- Vertel het verhaal van uw/jouw betrokkenheid bij dit project: wanneer startte dit, wie waren erbij, wat stond er toen op het spel?
- Welke duurzaamheidsambities lagen er in die beginperiode? Hoe duidelijk waren die voor iedereen (*goal clarity*)?
- Welke momenten/gesprekken maakten verschil voor het vasthouden of aanpassen van ambities? (*alignment, perceived value*)
- Hoe verliep de communicatie bij deze momenten (formeel/informeel, toon, middelen)?
- Waar ontstond frictie of onzekerheid en hoe werd dat opgelost (*conflictoplossing, risk mitigation*)?
- Welke concrete acties of artefacten (visualisaties, KPI's, feedback) hielpen of hinderden het behoud van ambities?
- Kijkend naar de rest van deze beginfase: wat is nodig om de ambities te blijven borgen? En welke communicatie?
- Wat mis ik nog dat belangrijk is voor het begrijpen van dit proces?

Extra: Wanneer precies? Wie zat er aan tafel? Welke actie vond plaats of zou kunnen helpen? Wat veranderde daarna?

Was er iets in de manier waarop gecommuniceerd werd dat het makkelijker of moeilijker maakte?
Als je kijkt naar samenwerking: wat werkte wel/niet qua communicatie?

3. Tijdlijn Kritieke Momenten

- Zou u de kritieke momenten in het afgelopen proces met mij willen doorlopen?

Wat gebeurde er, waarom gebeurde dit, wie waren erbij, en hoe werden deze momenten opgelost als dit nodig was?

4. Direct Actions

- Kwamen de volgende acties in uw beleving voor? Hoe verliep dit? Welke acties zouden u helpen de duurzaamheidsambities tijdens het proces te behouden en realiseren?

Actieve informatie-uitwisseling	Regelmatige communicatiebijeenkomsten organiseren en transparant delen van projectinformatie om samenwerking en vertrouwen te versterken. *notulen, updates*
Reflectie op voortgang en besluiten.	Tijdens controlepunten wordt bekeken of iedereen nog op één lijn zit en worden beslissingen geëvalueerd. *participatie-terugkoppeling, iteratieve reviews*
Afstemming tussen actoren	Het op één lijn brengen van alle betrokken partijen en overeenkomende ambities en belangen in kaart brengen *gestructureerde samenwerkingsoverleggen*
Afstemming van het project	Afstemmen van projectdoelen en planning. Ervoor zorgen dat deadlines, resultaten en gebruikte termen duidelijk en afgestemd zijn om verwarring te voorkomen. *gezamenlijke project verloop*
Conflictoplossing	Behandeling van meningsverschillen op een neutrale en effectieve manier. *open gesprekken, conflict afspraken, ruimte voor alle meningen*
Visualisatie	Het gebruik van visuele hulpmiddelen om doelen, planning en lange termijn voordelen duidelijk en overtuigend te presenteren. *tekeningen, schema's, dashboards*
Prestatiemeting	Gebruik van meetbare doelen, geschikte hulpmiddelen, het delen van rapporten en duidelijke verdeling van verantwoordelijkheden voor het meten. *KPI's, LCA/MPG rapportages*
Risicobeheersing	Een stapsgewijze uitvoering, gedeelde investeringsmodellen en garanties om risico's te beperken. *risicoanalyses, scenario's*
Succes aantonen	Het delen van eerdere resultaten om vertrouwen te winnen en verdere inspanningen te stimuleren. *cases, benchmarks, pilots*

5. Afsluiting

- Is er iets wat ik niet gevraagd heb, maar dat u wél belangrijk vindt?

Algemene vragen Niet Direct Project Betrokkenen

1. Opening: Oriëntatie & algemene waarden

- Kun je kort vertellen wie je bent en wat je doet?
- Wat betekent duurzaamheid voor jou persoonlijk?
- Hoe speelt duurzaamheid doorgaans een rol in de projecten van [bedrijf] ?
- hoe leeft duurzaamheid binnen jullie organisatie – is het structureel ingebed of projectafhankelijk?

2. Narratief

- Hoe kijkt [bedrijf] in het algemeen naar duurzaamheidsambities? *(Goal Clarity / Perceived Value)*
- Welke communicatie-momenten of -middelen werken volgens u het best om ambities duidelijk te krijgen binnen en buiten het projectteam? *(Visualisation, Evidence, Info Sharing)*
- Welke andere artefacten/metrics wegen bij u zwaar in besluitvorming tijdens een project? *(Performance Measurement, Risk Mitigation)*
- Waar gaat het meestal mis of schuurt het in [bedrijf] als het gaat om het behouden van duurzaamheid? *(Alignment, Conflict, Risk)*
- Kunt u één of twee voorbeelden schetsen waarin voor [bedrijf] ambities behouden blijven of juist voor haalbaarheid wordt gekozen? *(Critical incidents)*
- Wat is er volgens u nodig om ervoor te zorgen dat het gehele projectteam de duurzaamheidsambities die in het begin zijn gesteld, behoudt en realiseert?
- Welke invloed vanuit meer strategisch niveau (bijvoorbeeld bestuur, portfoliobeleid, directie, of externe beleidskaders) kan volgens u doorslaggevend zijn voor het behouden van deze duurzaamheidsambities? En in het kader van communicatie?

3. Direct Actions

- Kwamen de volgende acties in uw beleving voor? Hoe verliep dit? Welke acties zouden u helpen de duurzaamheidsambities tijdens het proces te behouden en realiseren?

Actieve informatie-uitwisseling	Regelmatige communicatiebijeenkomsten organiseren en transparant delen van projectinformatie om samenwerking en vertrouwen te versterken. *notulen, updates*
Reflectie op voortgang en besluiten.	Tijdens controlepunten wordt bekeken of iedereen nog op één lijn zit en worden beslissingen geëvalueerd. *participatie-terugkoppeling, iteratieve reviews*
Afstemming tussen actoren	Het op één lijn brengen van alle betrokken partijen en overeenkomende ambities en belangen in kaart brengen *gestructureerde samenwerkingsoverleggen*
Afstemming van het project	Afstemmen van projectdoelen en planning. Ervoor zorgen dat deadlines, resultaten en gebruikte termen duidelijk en afgestemd zijn om verwarring te voorkomen. *gezamenlijke project verloop*
Conflictoplossing	Behandeling van meningsverschillen op een neutrale en effectieve manier. *open gesprekken, conflict afspraken, ruimte voor alle meningen*
Visualisatie	Het gebruik van visuele hulpmiddelen om doelen, planning en lange termijn voordelen duidelijk en overtuigend te presenteren. *tekeningen, schema's, dashboards*
Prestatiemeting	Gebruik van meetbare doelen, geschikte hulpmiddelen, het delen van rapporten en duidelijke verdeling van verantwoordelijkheden voor het meten. *KPI's, LCA/MPG rapportages*
Risicobeheersing	Een stapsgewijze uitvoering, gedeelde investeringsmodellen en garanties om risico's te beperken. *risicoanalyses, scenario's*
Succes aantonen	Het delen van eerdere resultaten om vertrouwen te winnen en verdere inspanningen te stimuleren. *cases, benchmarks, pilots*

4. Afsluiting

- Is er iets wat ik niet gevraagd heb, maar dat u wél belangrijk vindt?

Appendix E: Codebook & Analysis

Appendix E1 – Codebook

Code	Type	Quantity
Stakeholder Alignment	Closed	
Goal Clarity	Closed	
Perceived Value of Sustainability	Closed	
Developer	Closed	3 interviews
Client	Closed	2 interviews
Contractor	Closed	2 interviews
Architect	Closed	2 interviews
Municipality	Closed	2 interviews
Active Information Sharing	Closed	29
Feedback Loops	Closed	13
Alignment Actors	Closed	14
Alignment Project	Closed	16
Resolution of Conflict	Closed	13
Visualisation	Closed	19
Performance Measurement	Closed	13
Risk Mitigations	Closed	19
Evidence of Succes	Closed	16
Open Communication Culture	Open	4
Targeting Intrinsic Motivated Parties	Open	1
Involving All Hierarchical Levels	Open	5
Explaining the Why	Open	5
Communicating Clear and Strict	Open	1
Repetition	Open	3
Evidence and Communication in Real Life	Open	1
Prioritising	Open	3
Making Sustainable Practical	Open	4
Offering Several Sustainable	Open	2

Options		
Communicating Financial Arguments	Open	3
Use Communication as System	Open	1
Keeping Sustainability Simple and Small	Open	2
Meetings in Small Groups	Open	1
Unofficial Communication	Open	1
External Marketing	Open	1

Appendix E2 – Quantity Analysis Codes

Interview	Level	Active Information Sharing	Feedback Loops	Alignment of Actors	Project Alignment	Conflict Resolution	Visualisation	Performance Measurement	Risk Mitigation	Evidence of Succes
Developer 1	Strategic 1	1	1	0	1	1	1	0	1	2
Developer 2	Strategic 2	1	1	1	0	0	1	1	1	1
Developer 3	Operational	2	0	1	0	0	2	1	1	1
Client 1	Operational 1	3	1	2	3	1	1	0	3	1
Client 2	Operational 2	3	0	2	2	2	1	1	2	1
Contractor 1	Strategic	3	2	1	2	1	1	3	3	1
Contractor 2	Operational	4	2	0	0	0	3	1	1	2
Architect 1	Strategic	3	1	2	2	1	2	1	2	2
Architect 2	Operational	2	1	1	2	1	2	1	1	1
Municipality 1	Operational	1	0	1	1	1	1	2	2	2
Municipality 2	Strategic	2	1	2	1	1	1	1	1	1
Participation Advisor 1	Operational	1	2	0	0	2	1	0	0	0
Participation Advisor 2	Strategic	3	1	1	2	2	2	1	1	1
Residents										
Decisionmakers total		**16**	**7**	**11**	**13**	**8**	**12**	**10**	**16**	**12**
total		**29**	**13**	**14**	**16**	**13**	**19**	**13**	**19**	**16**

Appendix E3 – Quotation Book and Analysis

Quotation Number	Interviewee	Role	Quote

1	3.1	Client	*"…because the pilot project is about experiencing what it's like. …it is really a pilot, we are precisely investigating what is possible... What has too little ambition? Or what has too much?"*
2	3.1	Client	*"Look, if that business case doesn't hold up... then it can also be that the choice is made for it not to go ahead."*
3	3.1	Client	*"... that our chain partner agrees to it. So if the chain partner is on board. Look, they'll have it soon. That's what I'm talking about. They'll have the design responsibility soon and will have to take it over."*
4	3.2	Client	*"We do serve as role models. We are essentially building with public funds."*
5	1.1	Developer	*"... but it's just that when we set up Nice, we decided that's how we would do things, and if we can't do it that way, we won't do it at all. So we don't do concrete projects, or projects that don't contribute to neighbourhood diversity or that aren't socially inclusive. We just don't do them. No."*
6	1.2	Developer	*"No, you definitely need that. Yes, you need to set a goal on the horizon, otherwise no one will go anywhere."*
7	1.1	Developer	*"... because if you want to arrange that affordability, we as developers can do that, but it is important that you control the money… it is extremely important to us that we are not used as a marketing tool to get an area development off the ground, but that we start it and also finish it."*
8	1.1	Developer	*"It is important that the decision-making types, management, direction, a board of directors, a supervisory board are present."*
9	4.1	Municipality	*"We have a housing challenge, and that is more important to us than the environmental ambition."*
10	4.1	Municipality	*"We are actually... we are doing this as a kind of pilot, so to speak..., we are placing as many tasks and responsibilities as possible with the external party."*
11	4.2	Municipality	*"If we don't lay it down in writing, it often ends up not being very ambitious."*
12	5.2	Contractor	*"When are we expected to take action? Of course, both parties are used to working in a certain way, and I notice that this is still causing some friction."*
13	5.2	Contractor	*"Then take responsibility for the design, because then you will dare to stand behind it?"*
14	5.2	Contractor	*"I think if you set your ambitions very sharply from the beginning... This is a must-have, and this is a nice-to-have... And that you also steer on that... that's an important one, I think."*
15	2.1	Architect	*"So you're not wearing each other out with a discussion about whether it's necessary or not. With all the consultants, architects, but also the others, who understand what we're doing. Then you're talking about "how to make sure it's done smartly", because that's what you need a design team for. How do you do it smartly, so that it's not more expensive and so that it's feasible? That's where you want to put your energy, not in bringing together advisers who don't know anything about it, who don't have the same frame of reference."*
16	2.2	Architect	*"It's almost always about money."*
17	6.1	Participation Advisor	*"That you can really capitalise on the sustainability aspect, also to reinforce the story, so to speak ... Or we create more green, which will create more space for high-quality accommodation... so I think that in that sense, you can really reinforce the sustainability aspect in such a case."*
18	6.1	Participation Advisor	*" …writing a long letter of 2 pages to the neighbourhood makes the intervention bigger in perception than it could have been. Surrounding citizens are more likely to join in perspective when a small card with a simple/practical message about sustainability is delivered."*
19	5.2	Contractor	*"I notice that I sometimes don't get information that [housing corporation] already has... If I don't get them, I can't have an opinion on them."*
20	4.1	Municipality	*"We have clearly stated that the ambition of the housing association to develop a circular building is an ambition of the housing association and not an ambition of the municipality."*
21	2.1	Architect	*"They're not going to demand that everything has to be done that way. They think it's fantastic. You're happy to embrace it, but they're not going to impose it as a duty."*

Appendix E4 –Stakeholder Perspectives

The key-stakeholders in this process have been examined. For the purpose of this research, it is important to identify their role, perspective on the project and attitude towards the sustainable ambitions of the project..

The Client – Housing Corporation
As client of this project, the housing corporation initiated the project with a certain strategic goal: learning as an organisation and using Appelaar as pilot. The most important motivation is to approach the project as a 'circular pilot' to gather knowledge and experience on building with wood. This objective justifies the potential additional costs and procedural friction. However, strict measurable targets feel as a restriction since the project manager of the housing corporation is happy with 'every achievement' and sees this an investment in the future:

"…because the pilot project is about experiencing what it's like. …it is really a pilot, we are precisely investigating what is possible... What has too little ambition? Or what has too much?" (Client – quotation 1)

"Look, if that business case doesn't hold up... then it can also be that the choice is made for it not to go ahead." (Client – quotation 2)

De biggest concern of the client is the financial feasibility, long term maintenance and acceptation of inhabitants. The fundamental condition to work with an external knowledge partners such as NICE Developers, is risk management. Therefore, it is a non-negotiable condition for the housing corporation to keep working on their own, familiar chain partner in construction.

"... that our chain partner agrees to it. So if the chain partner is on board. Look, they'll have it soon. That's what I'm talking about. They'll have the design responsibility soon and will have to take it over." (Client – quotation 3)

This illustrates a pragmatic attitude in which innovation is embraced, if the risk are manageable within existing organisational structures. Furthermore, the social role of the client puts extra pressure on the financial borders:

"We do serve as role models. We are essentially building with public funds." (Client – quotation 4)

The Developer – NICE Developers
The developer has the role of the driving force behind sustainability ambitions in this case. Their philosophy is anchored in five shared values: CO2 reduction, circularity, nature inclusivity, community building and affordability. This vision is guiding their project and non-negotiable, as they say:

"... but it's just that when we set up Nice, we decided that's how we would do things, and if we can't do it that way, we won't do it at all. So we don't do concrete projects, or projects that don't contribute to neighbourhood diversity or that aren't socially inclusive. We just don't do them. No." (Developer – quotation 5)

Making their goals clear and measurable is one of their approaches to reach the sustainable ambitions they set in their projects:

“No, you definitely need that. Yes, you need to set a goal on the horizon, otherwise no one will go anywhere.” (Developer – quotation 6)

Their completed project SAWA in Rotterdam serves a crucial “burden of proof” that builds trust for other stakeholders. NICE is taking a proactive role in knowledge sharing and steering the process, based on the conviction that this is necessary to realise the ambitions within the financial frameworks.

“... because if you want to arrange that affordability, we as developers can do that, but it is important that you control the money… it is extremely important to us that we are not used as a marketing tool to get an area development off the ground, but that we start it and also finish it.” (Developer – quotation 7)

This party is aware of the need to involve all levels of hierarchy when initiating a project and tries to do this with presentations, visits on delivered projects etc.

"It is important that the decision-making types, management, direction, a board of directors, a supervisory board are present.” (Developer – quotation 8)

The Municipality – Geldrop Mierlo
This party fulfils a facilitating and testing role in the project. Formal policy frameworks (GPR 8, 8 m² green space, 60 mm water storage) form the lower limit. The municipality is positive about the higher, sustainable ambitions, but does not impose them as a strict requirement, as the priority lies with the housing challenge:

“We have a housing challenge, and that is more important to us than the environmental ambition.” (Municipality – quotation 9)

This party clearly defines its position as facilitative and reviewing, placing the responsibility for driving the project’s ambitions with the developing parties. This allows them encourage without taking risks or costs.

“We are actually... we are doing this as a kind of pilot, so to speak..., we are placing as many tasks and responsibilities as possible with the external party.” (Municipality – quotation 10)

This reactive attitude creates a gap that is filled by market parties and their financial priorities. Internally, the council is struggling with a sense of powerlessness; it is allowing itself to be guided by developers' financial feasibility analyses and is divided in ‘expertise-islands’ which do not come to common ground in their opinion on sustainability. It recognises that soft sustainability targets are the first to fall when hard requirements, such as parking standards, compete for space.

“If we don't lay it down in writing, it often ends up not being very ambitious.” (Municipality – quotation 11)

The Contractor – Chain Partner of Client
As familiar chain partner of the client, this party approaches the project from a pragmatic and risk-oriented perspective. Their primary concern applies to the technical risk of wood (like moist, the financial risk and the unusual contractual structure. This friction appears from a structural uncertainty of their new role; as chain partner they are used to a strict process and risk profile with the housing corporation. Now they have to accept the technical lead of a third party (the developer). This leads to tensions that are expressed in the discussion about ‘design responsibility’.

“When are we expected to take action? Of course, both parties are used to working in a certain way, and I notice that this is still causing some friction.” (Contractor – quotation 12)

The contractor's position is a logical consequence of this structural uncertainty: if one party leads the technical expertise and is convinced of the feasibility, it should also bear the formal responsibility:

“Then take responsibility for the design, because then you will dare to stand behind it?” (Contractor – quotation 13)

Sustainable ambitions are a risk for this party, however, to effectively manage these risks, the constructor emphasizes the need for clear, upfront communication. They advocate for even prioritising the ambitions early on. They also want to be able to raise their concerns when necessary.

“I think if you set your ambitions very sharply from the beginning... This is a must-have, and this is a nice-to-have... And that you also steer on that... that's an important one, I think.” (Contractor – quotation 14)

The Architect – Chain Partner of Developer

The architect, as partner of the developer, translates the high, abstract ambitions to a specific and technical feasible design. Their challenge is finding balance in the sustainability vision and the financial and practical frameworks of the client and contractor. Selecting partners who share the same vision and are motivated is crucial for a successful process:

“ So you're not wearing each other out with a discussion about whether it's necessary or not. With all the consultants, architects, but also the others, who understand what we're doing.
Then you're talking about “how to make sure it's done smartly”, because that's what you need a design team for. How do you do it smartly, so that it's not more expensive and so that it's feasible? That's where you want to put your energy, not in bringing together advisers who don't know anything about it, who don't have the same frame of reference.” (Architect – quotation 15)

The reality, however, is that financial feasibility is a recurring theme that dominates design choices. As the project architect summarises:

“It's almost always about money.” (Architect – quotation 16)



Quotes from the Interviews Held with Key Stakeholders

The diagram above shows an overview of quotes and therefore overall attitudes for every stakeholders which is involved in the decision making process.

Appendix E5 – Communication Action Analysis

Occurrence of Actions from Checklist

This part encompasses the checklist offered to the interviewees, asking about the occurrence of the predefined direct actions through the project and its importance. The presence (‘happened’) was assessed by the subgroup of eight respondents who were actually involved in the decision-making process. The importance (‘important’) was assessed by the entire group of 14 respondents. Because the group of 8 is part of the group of 14, this results in a methodological difference in the base groups. To provide a clear picture, the results are shown below in both absolute numbers and percentages per group.

Comparing the extent to which actions actually take place (happened) with the extent to which they are considered important (important) is essential to gain insight into the quality of project implementation. Whereas reporting on actual behaviour shows how the process is going in practice, assessing importance (based on each stakeholder's expertise) clarifies the expectations and values that actors attach to the project. By comparing these two perspectives, it becomes clear where project practice is in line with the desired approach and where discrepancies exist that may indicate structural shortcomings or areas for improvement.

Absolute Quantities

The table with absolute numbers shows that all actions occurred less frequently than was considered desirable.

Direct Actions	Quantity Happened	Quantity Wanted / Important	Gap (happened / important)
Active Information Sharing	7	12	5

Feedback Loops	0	8	8
Stakeholder Alignment	4	9	5
Project Alignment	6	8	2
Conflict Resolution	4	7	3
Visualisation	8	11	3
Performance Measurement	6	10	4
Risk Mitigation	3	11	8
Evidence of Succes	7	11	4
total	**8**	**14**	

Normalised Results
When calculating the results to percentages within each group, a more nuanced view appears:

Direct Action	**Happened (% of 8)**	**Important (% of 14)**	**Gap (%-punten)**
Active Information Sharing	87,5%	85,7%	–1,8
Feedback Loops	0,0%	57,1%	57,1
Stakeholder Alignment	50,0%	64,3%	14,3
Project Alignment	75,0%	57,1%	–17,9
Conflict Resolution	50,0%	50,0%	0
Visualisation	100,0%	78,6%	–21,4
Performance Measurement	75,0%	71,4%	–3,6
Risk Mitigation	37,5%	78,6%	41,1
Evidence of Succes	87,5%	78,6%	–8,9

These percentages show that the absolute differences are partly an effect of the unequal group sizes. For example, in absolute numbers there appears to be a large gap (5) in active information exchange, but in percentage terms, presence and importance are almost perfectly aligned (87.5% vs. 85.7%).

The tables show that there is a clear distinction between actions that are well embedded in practice and actions that do not appear during the project. ‘Active Information Sharing’, ‘Visualisation’, ‘Performance Measurement’ and ‘Evidence of Success’ largely correspond to the extent to which they are considered important by respondents. In some cases, such as ‘Visualisation’ and ‘Alignment of Project’, these actions are even reported more often than they are considered essential by the broader group. This indicates that these elements are firmly anchored in the project approach and can be seen as strengths.

On the other hand, there are actions that have hardly been carried out or have been carried out insufficiently, even though they are considered important by a large proportion of respondents. ‘Feedback Loops’ is particularly striking: none of those involved in the decision-making process reported that this was happening, while more than half of the respondents considered it important. ‘Risk mitigation’ also shows a large gap between practice and appreciation.

The conclusion for this checklist-part is therefore that project practice largely meets expectations in areas such as information exchange and visualisation, but that at the same time there are fundamental shortcomings in reflection and risk management. It is precisely these two aspects that are crucial to a project's ability to learn and adapt to uncertainties, so this is a crucial weakness in the case.

Occurrence of Actions during the Interviews

The actions were also identified through in-depth interviews. Interviewees shared their perspectives, which were coded into general action categories. Table X shows overall frequencies, and Appendix C2 provides details per interview. Only actions viewed positively, those seen as improving the process, are included.

The analysis focuses on how often actions were mentioned and it offers academic value by revealing recurring patterns across interviews. This quantitative view supports the qualitative findings by highlighting consistent themes. However, frequency reflects how often an action was noted, not its meaning or importance; results should therefore be read as general patterns, not rankings.

Action	Frequency
Active Information Sharing	29
Feedback Loops	13
Alignment Actors	14
Alignment Project	16
Resolution of Conflict	13
Visualisation	19
Performance Measurement	13
Risk Mitigations	19
Evidence of Succes	16

Table X. Frequency of Actions in Interviews

It becomes clear that Active Information Sharing (29 occurrences) is the most frequently mentioned direct action. This suggests that open communication and the sharing of relevant knowledge are seen as crucial to the process. Other frequent themes are Risk Mitigation (19) and Visualisation (19), indicating the perceived importance of proactively addressing uncertainties and supporting understanding through visual tools. Less frequently mentioned, though still relevant, are Alignment of Actors, Performance Measurement, Conflict Resolution and Feedback Loops. These categories appear less dominant in the discussions but when mentioned, point towards specific opportunities for improving the collaboration within the process.

Suggested Actions – Inductive Codes

During the interviews, other communication actions also appeared in the conversations. Tabel X. shows these open communication codes. Interviewees mentioned these as possible measures to improve the process. When mentioned frequent, these inductive actions could be interesting to test during the workshop and see if this could help steer the realisation of sustainable ambitions.

Action	Frequency
Open Communication Culture	4
Targeting Intrinsic Motivated Parties	1
Involving All Hierarchical Levels	5
Explaining the Why	5
Communicating Clear and Strict	1
Repetition	3
Evidence and Communication in Real Life	1
Prioritising Roles and Ambitions	3
Making Sustainability Practical	4

Offering Several Sustainable Options	2
Communicating Financial Arguments	3
Use Communication as System	1
Keeping Sustainability Simple and Small	2
Meetings in Small Groups	1
Unofficial Communication	1
External Marketing	1

Table X. Inductive Codes

Occurred Actions during Critical Moments

The timeline below shows the actions applied during the identified critical moments. This shows an extra layer within these moments, to see how certain communication has already been applied. Appendix D5 elaborates on these applied actions.



Timeline Critical Moments and Applied Actions

1. Encounter
Active information sharing
- Nice concept, knowledge sharing (wooden concept, presentation)

Alignment actors
- Involving all levels of housing corporation, talks on ideas
- Only search for parties interested in NICE

Alignment project
- Key values as starting points, quickscan

Visualisation
- Presentation & visuals SAWA + NICE concept

Performance measurement
- Set measurable targets from beginning (Paris proof, CO_2 emissions)

Evidence of success
- SAWA in presentation, concepts, etc.

2. Strategic Brief
Active information sharing
- Atelier sessions, mail, meetings

Alignment actors
- Atelier sessions as means to align interests

Alignment project
- NvU = basisprincipes

Visualisation
- Drawings showed options & variants

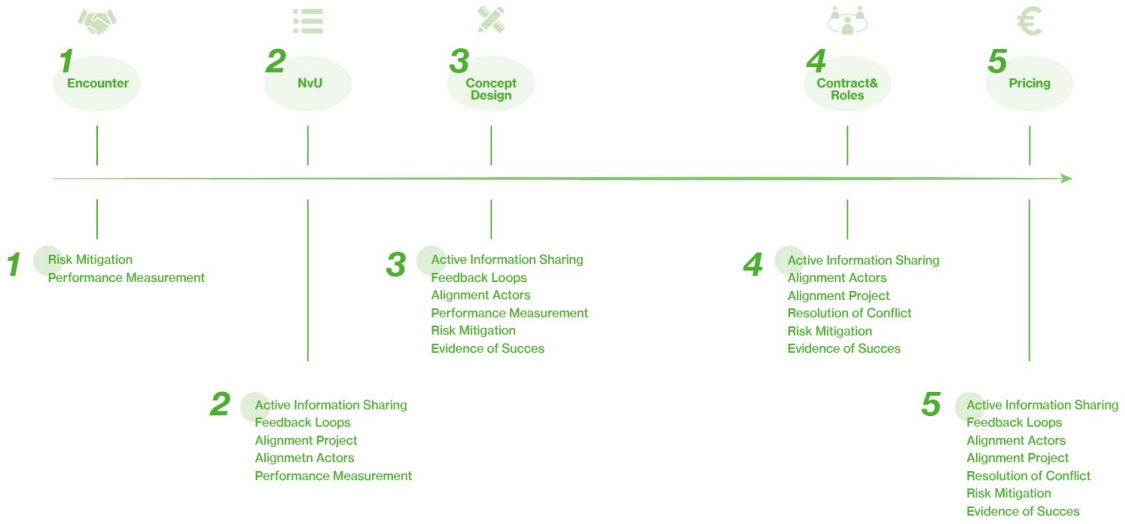
3. Conceptual Design
Active info sharing
- More meetings with subcontractors then in other projects, meetings, mailcontact, notes
Alignment project
- NvU = base for design
Alignment actors
- Everyone could add to design, discussions on design
- Early involvement subcontractors
Resolution of conflict (during flex vs. €)
- Refer back to NvU
Visualisation
- SO boekje
Performance measurement
- Referring back to set goals (with targets)
Risk mitigation
- Early involvement sub-contractors

4. Contract Forming & Roles
Alignment actors
- Meetings on type of agreement
Alignment project
- Intentieverklaring, antereurovereenkomst
Resolution of conflict
- Conversations, open, give direction to solution
- New way of contracts works better

5. Pricing
Active information sharing
- Open STIKO NICE & Housing Corporation, budget calculations
Alignment project
- Attempts to optimise the design, while sticking to NICE concept
Resolution of conflict
- Extra explanation of NICE about tail-end costs
Risk mitigation
- NICE offers to help control risks if low tail-end costs

Recommended Actions during Critical Moments

This last section gives an overview of possible solutions, mentioned by the interviewees. The diagram below shows these suggestions. The combinations of these recommended actions could be used to form solutions in the strategy.



Timeline Critical Moments and Suggested Actions

1. Encounter

Performance measurement
- Show exact value of sustainability

Risk mitigation
- Address risks & mostly mitigations from beginning to avoid distrust later on

2. Strategic Brief

Active info sharing
- Transparency in all docs & actors

Feedback loops
- Explicit feedback helps trust & alignment and gives input for the rest of the project

Alignment project
- Clear hierarchy in goals

Alignment actors
- Clear responsibilities in NvU
- Who does what/does everyone feel responsible?

Performance measurement
- Make all goals measurable; what does it mean?

3. Conceptual Design

Active info sharing
- Improve transparency to everyone

Feedback loops
- Formal reflection on process structure

Alignment actors
- Trust building, informal trust, written alignment to refer back to

Performance measurement
- Calculated outputs with every design choice

Risk Mitigation
- Discuss risks & mitigation of choices
- Influence on price

Evidence of Success
- Different options with proof, price & success
- Reference projects

4. Contract Forming and Roles

Active info sharing
- Total transparency for all documents to foster trust

Alignment actors
- From ‘islands’ to ‘team’; clear role & responsibility division

Alignment project
- Planning should be shared, not imposed

Resolution of conflicts
- Necessity for conversation on frustration

Risk mitigation
- Open conversation on risk sharing & roles

Evidence of success
- Search for examples of new collaboration forms

5. Pricing

Active info sharing
- Total transparency for all stakeholders

Feedback loops
- Reflection on process builds trust & collaboration

Alignment actors
- Open attitude of all parties

Alignment project
- If discussion, back to prioritising ambitions

Resolution of conflict
- Leadership & discussion handling, time to openly talk, unofficial moments

Risk mitigation
- Joint business case and risk analysis as team

Evidence of success
- Sharing successful projects with pricing to convince

Appendix F: Workshop Strategy Design

Appendix F1 – Information regarding the discussion

Informatie voorafgaand aan het interview

Algemene informatie

Onderzoek	Masterscriptie naar *"The realisation of sustainable ambitions through improved communication."*
Universiteit	Technische Universiteit Delft
Master	Management in the Built Environment
Onderzoeker	Isis Eva Sophia Bourgonjen

Alle aspecten van deelname aan dit onderzoek voor u als ondervraagde worden in deze informatiebrief toegelicht.
Na het lezen hiervan wordt u vriendelijk verzocht het geïnformeerde toestemming formulier in te vullen. Mocht u nog vragen of opmerkingen hebben, dan hoor ik dat graag.

Het onderzoek

U wordt uitgenodigd om deel te nemen aan een onderzoek genaamd 'Realising Environmental Sustainability Ambitions in Built Environment Projects', door middel van een expert panel. Dit onderzoek wordt uitgevoerd door Isis Bourgonjen, masterstudent aan de Technische Universiteit Delft, in samenwerking met Nice Developers B.V. De bouwsector staat voor grote uitdagingen als het gaat om duurzaamheid. Hoewel er ambitieuze duurzaamheidsdoelen worden gesteld, blijkt het in de praktijk vaak lastig deze doelen ook daadwerkelijk te realiseren. Dit wordt mede beïnvloed door de samenwerking en afstemming tussen verschillende belanghebbenden, zoals projectontwikkelaars, investeerders en publieke partijen. Vooral *communicatie* spelen hierbij een cruciale rol in 'soft management strategieen'. Dit onderzoek richt zich op het ontwikkelen van een communicatie- strategie om duurzaamheidsambities beter te realiseren, zowel op individueel, project- als organisatieniveau. Het doel is om te achterhalen hoe communicatiestrategieën kunnen bijdragen aan het bereiken van meetbare duurzaamheidsdoelen, en hoe samenwerking tussen progressieve en conservatieve stakeholders hierin verbeterd kan worden. De bevindingen zijn gebaseerd op een literatuurstudie, case analyses en interviews met betrokken stakeholders.

Het doel van dit panel is om uw ervaringen, inzichten en standpunten rondom *communicatie* en *samenwerking* in projecten te verzamelen. Deze vertalen zich namelijk naar overeenstemming met belanghebbenden, duidelijke doelen en waargenomen waarde van duurzaamheid. Het interview zal ongeveer 60 minuten in beslag nemen. U wordt gevraagd om vragen te beantwoorden over onderwerpen zoals duurzaamheidsambities, besluitvorming, samenwerking tussen stakeholders, en communicatieprocessen. Daarnaast ook om uw mening te geven over de bevindingen die uit dit onderzoek zijn gekomen. Tijdens het interview wil ik uw inzichten verzamelen over acties die mogelijk invloed hebben op het behalen van deze duurzame ambities. Uw deelname aan dit onderzoek is volledig vrijwillig, en u kunt zich op elk moment terugtrekken zonder opgaaf van reden. Alle gegevens die tijdens het interview worden verzameld, worden anoniem verwerkt en uitsluitend gebruikt voor dit onderzoek. De resultaten van het onderzoek kunnen bijdragen aan praktische aanbevelingen voor het verbeteren van communicatie- en samenwerkingsstrategieën in duurzame bouwprojecten.

Met vriendelijke groet, Isis Bourgonjen

Appendix F2 – Informed consent

Naar aanleiding van uw positieve reactie om deel te nemen aan dit onderzoek, vraag ik u om onderstaande ‘geïnformeerde toestemming’ te ondertekenen. Dit doen we zodat u zeker weet dat we vertrouwelijk omgaan met uw gegevens en antwoorden. Wij maken een algemeen en anoniem verslag over de ervaringen van meerdere betrokkenen bij het project. Uw antwoorden in dit onderzoek zullen naar ons beste vermogen vertrouwelijk blijven. We zullen eventuele risico's minimaliseren door de audio-opnames te vertalen naar geanonimiseerde transcripten. Deze transcripten worden opgeslagen op de beveiligde Project Storage van de TU Delft. De geluidsopnamen worden na transcriptie verwijderd. Uw deelname aan dit onderzoek is geheel vrijwillig en u kunt zich op elk moment terugtrekken. Het staat u vrij om vragen achterwege te laten. Als u uw antwoorden wilt intrekken, kunt u dit binnen 30 dagen doen. Voor overige vragen of opmerkingen kunt u gebruik maken van onderstaande contactgegevens van de onderzoeker.

Als u vragen heeft over dit onderzoek, kunt u contact met mij opnemen (Isis Bourgonjen) via de volgende kanalen: i.e.s.bourgonjen@student.tudelft.nl en +316 -- -- -- --. Ook kunt u contact opnemen met de verantwoordelijke professor Erwin Heurkens (Technische Universiteit Delft, E.W.T.M.Heurkens@ tudelft.nl).

Met vriendelijke groet,
Isis Bourgonjen

Vul de antwoorden in die op u van toepassing zijn

	Ja	Nee
A: Algemene deelname aan het onderzoek		
1. Ik heb de onderzoek informatie van [XX/XX/2025] gelezen en begrepen, of deze is mij voorgelezen. Ik heb vragen kunnen stellen over het onderzoek en mijn vragen zijn naar tevredenheid beantwoord.	☐	☐
2. Ik geef vrijwillig toestemming om deel te nemen aan dit onderzoek en begrijp dat ik kan weigeren vragen te beantwoorden en dat ik mij op elk moment, zonder opgaaf van reden, uit het onderzoek kan terugtrekken.	☐	☐
3. Ik begrijp dat deelname aan het onderzoek gepaard gaat met: [een audio-opname van het interview en schriftelijke aantekeningen zullen worden gemaakt door de interviewer. De audio-opname zal worden getranscribeerd en alleen de geanonimiseerde transcriptie zal worden gebruikt in het onderzoek].	☐	☐
4. Ik begrijp dat het onderzoek zal eindigen nadat het onderzoek is gepubliceerd in februari 2026.		
5. Ik begrijp dat deelname aan het onderzoek de volgende risico's met zich meebrengt: mentaal ongemak in het geval van gevoelige proefpersonen. Ik begrijp dat deze worden beperkt door de mogelijkheid om het interview op elk moment te stoppen.	☐	☐
6. Ik begrijp dat deelname aan het onderzoek ook het verzamelen van specifieke persoonlijk identificeerbare informatie met zich meebrengt, met het mogelijke risico dat mijn identiteit wordt onthuld.	☐	☐
7. Ik begrijp dat de volgende stappen zullen worden ondernomen om de dreiging van een	☐	☐

datalek te minimaliseren en mijn identiteit te beschermen in het geval van een dergelijke inbreuk: anonimisering van transcript; beperkte toegang tot gegevens; veilige gegevensopslag en verwijdering van opnames na transcriptie.		
8. Ik begrijp dat over mij verzamelde persoonlijke informatie die mij kan identificeren, zoals [bijv. mijn naam, leeftijd, geslacht, studiefase of waar ik woon], niet buiten het onderzoeksteam zal worden gedeeld.	☐	☐
9. Ik begrijp dat de (identificeerbare) persoonlijke gegevens die ik heb verstrekt, zullen worden vernietigd na transcriptie van de audio-opnames	☐	☐
C: Publicatie van onderzoek		
11. Ik ga ermee akkoord dat mijn antwoorden, meningen of andere input anoniem geciteerd kunnen worden in onderzoeksresultaten.	☐	☐

Handtekeningen

Naam Deelnemer	***Handtekening***	***Datum***

Naam Onderzoeker	***Handtekening***	***Datum***

Voor vragen, onderzoeksgegevens of nadere informatie, kunt u een e-mail sturen naar i.e.s.bourgonjen@student.tudelft.nl

Appendix F3 – List of Interviewees

Nr. Interviewee	Role	Organisation
1.1	Professor …	TU Delft
1.2	XX	TU Delft
1,3	XX	TU Delft
1.4	Partner	TREND&

Appendix F4 – Workshop Protocol (Set up workshop)

Thema: Steering the realisation of sustainable ambitions with communication
Taal: Nederlands
Doel: Strategie bepalen a.d.h.v. procesmap met kritieke momenten, 9 communicatie-acties en 3 mediating variables (stakeholder alignment, goal clarity, perceived value of sustainability).

Sessie 1 – Rollenspel met ontwikkelaarsteam

Doel: Inleven in de vijf stakeholders, fricties en kansen blootleggen, en ideeën genereren.

Stappenplan

Introductie & Kader (15 min)

- Herhaling van 'Future Vision NICE Developers'
- Uitleg 3 mediating variables en 9 communicatie-acties.
- Uitleg doel workshop en eindoutput (strategische roadmap).
- Tijdlijn ophangen.

Rolverdeling (10 min)
- Rollen: bouwer, gemeente, architect, ontwikkelaar, woningcorporatie.
- Iedere deelnemer krijgt een korte stakeholder-fiche met belangen + perspectief + risico's + (voorkeuren voor communicatie vormen).

Rollenspel per geïdentificeerd kritiek moment (45 min – 10 min meeting per moment)
- Per kritiek moment bedenkt iedereen hoe zijn rol tegen de situatie kijkt – wat hebben ze in hun rol nodig van de anderen?
- Per kritiek moment spelen deelnemers een meeting/gesprek na.
- Observator noteert welke communicatie-acties naar voren komen.

Reflection on Key Issues in the Process (30 min)

- Vraag: wat gebeurde er in de kritieke momenten? Hoe kijkt iedereen daar tegen aan?
- Nabespreken per moment: wat werkte, waar liep het vast?
- Welke mediating variables kunnen hieraan gekoppeld worden?

- Discussie over of alle momenten daadwerkelijk kritiek zijn en welke sleutelproblemen hierbij naar voren komen
- Plakken key-issues op de tijdlijn, bij elk kritiek moment
- Overleg om zo tot aantal kernproblemen te komen van de front-end van deze case

Ideegeneratie (25 min)

- Uitleg & Kader
  - Uitleg: "We gaan nu ideeën verzinnen om de HMW's te beantwoorden. In deze fase mag alles; kwantiteit gaat boven kwaliteit. Later kiezen en verfijnen we."
  - Herinnering aan de 9 communicatie-acties → deelnemers mogen daar expliciet naar grijpen.
- Individuele Schetsfase
  - Iedereen een A4, verdeeld in 6 vakken, in 6 minuten ideeën/oplossingen voor sleutelproblemen (gefocust op communicatie)

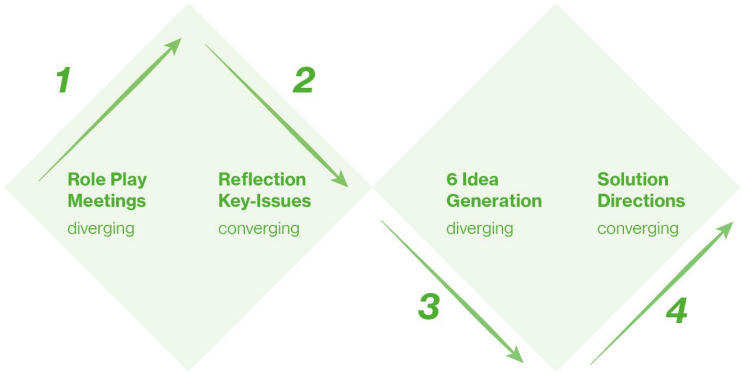
- Delen & Clusteren
    - Ideeën aan muur op map
    - Korte Pitch
    - Groep clustert vergelijkbare ideeën samen in 2 idee thema's per kritiek moment
- Uitwerken in 2 groepen
    - Themaoplossingen en ideeën door ontwikkelen
    - Wanneer, hoe, wie bij betrokken, hoe kan dit eruit zien?
    - Welke communicatie-acties uit de 9? Of nieuwe? Welke mediating variables raakt dit?

Mapping (30 min)

- Ideeën koppeleheb n aan de procesmap.
- Uiteindelijk twee uitgewerkte ideeën per kritiek moment

Output sessie 1:

- Procesmap gevuld met fricties en eerste oplossingsrichtingen.
- Top-ideeën per kritiek moment.



Visual representation of workshop 1 following the double diamond method.

Sessie 2 – Expertpanel

Doel: Resultaten van sessie 1 valideren, aanvullen en strategisch prioriteren.

Stappenplan

Intro & context (10 min)

- Korte recap sessie 1 (procesmap, HMW's, top-ideeën).

Kritische review (30 min)

- Experts geven feedback: wat overtuigt, wat ontbreekt, waar zit risico?
- Discussie: welke theoretische inzichten bevestigen/ontkrachten dit?

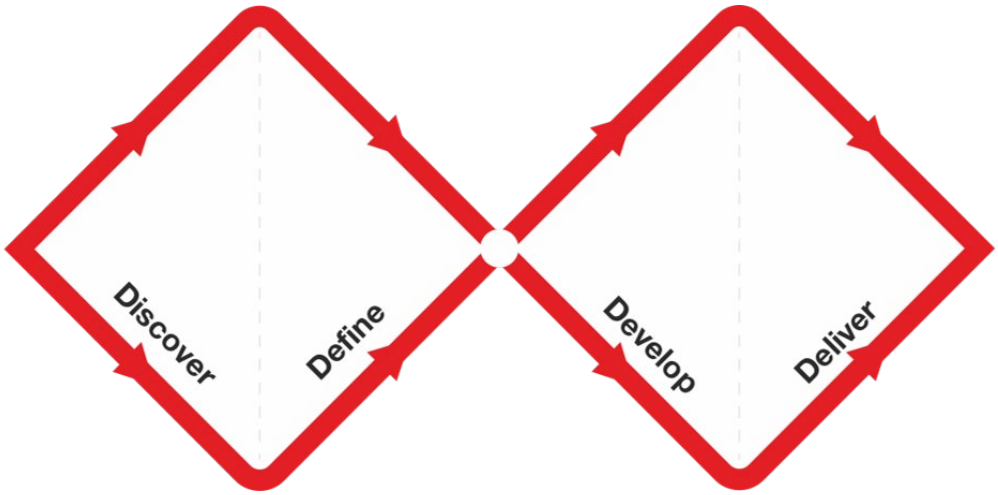
Output sessie 2:

- Gevalideerde, geprioriteerde strategie.
- Roadmap met 3–5 kerninterventies (met eigenaar, timing, MV-score).

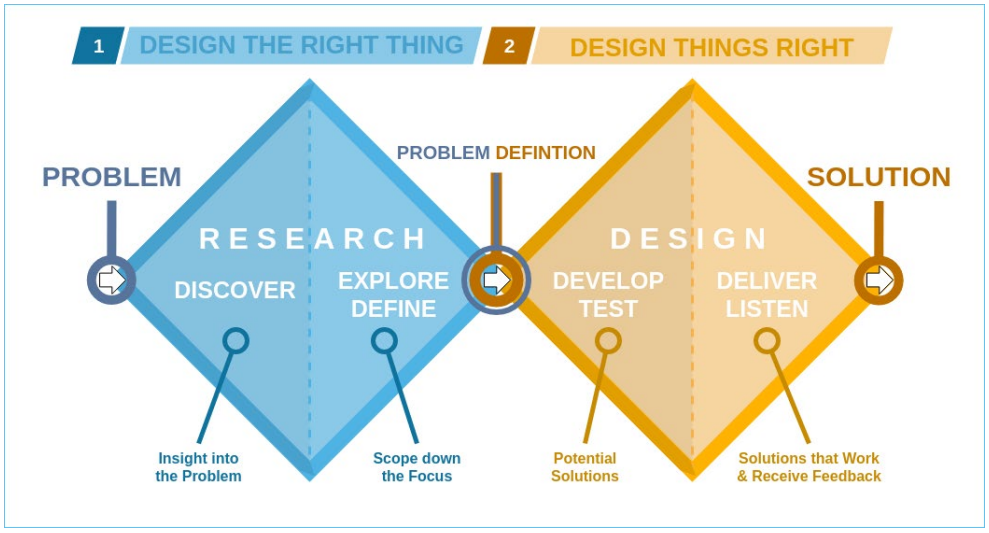
Benodigd materiaal

- Procesmap (A0 of digitaal in Miro/Mural).
- Stakeholder-fiches (kort profiel met belang, houding t.o.v. duurzaamheid, communicatievoorkeur).
- HMW-kaarten (template: "Hoe kunnen we … zodat … ?").
- Idee-canvas (Naam, gekoppelde communicatie-acties, MV-score, eigenaar, testidee).
- Stickers/dot-voting voor prioritering.

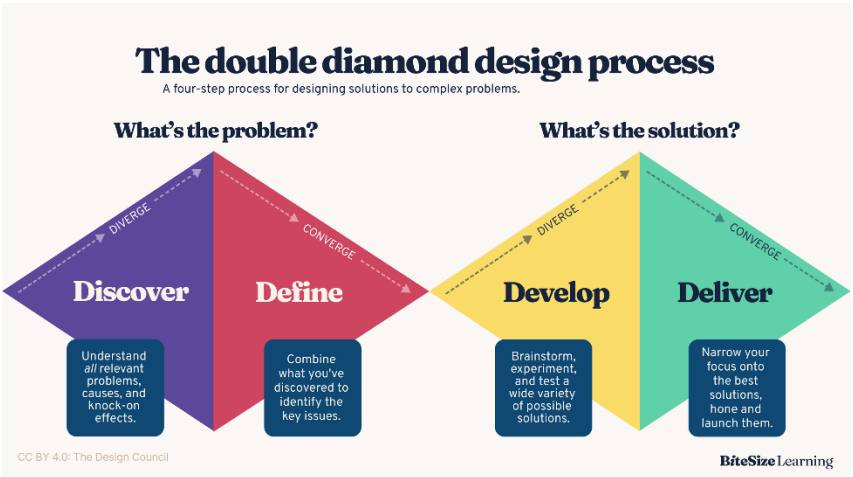
Academic Sources



Double Diamond Framework for design workshops. (British Design Council, 2005)



(Innovationtraining.org)



(https://www.bitesizelearning.co.uk/resources/double-diamond-design-process-explained)

Appendix G: Workshop Process And Feedback

Appendix G1 - Course of Roleplay Critical Moments

1. Encounter:
Almost immediately, a problem and discussion arose about why wood is important or not. Introducing each other is important. There was an immediate question about responsibility and roles during the project: who does what?

2. Strategic Brief:
Establishing connections seems important. The advantages of wood are introduced and there is a positive approach from NICE; the advantages are explained in the language of the municipality. Attempts are made to get the municipality on board with the plan, but this is not really successful. The importance of NICE's knowledge becomes clear. There is a lack of clear goals that everyone can sign up to and take responsibility for in terms of the sustainability aspect of the plan.

3. Conceptual Design:
At this point, the design does not seem to be the most important issue; there is immediate discussion about wood or concrete. The housing association is referred back to earlier agreements and the aim of the project. Excluding concrete does not seem to be a good approach either, so options continue to be compared. Evidence is important, as is the distribution of influence and responsibility.

4. Contract Forming and Roles:
The contractor wants to know who is responsible for every part in this ‘new’ type of process, because it does not work with an external developer normally. Transparency is not appearing, but parties are interested in each other’s budget calculations. The housing corporation feels unsure because NICE and the contractor do not align. Actually, at this stage, the housing association should be relieved of its responsibilities rather than included in the discussion. A protocol for collaboration could be an interesting option. There is a lack of alignment between the actors.

5. Pricing:
It seems important to be specific about where the budget is going. NICE shows that it is not just about timber. The housing association is unsettled by the discussion and needs to be reassured rather than brought on board in the discussion . Separate cost estimates cause confusion and discussion. Discussions revolve around this issue and there is no clear plan. Delays are costly at this point. Various options with different price tags are being explored.

Appendix G2 - Overall Feedback and Reflection on Key Issues

Overall comments on case and initial strategy

Moments 4 and 5
Moments 4 and 5 are closely linked and could be swapped. Pricing usually precedes contract signing, as a budget must be defined first. Feedback suggested clarifying or adjusting their order to reflect this dynamic. This is an easy and valuable practical improvement for the academic output.

Client hierarchy

Participants highlighted the importance of recognising hierarchical layers within the client organisation. While the core team consists of project leaders, employees from operational to board level should also be involved to maintain alignment across perspectives.

Participation and neighbours
Feedback emphasised that neighbouring residents are key stakeholders and cannot be excluded from process evaluation. Their influence on achieving sustainability goals should be acknowledged, potentially as an external control variable, even if not directly included in the roleplay.

'Concept Design' → 'Design'
Participants advised renaming 'Concept Design' to 'Design', as all design phases (SO, VO, DO) share similar challenges. The term 'concept' was seen as vague and unnecessary if no distinction between phases is made and only critical moments are mentioned.

Reflection on Roleplaying the Key-Issues
The roleplay part of the workshop is meant to make all participants aware of the struggles within the critical moments and see perspectives of other stakeholders more clear. Discussed topics during the roleplay are included in Appendix F1. As overall reflection, the participants mentioned the importance of informal moments to build more trust, because this is something clearly lacking during these moments. They also experienced the relationship with the contractor as most challenging, also because this party is a chain partner of the housing corporation.

After this overall reflection, the participants went through all the moments and had a non-structured conversation about which struggles appeared in each moment. After this conversation they discussed how these struggles could be expressed in key-issues. To not force the critical moments, they were asked to also give their opinion on how big the struggle was during each moment. A summary of this reflection phase can be found in table X.

Identified Key-issues	**Importance**	**Critical Moment**
1. Uncertainty regarding collaborations and associated agreements in terms of time, money and risks 2. Role of stakeholders not yet clear, mostly of chain partner of housing corp.	Low	**Encounter**
1. Definition of strategic brief is unknown 2. Capacity shortage municipality, so responsibility is unclear and falls on developer 3. Unclear role division	Medium	**Strategic Brief**
1. Risk on too expensive design, no high perceived value of sustainable ambitions yet 2. Affordability is higher on priority list at the design phase for the corporation 3. No prioritisation of ambitions, unclear what to eliminate and what is expensive	Medium	**Design**
1. Weak relation between NICE and contractor, has influence on making agreements on cooperation and tail costs 2. NICE is taking a new role, which is not existing in other projects yet 3. Housing corporation is not used to letting go 4. Transparency in revenues and calculation is missing	High	**Contract Forming and Roles**

1. Housing corporation has a different language in building up budget calculation 2. NICE does not have influence on agreements between the contractor and housing corporation 3. Contractor needs to support the price, and is not doing that now 4. Relation with contractor still needs to be build, both wanting a collaboration instead of forcing it	High	**Pricing**

Table X. Identified Key-Issues during the Workshop

Appendix G3 - Detailed Feedback Expert Interviews

Feedback of 'Team Collaboration' Expert:
The expert in the field of Team Collaboration focused primarily on the interaction between actors and the functioning of collaboration strategies. He indicated that it is crucial to identify the responsible actor for each communicative action in your analysis. Who takes the initiative, who receives, and how does this differ per phase in the process? How the actions are executed also plays a big role, is there a certain ambiance or way in which certain actions work well? Inductive codes like 'repetition' and 'open communication culture' set this context. It might be a good idea to categorise the actions within the strategy.

He also pointed out the importance of mirroring the strategy sketch outlined from results in the interviews and document analysis with the strategy sketch from the workshop. Where differences or inconsistencies occur, there is often a sign of misalignment. Such tensions are valuable for the analysis because they show where collaboration is stalling or where assumptions are not shared. This is therefore an extra piece of information that you can collect from the workshop.

The nature of the moments was also noticed by him. Moment 1, 2 and 3 are 'fun' moments where the support should be created for the 'harder' times at moment 4 and 5. These last moments are critical in the sense that they test and show the result of team strength. The first moments are critical in the sense that they need to be used for building team strength.

Finally this expert indicated that the workshop design itself requires methodological attention: because the workshop only represented the developer, there could be a bias in perspective. This limitation must be explicitly stated and reflected in the limitations or discussion section as it set a certain context in which this strategy is set up. However, it is nice how the people who are going to use the strategy, also helped design it.

Feedback of 'Design and Construction Management' Expert:
The expert in the field of Design & Construction Management addressed the main struggle in the case study project: what is seen as a communication problem is essentially maybe more of a commitment problem. Tracking the commitment throughout the process could help make this clear. This lack of commitment describes the opposite of realising sustainable ambitions and is build up out of the lack of the three mediating variables. Tracking the three mediating variables (Stakeholder Alignment, Goal Clarity and Perceived Value of Sustainability) throughout the process could be a good implementation to make this clear. This makes it possible to demonstrate how commitment develops or erodes over time. This also gives another direction to the strategy. The expert emphasised that this must demonstrate how commitment is restored or renewed throughout the front-end phase. The action set per moment should contribute to this. So, according to this expert, this main problem should be pointed out more. Communication can be seen as the instrument to try and solve this. Communication actions can drive the commitment in each critical moment and throughout the whole front-end.

Secondly, communicative actions should not only be understood as the exchange of information, but also as “speech acts” (according to Austin). This means that communication is not only a transmission of information, as the conceptual model is saying. Speech act theory highlights that communication is a dynamic process of doing things with words, not just stating facts. So the strategy could also incorporate speech acts that bind people together and drive commitment. He connected this to the type of inductive actions that came up through the interviews and workshop, as these actually being speech acts that help foster commitment. So this means explicitly reformulating the communication actions in the model as dual units: on the one hand, information transmission (actual exchange) in the conceptual model and, on the other hand, speech acts (symbolic commitment) that mostly come up as inductive codes. In addition to this implementation, actions suggested in the strategy must include who the sender is, who the receiver is, and what the intended effect on commitment is.

Finally, this expert emphasises that the collaborative structure – for example, the way in which partners are chosen and responsibilities are divided – should be seen as an external control variable. It has a lot of influence on the project process and is seen as crucial by this expert. It sets the whole environment in which this realisation of sustainable ambitions takes place.

Feedback of ‘Strategy’ Expert:
The expert from the strategy design field primarily focused on the communicative clarity and visual hierarchy of the strategy. Although the conceptual structure of the communication strategy was assessed as solid and coherent, the expert emphasised that its usability in practice depends heavily on its readability. According to this expert, the textual hierarchy—such as the sequencing of information, the clarity of headings, and the proportional emphasis on key elements—should be strengthened to ensure that users immediately understand what the overarching goal of the strategy is and how they should act per moment in time. The expert suggested increasing the size and prominence of key textual components and reducing reliance on icons or numbered elements that require users to consult a separate legend. In high-pressure or time-sensitive environments, such additional cognitive steps may create friction or misinterpretation, undermining the strategy’s purpose.

Another central point in the expert feedback concerned the supporting attachment. Similar to the workshop participants, this expert stressed the importance of having an accessible, action-oriented attachment that practitioners can consult when applying the communication strategy. This attachment should not only reiterate the strategic phases but provide an expanded manual per moment, including concrete examples, sub-actions, and best practices. Such an elaboration is critical to bridge the gap between conceptual strategy and on-the-ground execution, ensuring that users do not merely understand what to do but also how to do it. The expert viewed this as a foundational requirement for ensuring that the strategy is both clear and actionable, especially in contexts where misalignment between strategic intent and execution could have cascading consequences for stakeholder communication.

Feedback of ‘Communication’ Expert:
The communication expert offered feedback that focused less on the structure of the strategy and more on its practical applicability and behavioural nuances. While the proposed sub-actions were largely considered appropriate, the expert argued that the manner in which these actions are carried out—particularly regarding tone of voice, interpersonal sensitivity, and degrees of formality—will play a decisive role in the eventual success or failure of the strategy. The expert emphasised that communication should not be rigidly “mapped out,” but rather adaptive and person-specific: developers, stakeholders, and end-users may each require different communicative approaches. For instance, adopting a more informal and relational tone may foster trust more effectively than strictly following predetermined, formal guidelines. This insight highlights the need for clearer specification of how communicative expressions differ across phases, audiences, and stakeholder interactions.

The expert also stressed the importance of ensuring that theoretical assumptions align with the complexities of real-world organisational dynamics. Actions that appear logically sound in theory may encounter barriers in practice due to organisational culture, power relations, or contextual sensitivities. Therefore, the strategy should more explicitly account for organisational feasibility and implementation constraints. A concrete recommendation was to integrate a clear overview of actors per phase in the attachment, taking into account dynamic stakeholder perspectives. Understanding who is “at the table” at each moment—and who is directly or indirectly affected by the communication—allows for more targeted, responsible, and effective action. This multidimensional actor mapping supports a more realistic and context-aware strategy, reinforcing the connection between the theoretical framework and its practical enactment.

Appendix G4 - Consolidation of Inductive and Deductive Actions

Consolidated Actions	**Original Inductive and Deductive Actions**	**Practical Actions Per Moment (details in strategy)**
Information Provision	Explaining the Why (ind)	*Moment 1*
Explain and Align Purpose	Ensure Project Alignment (ded)	1a, 2a, 3a, 6a, 7a, 8a
Make Sustainability Tangible	Making Sustainability Practical (ind)	
Share and Visualise Information	Share Information Actively (ded)	*Moment 2*
Demonstrate and Measure Succes	Show Evidence of Succes (ded)	1b, 3b, 4a, 6b
Offer and Evaluate Options	Visualisation (ded)	
	Align Perspectives of Actors (ded)	*Moment 3*
Speech Act	Prioritising Roles and Ambitions (ind)	2b, 4b, 5a, 7b, 8b
Align Roles and Ambitions	Involve All Hierarchical Levels (ind)	
Engage and Commit the Team	Sign Commitment Act (ind)	*Moment 4*
Discuss and Manage Risks	Discuss Risk Mitigation (ded)	1c, 3c, 4c, 6c, 7c, 8c
	Performance Measurement (ded)	
Context Setters	Communicating Financial Arguments (ded)	*Moment 5*
Transparency	Offer Several Options (ind)	2c, 4d, 5b, 7d, 8d
Repetition	Transparency (ind)	
Open Communication Culture	Repetition (ind)	
	Open Communication Culture (ind)	
Repetitive Actions	Informal Moment to Build Trust (ind)	
Informal Moment to Build Trust	Feedback Loops (ded)	
Establish Feedback Loop	Resolution of Conflict (ded)	

Appendix H: Data Management Plan

Plan Overview
A Data Management Plan created using DMPonline

Title: BKMsc Graduation Thesis - Realising Sustainability Ambitions through Communication..

Creator: Isis Bourgonjen

Principal Investigator: Isis Bourgonjen

Affiliation: Delft University of Technology

Template: TU Delft Data Management Plan template (2021)

Project abstract:
The construction sector significantly contributes to global CO_2 emissions and waste generation, highlighting the urgent need for sustainable development. While progressive developers often set ambitious sustainability goals during the early project phases, these ambitions frequently fail to materialize into measurable outcomes. This research investigates the underlying factors contributing to this discrepancy and explores how progressive developers can bridge the gap between ambition and outcome. By focusing on communication strategies, the study aims to support progressive real estate developers in engaging conservative stakeholders and fostering long term alignment between diverse interests. A single case study, supported by semi-structured interviews and expert validation, will serve as the empirical basis for analysing the dynamics of sustainability implementation. The research adopts a socio-technical approach, integrating soft management skills and measurable frameworks to ensure sustainability ambitions are maintained throughout the project lifecycle. The ultimate goal is to deliver a practical communication framework tailored to the needs of progressive developers, enabling the consistent realization of sustainability ambitions at both project and organizational levels. This framework seeks to address the persistent challenges in the construction industry, providing actionable strategies to achieve lasting environmental impact.

ID: 165090

Start date: 01-09-2025

End date: 01-02-2026

Last modified: 15-05-2025

BKMsc Graduation Thesis - Realising Sustainability Ambitions through Communication..

0. Administrative questions

1. Name of data management support staff consulted during the preparation of this plan.

The data and DMP for this project has been discussed with my supervisors, Erwin Heurkens (Responsible Researcher) and Paul Chan. My faculty data steward, Janine Strandberg, has reviewed this DMP on 04-02-25.

2. Date of consultation with support staff.

2025-02-04

I. Data description and collection or re-use of existing data

3. Provide a general description of the type of data you will be working with, including any re-used data:

Type of data	File format(s)	How will data be collected (for re-used data: source and terms of use)?	Purpose of processing	Storage location	Who will have access to the data
Personally Identifiable Information (PII): participants' name, email, work address, company name, mobile number	.pdf, .xlsx	Contact information for participants taking part in interviews and experts taking part in the panel, received from professional network. Informed consent forms are signed digitally and contain participants' name + email.	For administrative purposes: obtaining informed consent and communicating with participipants of interviews an expert panels.	SURF Drive	Master student, Isis Bourgonjen and supervisor, Erwin Heurkens
Audio-recordings of interviews with actors in project team	.mp3	In-depth interviews with actors of the project team conducted on-site. Audiorecordings are made on an external device, before being moved to OneDrive. Recordings are deleted after transcription	Capturing the opinions on what happened during the examined project and why it happened. Analysis and reasoning.	External recording device (temporary storage) + TU Delft OneDrive	Same as above
Anonymus transcriptions of interviews	.txt	Anonymous transcriptions created manually based on audio-recordings. Participants are asked to review the transcriptions of their interview before the transcript is finalised	Privacy-preserving data on opinions on what happened during the examined project and why it happened.	TU Delft One Drive	Same as above
Audio-recordings of expert panel and workshop	.mp3	Expert panel workshop with policymakers and real estate experts conducted on-site. Audiorecordings are made on an external device, before being moved to OneDrive. Recordings are deleted after transcription	Capturing the opinions on a proposed practical solution to gather feedback.	External recording device (temporary storage) + TU Delft OneDrive	Same as above
Anonymous transcriptions of expert panel and workshop	.txt	Anonymous transcriptions created manually based on audio-recordings. Participants are asked to review the transcriptions of their interview before the transcript is finalised	Privacy-preserving data on opinions on a proposed practical solution to gather feedback.	TU Delft One Drive	Same as above
Atlas.ti dataset	Atlas.ti project bundle	Transcriptions will be coded using Atlas.ti	Capturing opinions on the examined project, capturing sentiments and examining arising themes	TU Delft One Drive	Same as above

Third-party Data	.txt	Data on the researched cases, phases, decisions documents, plans, drawings etc, retrieved from contacts of internship company. (Nice Developers B.V.) Specifics are stated in the contract and internship agreement.	Set the scene and context for the research of the cases.	TU Delft One Drive	Same as above

4. How much data storage will you require during the project lifetime?

< 250 GB
Interviews, Project Documents

II. Documentation and data quality

5. What documentation will accompany data?

Methodology of data collection Other - explain below
The dataset will not be shared in a data repository, but the methodology of data collection will be explained in the MSc thesis, which is made available in the TU Delft Education repository.

III. Storage and backup during research process

6. Where will the data (and code, if applicable) be stored and backed-up during the project lifetime?

SURFdrive
Another storage system - please explain below, including provided security measures OneDrive
External recording device: Used as a temporary storage location for recorded on-site interviews. Interviews will be deleted from device as soon as they are moved to OneDrive. The signed informed consent forms as well as other contact information (PII) will be stored separately from research data, to minimise the risk of re-identification on the SURF Drive.
Likewise, physical informed consent forms will be stored securely as well, for instance in a locked cupboard in a locked office. Other data, like the interviews or the conversation for the expert panel, will be stored on the OneDrive.

IV. Legal and ethical requirements, codes of conduct

7. Does your research involve human subjects or 3rd party datasets collected from human participants?

Yes
Since this research processes human subject data, it is required to submit an application to theHuman Research Ethics Committee (HREC). This research must receive approval from the HREC before any data from human participants is collected or processed. The application number for this HREC approval is XXX

8A. Will you work with personal data? (information about an identified or identifiable natural person)

If you are not sure which option to select, first ask your Faculty Data Steward for advice. You can also check with the privacy website . If you would like to contact the privacy team: privacy-tud@tudelft.nl, please bring your DMP.

Yes

The research data collected in the project will be anonymised, but processing of personal data is required for conducting the research project. The anonymisation plan template will be used for this.
Third-party data from contacts of Nice Developers B.V. will be received already anonymised. Data on the researched cases, phases, decisions documents, plans, drawings etc, retrieved from internship company. (Nice Developers B.V.) Specifics are stated in the contract and internship agreement.

8B. Will you work with any other types of confidential or classified data or code as listed below? (tick all that apply)

If you are not sure which option to select, ask your Faculty Data Steward for advice.

Yes, data related to competitive advantage (e.g. patent, IP)

Yes, data which could lead to reputation/brand damage (e.g. animal research, climate change, personal data)

The research data collected in the project will consist of specific building project details and details on the decision- making process of the researched cases. This could lead to reputation / brand damage or competitive advantage. Data on the researched cases, phases, decisions documents, plans, drawings etc, retrieved from internship company. (Nice Developers B.V.) Specifics are stated in the contract, internship agreement and Q3. PII will be saved on the SURF Drive and transcriptions of the interviews will be saved on another location, the TU Delft Onedrive.

9. How will ownership of the data and intellectual property rights to the data be managed?

For projects involving commercially-sensitive research or research involving third parties, seek advice of your Faculty Contract Manager when answering this question. If this is not the case, you can use the example below.

The student conducts the research independently, and is the owner of the interview data. The anonymised interview underlying the graduation report will be included in the MSc thesis appendix. Data produced by students (usually) belongs to the student (in contrast to research data of TU Delft employees, which (usually) belongs to the university). As such, while you it can be chosen to share your data in a data repository (in addition to uploading your thesis to the Education repository), it is not obliged to do so according to the TU Delft Research Data Framework Policy.

Third-party data from Nice Developers is available under restricted access, which is specified in the internship agreement, and cannot be distributed without express permission from the rights holder.
This internship agreement will be signed by the company supervisor, responsible researcher, main researcher and checked by HREC committee. This addresses the questions of IPR and data ownership.

10. Which personal data will you process? Tick all that apply

Data collected in Informed Consent form (names and email addresses) Signed consent forms

Email addresses and/or other addresses for digital communication Gender, date of birth and/or age

Names and addresses

Personally Identifiable Information (PII): interviewee name, work address, company name, email address, and mobile phone number are processed for administrative reasons (to obtain informed consent and communicate with participants).
Personally Identifiable Research Data (PIRD): Personal research data processed for interview participants:

audio-recordings

professional opinion on achieving sustainability ambitions through communication occupation within organisation: architect, city planner, realtor

year of experience (1 - 5yr, 5yr - 15 yr, >15yr)

Participant data for interviewees is anonymised when recordings are transcribed.

Participants taking part in interviews do not also take part in the workshop, these are different sets of experiments with different participant groups.
Personally Identifiable Information (PII): expert panel participant name, work address, company name, email address, and mobile phone number are processed for administrative reasons (to obtain informed consent and communicate with participants).
Personally Identifiable Research Data (PIRD): Personal research data processed for expert panel participants: audio-recordings

professional opinion on achieving sustainability ambitions through communication occupation within organisation: architect, city planner, realtor
year of experience (1 - 5yr, 5yr - 15 yr, >15yr)
Participant data for expert panel is anonymised when recordings are transcribed.

11. Please list the categories of data subjects

Interview participants are professionals on Project Management, Project Development, Implementing sustainability on area development, in urban areas in The Netherlands.
Expert panel participants are professionals on Project Management, Project Development, Implementing sustainability on area development, in urban areas in The Netherlands.
Participants taking part in interviews do not also take part in the workshop, these are different sets of experiments with different participant groups.

12. Will you be sharing personal data with individuals/organisations outside of the EEA (European Economic Area)?

No

15. What is the legal ground for personal data processing?

Informed consent
The HREC informed consent guide and template will be used to create the informed consent forms for the interviewees (template 2 in the HREC guide).
The HREC informed consent guide and template will be used to create the informed consent forms for the expert panel (template 2 in the HREC guide).
Participants taking part in interviews do not also take part in the workshop, these are different sets of experiments with different participant groups.

16. Please describe the informed consent procedure you will follow:

Interviews: All interview participants will be asked for their written consent for taking part in the study and for data processing before the start of the interview. Interviewees will also be allowed to review the anonymous transcriptions from their interviews before they are finalised and used for analysis.
Expert Panel: All participants will be asked for their written consent for taking part in the study and for data processing before the start of the interview. Interviewees will also be allowed to review the anonymous transcriptions from their interviews before they are finalised and used for analysis.

17. Where will you store the signed consent forms?

Same storage solutions as explained in question 6

The signed informed consent forms as well as other contact information (PII) will be stored separately from research data, to minimise the risk of re-identification on the SURF Drive.
Likewise, physical informed consent forms will be stored securely as well, for instance in a locked cupboard in a locked office. Other data, like the interviews or the conversation for the expert panel, will be stored on the OneDrive.

18. Does the processing of the personal data result in a high risk to the data subjects?

If the processing of the personal data results in a high risk to the data subjects, it is required to perform a Data Protection Impact Assessment (DPIA). In order to determine if there is a high risk for the data subjects, please check if any of the options below that are applicable to the processing of the personal data during your research (check all that apply).
If two or more of the options listed below apply, you will have to complete the DPIA. Please get in touch with the privacy team: privacy-tud@tudelft.nl to receive support with DPIA.
If only one of the options listed below applies, your project might need a DPIA. Please get in touch with the privacy team: privacy-tud@tudelft.nl to get advice as to whether DPIA is necessary.
If you have any additional comments, please add them in the box below.

None of the above applies

22. What will happen with personal research data after the end of the research project?

Anonymised or aggregated data will be shared with others
Personal research data will be destroyed after the end of the research project
The anonymised research data consists of anonymised interview transcripts and the conversation during the expert panel.
These data will be used in the body of the thesis and included the appendix, but will not be shared in a data repository. Audio-recordings of interviews and the conversation during the expert panel are destroyed after completion of anonymised interview transcriptions. All other personal research data will be destroyed at the latest 1 month after the
end of the project.

V. Data sharing and long-term preservation

27. Apart from personal data mentioned in question 22, will any other data be publicly shared?

No other data can be publicly shared - please explain below why data cannot be publicly shared
Third-party data from contacts of Nice Developers B.V. will be received already anonymised. Data on the researched cases, phases, decisions documents, plans, drawings etc, retrieved from internship company. (Nice Developers B.V.) Specifics are stated in the contract and internship agreement. This is available under restricted access, which is specified in the internship agreement, and cannot be distributed without express permission from the rights holder.
This internship agreement will be signed by the company supervisor, responsible researcher, main researcher and checked by HREC committee. This addresses the questions of IPR, data ownership and publication.

29. How will you share research data (and code), including the one mentioned in question 22?

My data will be shared in a different way - please explain below

Anonymised data collected during the project will be included in the body and appendix of the MSc thesis, made available in the TU Delft Educational repository.

30. How much of your data will be shared in a research data repository?

< 100 GB

31. When will the data (or code) be shared?

At the end of the research project
The thesis is made available in the TU Delft Education repository at the end of the graduation project. Research data are only shared within the thesis.

32. Under what licence will be the data/code released?

Other - Please explain
Research data are only shared within the MSc thesis, which is automatically placed under copyright in the Education repository.

VI. Data management responsibilities and resources

33. Is TU Delft the lead institution for this project?

Yes, leading the collaboration - please provide details of the type of collaboration and the involved parties below Internship at Nice Developers B.V.

34. If you leave TU Delft (or are unavailable), who is going to be responsible for the data resulting from this project?

Thesis supervisor, Erwin Heurkens of Management in the Built Environment: e.w.t.m.heurkens@tudelft.nl

35. What resources (for example financial and time) will be dedicated to data management and ensuring that data will be FAIR (Findable, Accessible, Interoperable, Re-usable)?

Research data are only shared within the MSc thesis: no additional resources are required.

Appendix I: HRX Checklist for Human Research

Delft University of Technology
HUMAN RESEARCH ETHICS
CHECKLIST FOR HUMAN RESEARCH
(Version January 2022)

I. Applicant Information

PROJECT TITLE:	**The Realisation of Sustainable Ambitions in Built Environment Projects**
Research period: *Over what period of time will this specific part of the research take place*	**01-09-2025 - 01-02-2025**
Faculty:	**Architecture and the Building Sciences**
Department:	**Management in the Built Environment**
Type of the research project: *(Bachelor's, Master's, DreamTeam, PhD, PostDoc, Senior Researcher, Organisational etc.)*	**Master's**
Funder of research: *(EU, NWO, TUD, other – in which case please elaborate)*	
Name of Corresponding Researcher: *(If different from the Responsible Researcher)*	**Isis Eva Sophia**
E-mail Corresponding Researcher: *(If different from the Responsible Researcher)*	**I.E.S.Bourgonjen@student.tudelft.nl**
Position of Corresponding Researcher: *(Masters, DreamTeam, PhD, PostDoc, Assistant/ Associate/ Full Professor)*	**Masters**
Name of Responsible Researcher: ***Note:*** *all student work must have a named Responsible Researcher to approve, sign and submit this application*	**Erwin Heurkens**
E-mail of Responsible Researcher: *Please ensure that an institutional email address (**no Gmail, Yahoo, etc.**) is used for all project documentation/ communications including Informed Consent materials*	**E.W.T.M.Heurkens@tudelft.nl**
Position of Responsible Researcher : *(PhD, PostDoc, Associate/ Assistant/ Full Professor)*	**Professor Urban Development Management**

II. Research Overview

NOTE: *You can find more guidance on completing this checklist here*

a) Please summarise your research very briefly (100-200 words)

What are you looking into, who is involved, how many participants there will be, how they will be recruited and what are they expected to do?

Add your text here – (please avoid jargon and abbrevations)
This research explores how communication strategies can help progressive developers maintain sustainability ambitions throughout the realization phase of built environment projects. Focusing on Nice Developers, a niche real estate developer prioritizing sustainability, the study examines how these strategies can align ambitions with measurable outcomes and engage conservative stakeholders, such as investors and contractors, in achieving long-term environmental goals. The research employs a qualitative, exploratory methodology through a single case study approach. Data will be gathered via 10-15 semi-structured interviews with internal stakeholders from Nice Developers and

external parties, including conservative investors and project team members. Participants will be recruited based on their involvement in selected projects and their role in decision-making processes. Interviews will explore their perspectives on sustainability, communication, and collaboration, and will be complemented by project document analysis and expert validation workshops. Participants are expected to share insights into strategies and barriers encountered during the realization of sustainability ambitions. The research aims to develop a practical communication framework to bridge gaps between progressive and conservative practices, ensuring the consistent realization of sustainability goals across projects. Findings will provide actionable strategies for advancing sustainability in the construction sector.

b) **If your application is an additional project** related to an existing approved HREC submission, please provide a brief explanation including the existing relevant HREC submission number/s.

Add your text here – (please avoid jargon and abbrevations)

c) **If your application is a simple extension of, or amendment to,** an existing approved HREC submission, you can simply submit an HREC Amendment Form as a submission through LabServant.

III. Risk Assessment and Mitigation Plan

NOTE: *You can find more guidance on completing this checklist here*

Please complete the following table in full for all points to which your answer is "yes". Bear in mind that the vast majority of projects involving human participants as Research Subjects also involve the collection of **Personally Identifiable Information (PII)** and/or **Personally Identifiable Research Data (PIRD)** which may pose potential risks to participants as detailed in Section G: Data Processing and Privacy below.

To ensure alighment between your risk assessment, data management and what you agree with your Research Subjects you can use the last two columns in the table below to refer to specific points in your Data Management Plan (DMP) and Informed Consent Form (ICF) – **but this is not compulsory**.

It's worth noting that **you're much more likely to need to resubmit your application if you neglect to identify potential risks**, than if you identify a potential risk and demonstrate how you will mitigate it. If necessary, the HREC will always work with you and colleagues in the Privacy Team and Data Management Services to see how, if at all possible, your research can be conducted.

If YES please complete the Risk Assessment and Mitigation Plan columns below.

ISSUE	Yes	No	RISK ASSESSMENT – what risks could arise? *Please ensure that you list ALL of the actual risks that could potentially arise – do not simply state whether you consider any such risks are important!*	MITIGATION PLAN – what mitigating steps will you take? *Please ensure that you summarise what actual mitigation measures you will take for each potential risk identified – do not simply state that you will e.g. comply with regulations.*	*Please provide the relevant reference #* DMP	ICF
A: Partners and collaboration						
1. Will the research be carried out in collaboration with additional organisational partners such as: • **One or more collaborating research and/or commercial organisations** • **Either a research, or a work experience internship provider[1]** ***[1] If yes, please include the graduation agreement in this application***	**Yes**		**With Nice Developers B.V.,** - **Potential conflict of interest between you as a researcher and Nice Developers.** - **Limitation of independence due to the influence of the partner organization on the results.** - **Unintentional sharing of sensitive information.**	- Draft of a clear graduation agreement with Nice Developers outlining roles, responsibilities, and data management procedures. - Restrict access to confidential data to essential team members only and use anonymized datasets.		

2. Is this research dependent on a Data Transfer or Processing Agreement with a collaborating partner or third party supplier? ***If yes please provide a copy of the signed DTA/DPA***		**No**				
3. Has this research been approved by another (external) research ethics committee (e.g.: HREC and/or MREC/METC)? ***If yes, please provide a copy of the approval (if possible) and summarise any key points in your Risk Management section below***		**No**				
B: Location						
4. Will the research take place in a country or countries, other than the Netherlands, within the EU?		**No**				
5. Will the research take place in a country or countries outside the EU?		**No**				
6. Will the research take place in a place/region or of higher risk – including known dangerous locations (in any country) or locations with non-democratic regimes?		**No**				
C: Participants						
7. Will the study involve participants who may be vulnerable and possibly (legally) unable to give informed consent? (e.g., children below the legal age for giving consent, people with learning difficulties, people living in care or nursing homes,).		**No**				
8. Will the study involve participants who may be vulnerable under specific circumstances and in specific contexts, such as victims and witnesses of violence, including domestic violence; sex workers; members of minority groups, refugees, irregular migrants or dissidents?		**No**				
9. Are the participants, outside the context of the research, in a dependent or subordinate position to the investigator (such as own children, own students or employees of either TU Delft and/or a collaborating partner organisation)? ***It is essential that you safeguard against possible adverse consequences of this situation (such as allowing a student's failure to participate to your satisfaction to affect your evaluation of their coursework).***		**No**				
10. Is there a high possibility of re-identification for your participants? (e.g., do they have a very specialist job of which there are only a small number in a given country, are they members of a small community, or employees from a partner company collaborating in the research? Or are they	**Yes**		**Some of them are part of the small company Nice Developers B.V. and because of the low amount of employees and specialized roles in this organization, they could be re-identified**	- Anonymize all data by using pseudonyms and removing identifiable details during transcription. - Restrict access to raw data and		

one of only a handful of (expert) participants in the study?			**easily.**	utilize secure storage solutions (e.g., TU Delft's Project Storage). - Fully inform participants about their right to withdraw their data at any time.		
D: Recruiting Participants						
11. Will your participants be recruited through your own, professional, channels such as conference attendance lists, or through specific network/s such as self-help groups	**Yes**		**I will personally ask participants to involve themselves through my own network within the cases.** - **Unintentional pressure on participants to take part due to personal or professional connections.** - **Limited diversity within the participant pool.**	- Ensure that participation remains entirely anonymous to stakeholders outside the researcher. - Actively monitor the diversity of the sample to avoid potential biases. - Set strict case- and interviewee selection criteria		
12. Will the participants be recruited or accessed in the longer term by a (legal or customary) gatekeeper? (e.g., an adult professional working with children; a community leader or family member who has this customary role – within or outside the EU; the data producer of a long-term cohort study)		**No**				
13. Will you be recruiting your participants through a crowd-sourcing service and/or involve a third party data-gathering service, such as a survey platform?		**No**				
14. Will you be offering any financial, or other, remuneration to participants, and might this induce or bias participation?		**No**				
E: Subject Matter ***Research related to medical questions/health may require special attention. See also the website of the CCMO before contacting the HREC.***						
15. Will your research involve any of the following: • **Medical research and/or clinical trials** • **Invasive sampling and/or medical imaging** • **Medical and *In Vitro Diagnostic Medical* Devices Research**		**No**				
16. Will drugs, placebos, or other substances (e.g., drinks, foods, food or drink constituents, dietary supplements) be administered to the study participants? ***If yes see here to determine whether medical ethical approval is required***		**No**				
17. Will blood or tissue samples be obtained from participants?		**No**				

If yes see here to determine whether medical ethical approval is required						
18. Does the study risk causing psychological stress or anxiety beyond that normally encountered by the participants in their life outside research?		**No**				
19. Will the study involve discussion of personal sensitive data which could put participants at increased legal, financial, reputational, security or other risk? (e.g., financial data, location data, data relating to children or other vulnerable groups) ***Definitions of sensitive personal data, and special cases are provided on the TUD Privacy Team website.***		**No**				
20. Will the study involve disclosing commercially or professionally sensitive, or confidential information? (e.g., relating to decision-making processes or business strategies which might, for example, be of interest to competitors)	**Yes**		**There will be information involved from different stakeholders in their decision-making-process on how and if they are willing to implement sustainability and in which way.** - **Risk of data breaches or disclosure of business strategies.** - **Impact on stakeholder trust if sensitive information is unintentionally shared.**	- Use a clear Informed Consent Form with participants. - Anonymize sensitive information in reports and share only summarized, analyzed data. - Conduct interviews in private settings without recording devices unless explicit consent is provided.		
21. Has your study been identified by the TU Delft Privacy Team as requiring a Data Processing Impact Assessment (DPIA)? ***If yes please attach the advice/ approval from the Privacy Team to this application***		**No**				
22. Does your research investigate causes or areas of conflict? ***If yes please confirm that your fieldwork has been discussed with the appropriate safety/security advisors and approved by your Department/Faculty.***		**No**				
23. Does your research involve observing illegal activities or data processed or provided by authorities responsible for preventing, investigating, detecting or prosecuting criminal offences ***If so please confirm that your work has been discussed with the appropriate legal advisors and approved by your Department/Faculty.***		**No**				
F: Research Methods						
24. Will it be necessary for participants to take part in the study without their knowledge and consent at the time? (e.g., covert observation of people in non-public places).		**No**				

25. Will the study involve actively deceiving the participants? (For example, will participants be deliberately falsely informed, will information be withheld from them or will they be misled in such a way that they are likely to object or show unease when debriefed about the study).		**No**				
26. Is pain or more than mild discomfort likely to result from the study? And/or could your research activity cause an accident involving (non-) participants?		**No**				
27. Will the experiment involve the use of devices that are not 'CE' certified? ***Only, if 'yes': continue with the following questions:***		**No**				
• **Was the device built in-house?**						
• **Was it inspected by a safety expert at TU Delft?** ***If yes, please provide a signed device report***						
• **If it was not built in-house and not CE-certified, was it inspected by some other, qualified authority in safety and approved?** ***If yes, please provide records of the inspection***						
28. Will your research involve face-to-face encounters with your participants and if so how will you assess and address Covid considerations?	**Yes**		**Semi-structured interviews are held in this study. These may, is possible, be face-to-face. If so, current regulations regarding Covid will at any time be adhered to and executed in the right way.** - **Health risks due to in-person interactions.** - **Stress or discomfort for participants due to COVID-19 measures.**	- Provide the option to conduct interviews online as an alternative. - Adhere to current RIVM guidelines for physical meetings. - Inform participants in advance about the precautions taken.		
29. Will your research involve either: **a) "big data", combined datasets, new data-gathering or new data-merging techniques which might lead to re-identification of your participants and/or** **b) artificial intelligence or algorithm training where, for example biased datasets could lead to biased outcomes?**		**No**				
G: Data Processing and Privacy						
30. Will the research involve collecting, processing and/or storing any directly identifiable PII (Personally Identifiable Information) including name or email address that will be used for administrative purposes only? (eg: obtaining Informed Consent or disbursing remuneration)	**Yes**		**During the interviews this might be the case. If so, informed consent will be obtained at any time before the interview starts.**			

31. Will the research involve collecting, processing and/or storing any directly or indirectly identifiable PIRD (Personally Identifiable Research Data) including videos, pictures, IP address, gender, age etc and what other Personal Research Data (including personal or professional views) will you be collecting?	**Yes**		**Personal research data, such as personal or professional views will be collected during the interviews. If so, informed consent will be obtained at any time before the interview starts.** - **Potential privacy violations from collecting names, email addresses, or other Personally Identifiable Information (PII).** - **Risk of data breaches if information is not securely stored.**	- Use secure storage methods, such as TU Delft's Project Storage. - Delete personal data immediately after processing and use pseudonymization where possible. - Obtain explicit consent via an informed consent form.		
32. Will this research involve collecting data from the internet, social media and/or publicly available datasets which have been originally contributed by human participants		**No**				
33. Will your research findings be published in one or more forms in the public domain, as e.g., Masters thesis, journal publication, conference presentation or wider public dissemination?	**Yes**		**This research will be published on the TU Delft repository as a Master thesis of Management in the Built Environment.** - **Risk that anonymous quotes may still be traceable to an individual or organization.** - **Misinterpretation of research results by audiences.**	- Obtain explicit consent from participants for the use of their quotes in public reports. - Use generic descriptions instead of specific references to individual organizations or roles if no consent is given.		
34. Will your research data be archived for re-use and/or teaching in an open, private or semi-open archive?		**No**				

H: More on Informed Consent and Data Management

NOTE: *You can find guidance and templates for preparing your Informed Consent materials) here*

Your research involves human participants as Research Subjects if you are recruiting them or actively involving or influencing, manipulating or directing them in any way in your research activities. This means you must seek informed consent and agree/ implement appropriate safeguards regardless of whether you are collecting any PIRD.

Where you are also collecting PIRD, and using Informed Consent as the legal basis for your research, you need to also make sure that your IC materials are clear on any related risks and the mitigating measures you will take – including through responsible data management.

Got a comment on this checklist or the HREC process? You can leave your comments here

IV. Signature/s

Please note that by signing this checklist list as the sole, or Responsible, researcher you are providing approval of the completeness and quality of the submission, as well as confirming alignment between GDPR, Data Management and Informed Consent requirements.

Name of Corresponding Researcher (if different from the Responsible Researcher) (print)
Isis Eva Sophia Bourgonjen

Signature of Corresponding Researcher:

Date: 23-01

Name of Responsible Researcher (print)
Erwin Heurkens

Signature (or upload consent by mail) Responsible Researcher:

Date: