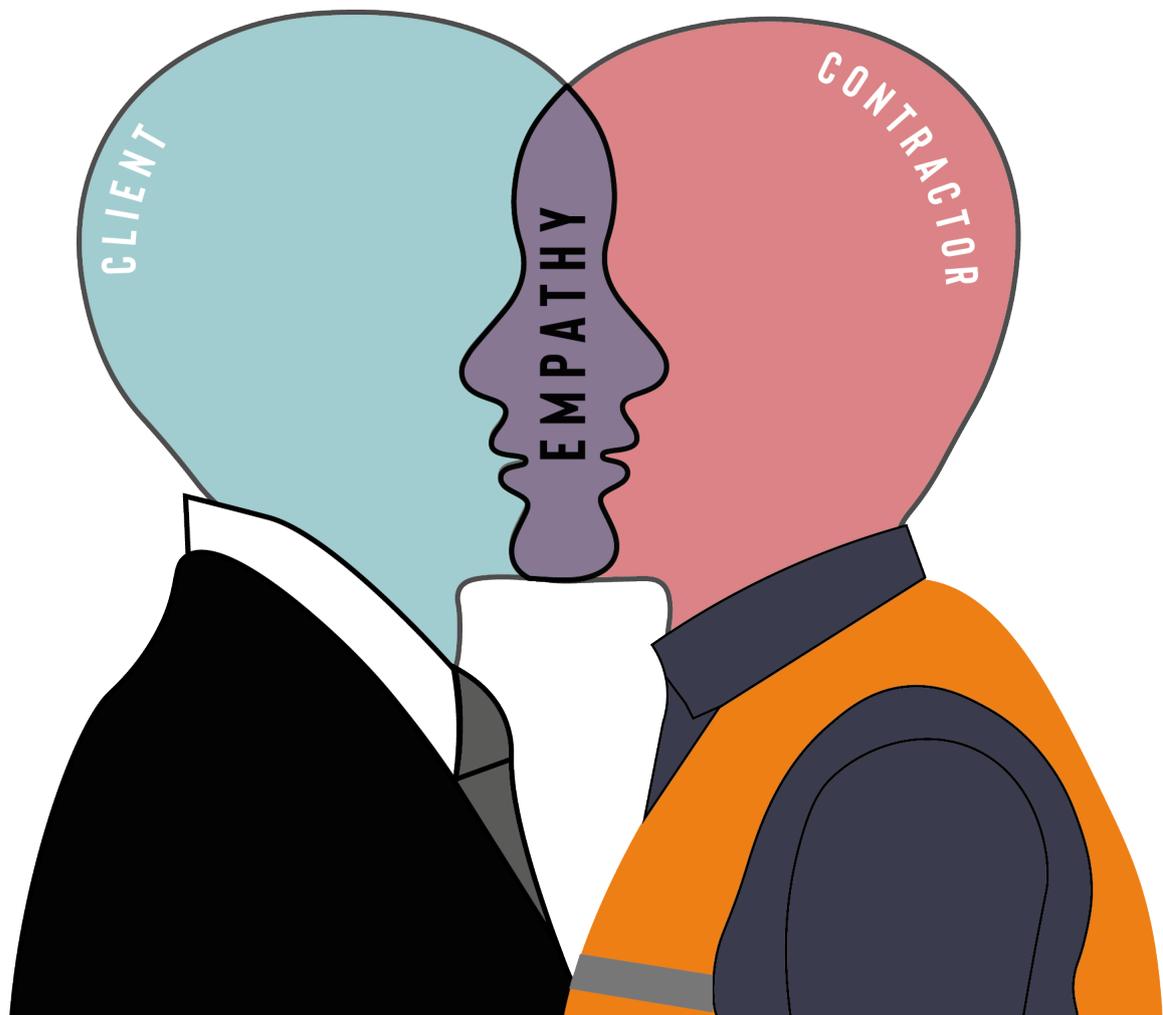


The effect of empathy in collaboration on project performance

Steering on empathy to improve project performance through client-contractor collaboration in the first phase of the two-phase model

Master of Science thesis

T. (Tom) Kuster



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by

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Preface

Primary school, my teacher in grade 8 doubted whether I should go to the havo. In high school, my study advisor doubted whether I should choose the technical track instead of something non-technical. During my hbo bachelor, my study advisor had doubts when I expressed my desire to go to university and questioned if I should start working instead. However, thirteen years later, since the initial doubt, I am now completing my Master's in Construction Management and Engineering at the Delft University of Technology, with a thesis titled "The effect of empathy in collaboration on project performance". This entire journey has had its easy and difficult periods, but I am grateful that I did not listen to those doubts and always wanted to challenge myself.

However, this final achievement would not have been possible without the support of my thesis committee. Therefore, I would like to express my sincere gratitude to Marcel Hertogh, Maedeh Molaei, Leon Hombergen, and Guus Keusters. Marcel, thank you for guiding my process and providing critical academic insights. Maedeh, thank you for always being available to answer my questions and engaging in valuable discussions and providing feedback. Leon, thank you for your always refreshing perspectives on this challenging and sometimes elusive topic. Guus, thank you for enabling my research at Dura Vermeer and for the critical yet enjoyable collaboration. And Guus, I wish you success in your doctoral research on this fascinating subject. I would also like to extend my thanks to the interviewees and the experts who participated in the evaluation sessions.

Of course, I would also like to thank my parents and my brother for your genuine interest and support and my friends, both study and non-study related, for their involvement and distraction throughout the process. What sticks with me the most from my studies and the thesis is that uncertainty and complexity are not inherently negative. They are aspects to be embraced.

*T. (Tom) Kuster
Delft, May 2023*

Executive summary

Introduction

As construction projects worldwide become increasingly complex, with multiple contributing factors such as project contexts, integration of various disciplines, and procurement processes, effective management strategies have become more crucial than ever. The Dutch Ministry of Infrastructure and Water Management (Rijkswaterstaat) has recognized the challenges posed by the increasing complexity of the construction sector in the Netherlands. It has introduced a new project delivery model to cope with these challenges: the two-phase model. Additionally, traditional project management strategies may not be suitable for complex projects, as they often lack flexibility and hinder effective client-contractor collaboration. A strategy that enables Emotional Intelligence, particularly the competence of empathy, has been recognized to improve relationship building and collaboration among project teams potentially. Early Contractor Involvement (ECI) has also gained international recognition as a project delivery model involving the contractor earlier in the project, requiring collaboration between clients and contractors. In the Netherlands, ECI corresponds to the project delivery model that Rijkswaterstaat has introduced. The already familiar Bouwteam is a form of the two-phase model that has already been used in the Netherlands. The first phase of the two-phase model differs significantly from integrated models, is awarded based on qualitative criteria, and heavily relies on client-contractor collaboration. Therefore, the experience in the sector must be increased to perform in this phase, and different competencies are needed during the first phase.

The research aims to explore the role of empathy in improving project performance through client-contractor collaboration in the first phase of a two-phase model and to provide practical insights for practitioners on how to utilize empathy effectively in their projects. To achieve the objective, the main research question necessitates a solution:

How to improve project performance by focusing on empathy through client-contractor collaboration in the first phase of the two-phase model?

The methodology uses three successive parts. Part I consists of a literature review of the research variables to develop an understanding of each variable. The research variables are the competence of empathy, the two-phase model, collaboration, and project performance. The outcome of this part is a theoretical framework providing a foundation for selecting the appropriate research approach and steering the research design, data collection, and data analysis. Part I ends with the expected outcome of the research formulated through three hypotheses, presented in Figure 2.3.

Based on the theoretical framework, the research approach consists of selecting multiple cases used to obtain the research data. The case selection uses theoretical replication, namely selecting two project characteristics - the contractor's design assignment and the project team's form of collaboration - to create four quadrants representing different forms of a two-phase model. Eventually, four cases are selected from the portfolio of Dura Vermeer, the research company, procured through a two-phase model from the Dutch construction sector. The cases are anonymized for confidentiality.

Semi-structured interviews are chosen as the main data collection method due to the open-ended nature of the research question. An interview protocol is used to conduct the interviews based on predetermined topics from the literature review. The selection criterion for the interviewees was that their role had to be part of the integrated project management roles. The interviewees are anonymized for confidentiality.

The analysis is conducted using qualitative data analysis software. It involves transcribing the interviews, creating codes and categories, revising codes as needed, grouping codes to identify patterns, interpreting the results, and substantiating research findings with interview quotes. The data analysis of the interviews reveals three outcomes: (1) understanding the relationship between collaboration and project performance, (2) understanding the relationship between empathy and collaboration, and (3) examining how these relationships relate to varying project characteristics of the case studies.

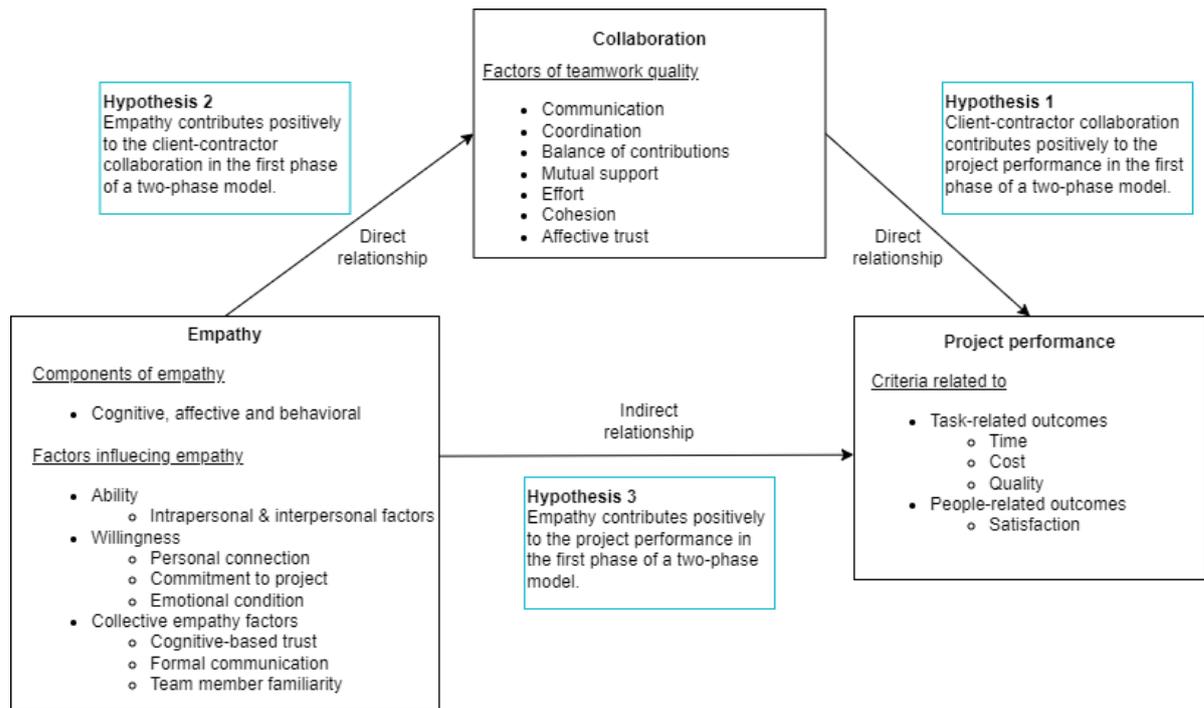


Figure 1: Hypotheses of the research.

Research findings

The research findings are presented based on the relationships between the research variables. 1) The relationship between client-contractor collaboration and project performance. 2) The relationship between the competence of empathy and client-contractor collaboration.

1) *The relationship between client-contractor collaboration and project performance.* The data suggest that client-contractor collaboration affects the project performance of the first phase, influencing the actual performance of the criterion quality and perception of criteria time and cost. Where the actual performance relates to, e.g., improved end products, and the perception relates to, e.g., accepting a degree of uncertainty that reduces throughout the first phase. The research findings show three significant differences in the collaborative process in the two-phase model compared to more traditional project delivery models.

1. A shift in the focus from the end product toward the process leading to the end product. Where the end product is implicitly satisfactory if it results from a satisfactory process.
2. A shift toward shared responsibility between the client and the contractor. Making design choices collectively through a decision-making process based on collective responsibility.
3. Allowing flexibility in the criteria. Accepting uncertainty in the boundary conditions of the criteria is essential for the perception of performance and allowing for iterative optimizations.

Furthermore, affective trust, communication, and cohesion are the most essential factors for the collaborative process. Activities such as Project Start-Up, team-building sessions, and collaboration monitoring should be used to develop, maintain and improve collaboration. Changes in the project team, neglecting small (collaborative) issues, and traditional behavior are harmful to collaboration. The effectiveness of collaboration and investment in collaboration appears to be higher in the two-phase model compared to the integrated Design & Construct model.

2) *The relationship between the competence of empathy and client-contractor collaboration.* The data highlights the role of empathy in facilitating understanding at the team member and organizational levels. Empathy involves understanding the interests, culture, issues, and behavior of others to build relationships, improve collaborative feelings, and support others. Empathy is crucial in project phases

where there may be unfamiliarity between the client and contractor. The goal is to develop motivation and the ability to support and learn from each other. Overall, the aim is to incorporate understanding consciously in behavior and decision-making.

Factors that influence the occurrence of empathic behavior are the work environment, team member relationships, communication, work location, empathic ability, attitude towards empathy, and team size. Furthermore, it affects the most essential factors of the collaborative process. The activities used to develop, maintain and improve the collaboration can be used to incorporate empathy in the collaborative process and remain focused. Overall, a proactive attitude towards empathy and continuous development of empathic behavior is essential.

The three hypotheses are supported based on the research findings. The main line of reasoning can be stated as follows:

- *Hypothesis 1:* Client-contractor collaboration positively contributes to the project performance of the first phase of a two-phase model by improving criterion quality through a focus on the process and shared responsibility and improving the perception of time and cost through flexibility in boundary conditions and understanding between organizations.
- *Hypothesis 2:* Empathy positively contributes to client-contractor collaboration during the first phase of a two-phase model by facilitating understanding at team member and organizational levels, leading to relationship building, consideration of each other's interests, and stimulating the most essential factors of the collaborative process. Additionally, collaboration affects empathy through the factors of collaboration affective trust and communication and is facilitated by collaborating in the first phase. It is highlighted that empathy is crucial in project phases in which organizations are unfamiliar and should be considered during decision-making and in one's behavior.
- *Hypothesis 3:* Empathy contributes positively to the project performance of the first phase of a two-phase model by influencing the collaborative process related to the criteria of quality, time, and cost. Empathic behavior facilitates understanding and contributes to the criteria quality, time, and cost during the integrated design process. Furthermore, it develops trust and cohesion, allowing for shared responsibility and flexibility in boundary conditions, improving the performance of the criteria of time and cost. This hypothesis is supported based on the relationship between empathy, client-contractor collaboration, and project performance.

Based on research findings and the support of hypothesis 3, a conceptual framework aims to steer on empathy to improve the project performance through client-contractor collaboration through four strategies. The conceptual model is validated based on two evaluation sessions with experts from the industry. The final framework (Table 2), is recognized effective and applicable in accomplishing the objective. The framework differentiates between two important stages in the first phase: the start of the first phase and after that all following until the end of the first phase. The project managers of the client and contractor should collectively apply this framework at the start of the first phase. The framework uses four strategies that focus on improving the performance of the first phase. Project managers should, in order to effectively achieve the outcome of the framework: 1) focus on the factors for empathy and the collaborative process, 2) maintain and improve the collaboration, and 3) minimize the threats to the collaborative process.

Discussion

However, it is essential to acknowledge that the research has limitations that should be considered when interpreting the conclusions. One limitation related to the qualitative test of the hypotheses. Leaving space for subjective interpretations of the research data. Furthermore, not all interviewees were entirely familiar with the concept of empathy and how it relates to client-contractor collaboration. Likewise, factors of collaboration were interpreted differently because of their interrelatedness and subjectivity. Additionally, the validation approach implicitly focused on the effectiveness and applicability of the framework and less on validating the analysis performed to arrive at the framework. Also, the framework has not been tested in practice. Therefore, the final framework is presumed to be effective and applicable based on expert evaluation. Another important interpretation relates to collaboration, which is used as a factor to achieve project performance. Regarding collaboration, the factors not included

in the framework should, however, still be considered relevant for the collaborative process. Another important implication of the research results is based on the scope of the framework. It is impossible to distinguish between the two project characteristics (form of collaboration and the contractor's design assignment) due to the included factors of collaboration (affective trust, communication, and cohesion). Therefore, the framework should be applied in the same manner across the different formats based on the combinations of the two project characteristics. Finally, empathy should be considered interpersonal rather than collective in the team by considering the number of team members to increase the effectiveness of empathic behavior.

Conclusion and recommendations

In conclusion, the research emphasizes the critical role of empathy in improving project performance through client-contractor collaboration in the first phase of the two-phase model. Maintaining a focus on empathy and collaboration throughout this phase is essential. Using the proposed framework, including strategies and activities, can create a setting that allows for empathic behavior, enhancing actual and perceived performance and coping with potential challenges. The research contributes to understanding performance criteria and client-contractor collaboration in construction projects procured through a two-phase model. It emphasizes the importance of interpersonal empathy in improving collaboration and highlights the factors that facilitate empathic behavior. The study highlights the significance of empathy's cognitive, affective, and behavioral components for developing mutual understanding. The findings have practical implications for project managers, guiding how to effectively incorporate empathy during the first phase of the two-phase model to enhance project performance.

Based on the findings, the following recommendations for future research and practice are suggested. Future research should test the hypotheses quantitatively to eliminate the subjective interpretation of the research data. Furthermore, testing the framework in practice, exploring the scope expansion of the framework, and identifying additional relevant competencies. The role of empathy in facilitating understanding in the procurement phase should be further investigated. The recommendations for the construction sector include using an external coach to facilitate the process objectively in the first and second phases. Team members should be selected based on empathy, especially in the management team. The focus developed on empathy and collaboration in the first phase should be extended into the second phase. It is important for both the client and contractor to understand each other's culture and work processes and maintain an open attitude towards learning from each other to increase motivation and support.

This research provides valuable insights into the role of empathy in improving project performance through client-contractor collaboration in the first phase of the two-phase model. The developed framework can serve as a foundation for future research and guide the construction sector on how to focus on the soft, i.e., human, side of project management.

Table 1: The framework.

	Start of Phase I – Invest and develop a collaborative process	Throughout Phase I – Product development based on the collaborative process
Prepare Where do we stand?	<ul style="list-style-type: none"> • Team member level: limited understanding of team members' interests, culture, issues, and behavior. • Organizational level: limited understanding of other organizations' interests, culture, and work processes. The importance of understanding increases with increasing unfamiliarity. • No focus on the fundamental basis of the collaborative process and the factors that influence empathy 	<ul style="list-style-type: none"> • Focus on the end product instead of the process leading to the end product: not able to improve the performance criterion quality and facilitate an improved perception of the criteria of time and cost. • No focus on shared responsibility: not able to improve the performance criterion quality. • Not allowing flexibility in the criteria: not able to facilitate an improved perception of the criteria of time and cost
Vision What do we want to achieve?	<p>1) Developing an understanding</p> <ul style="list-style-type: none"> • Team member level: an understanding of the other team members' interests, culture, issues, and behavior through empathic behavior. Include this understanding into one's own behavior and into consideration during decision-making. Improved ability to support, let others flourish, and build relationships based on a deeper connection improves the collaborative feeling. • Organizational level: developing an understanding of other organizations' interests, culture, and work processes through empathic behavior. Increasing the motivation and ability to support through understanding the other organization. Both organizations can learn from each other. Include this understanding into one's own behavior and into consideration during decision-making. • Focus on the fundamental basis for the collaborative process: trust, communication, and cohesion. • Focus on the factors influencing empathic behavior: work environment, including work location, communication, empathic ability, relationships between team members, willingness to behave empathic, and the number of team members. 	<p>2) Focus on the process leading to the end product</p> <ul style="list-style-type: none"> • Improving the performance criterion quality. The end product is implicitly satisfactory if it results from a satisfactory process. If the process is not satisfactory, then the causes are known, and these are manageable due to the mutual process. Developed products are mutually supported, including a reduction in revisions. • Facilitating an improved perception of the criteria of time and cost. The perception is improved because both organizations know and understand the process leading to the product. <p>3) Focus on shared responsibility</p> <p>4) Allowing flexibility in criteria</p> <p>Facilitating an improved perception of the criteria of time and cost. Accepting a degree of uncertainty in the boundary conditions of the criteria is essential for the perception. Allowing optimizations by involving the other organization's expertise.</p>
Plan How will we get there?	<p>1) Developing an understanding</p> <p>Level: team member Activity: team building session¹ Goal: understanding interests, culture, issues, and behavior through sharing and retrieving underlying motivations and feelings, i.e., the why. Result: include this understanding into one's own behavior and consideration during decision-making. Points of attention: important on the tactical level, especially between client and contractor counter partners. Facilitated through external coaching. Include the development of trust and cohesion and consider the communication style. Facilitate a non-working environment during the session (informal).</p> <p>Level: organizational Activity: Project Start-Up² Goal: improving understanding and creating awareness of the other organization, their cultures, working methods, core values, project goals and objectives, and interests through sharing and retrieving underlying motivations, i.e., the why. Result: increasing the motivation and ability to support the other organization. Include this understanding into one's own behavior and consideration during decision-making. Points of attention: important on the tactical level. Facilitated through external coaching.</p>	<p>2) Focus on the process leading to the end product</p> <ul style="list-style-type: none"> • Understand and actually consider and carry out each other's interests. • Both organizations should be actively involved in the design process. • Make design choices collectively through a decision-making process based on collective responsibility. • Use integral design studios to facilitate the process. <p>3) Focus on shared responsibility</p> <ul style="list-style-type: none"> • Deviate from the strict acceptance procedure of the client. • Use the expertise of both organizations. • Make design choices collectively through a decision-making process based on collective responsibility. • Use integral design studios to facilitate the process. <p>4) Allowing flexibility in criteria</p> <ul style="list-style-type: none"> • Allow for scope freedom. • Allow the other organization their expertise for optimization. • Allow design loops to iteratively balance the performance criteria of time, cost, and quality.
Factors enabling empathic behavior and the collaborative process	<ul style="list-style-type: none"> • Working environment, including work location³: create an environment that fosters openness, ability to ask questions, and reveal vulnerability. Influences the extent of empathic behavior in team members • Communication⁴: communication is an aim and means. An aim by awareness of the communication style from the start on team member level and selective communication throughout the organizational layers. A means to facilitate empathic behavior through the communication style and the actual communication taking place in the team. Empathy improves information sharing among members. • Empathic ability⁵: influences the extent to which team members can behave empathic based on personal experiences. The importance increases with unfamiliarity in project phase or delivery model. • Trust⁶: establishing trust from the project's start is considered most essential for the collaborative process. It must be present at all organizational layers. It must remain a topic of discussion, even if not present. Empathic behavior facilitates understanding of each other's motivations and circumstances. 	<ul style="list-style-type: none"> • Relationships between team members⁷: some connection between team members is necessary to behave empathic. Establishing trust is a prerequisite. This connection is especially important on the tactical layer. • Willingness to behave empathic⁸: willingness to engage in empathic behavior on the team member level depends on two aspects: 1) one must be willing to express empathic behavior and position oneself vulnerably. 2) Receiving empathic behavior stimulates exhibiting the same behavior. At the organizational level, it is about the willingness to deviate from strictly following contractual provisions and allow for empathy in the process. • The number of team members⁹: the effect of group size should be considered for the effectiveness and outcome of the empathic behavior. • Cohesion¹⁰: important to invest and work on creating cohesion from the start of the project to increase the sense of collaboration. It must be maintained throughout the project by keeping the focus on the team aspect.
Maintain and improve the collaboration	<ul style="list-style-type: none"> • Activity: Project Follow-Up + collaboration monitor¹¹ Goal: measure compliance with the objectives, incl. collaboration goals set during the PSU. Result: improved compliance with the objectives through steering. Resolving issues in the process. Improved collaboration and ability to behave empathic, Points of attention: facilitated by an external coach. Recurring periodically. 	<ul style="list-style-type: none"> • Activity: check-in during meetings¹² Goal: understanding day-to-day issues and circumstances. Result: include this understanding into one's own behavior and consideration during decision-making. Points of attention: start with focus on members. Include in agenda. • Activity: Team (building) sessions¹³ Goal: maintain and improve the collaboration. Result: a maintained and improved collaborative process through active steering. Points of attention: facilitated by an external coach.
Reducing threats to the collaboration	<ul style="list-style-type: none"> • Early warning of small collaborative issues¹⁴ Goal: address the small collaborative issues. Result: having the conversation about the issues at the correct moment before there is no time, money, etc., to resolve the issue. Points of attention: the work environment must allow and accept openness. • Minimizing the impact of team changes through onboarding activity¹⁵ Goal: minimizing the impact on the established level of trust and cohesion. Result: aligned team members with the context of the two-phase model, project, and project team, incl. behavioral aspects. Points of attention: focus must remain on utilizing the activity by designating responsibility and enforcement. Especially the selection of the tactical layer should include a focus on empathic behavior. 	<ul style="list-style-type: none"> • Reestablishing focus on collaboration¹⁶ Goal: reestablish focus on the collaborative process during traditional behavior and external influences. Result: focus on the collaborative process and, therefore, a smoother performing first phase. Points of attention: communication at both organizations throughout the entire first phase is essential to reestablish the focus on collaboration.

Samenvatting

Introductie

Naarmate bouwprojecten wereldwijd steeds complexer worden, met meerdere bijdragende factoren zoals projectcontexten, integratie van verschillende disciplines en inkoopprocessen, zijn effectieve managementstrategieën crucialer dan ooit. Het Ministerie van Infrastructuur en Waterstaat (Rijkswaterstaat) van Nederland heeft de uitdagingen erkend die worden veroorzaakt door de toenemende complexiteit van de bouwsector in Nederland. Om deze uitdagingen aan te pakken, heeft Rijkswaterstaat een nieuw aanbestedingsmodel geïntroduceerd: het tweefasenmodel. Bovendien zijn traditionele projectmanagementstrategieën mogelijk niet geschikt voor complexe projecten, omdat ze vaak flexibiliteit missen en effectieve samenwerking tussen opdrachtgever en aannemer belemmeren. Een strategie die ruimte biedt voor Emotionele Intelligentie, met name de competentie van empathie, is erkend om de opbouw van relaties en samenwerking tussen projectteams te verbeteren. Early Contractor Involvement (ECI) heeft internationale erkenning gekregen als aanbestedingsmodel waarbij de aannemer eerder in het project wordt betrokken en samenwerking tussen opdrachtgevers en aannemers vereist is. In Nederland komt ECI overeen met het aanbestedingsmodel dat Rijkswaterstaat heeft geïntroduceerd (het twee-fasen model). Het reeds bekende Bouwteam is een vorm van het twee-fasen model die al in Nederland wordt gebruikt. De eerste fase van het twee-fase model verschilt aanzienlijk van geïntegreerde modellen, wordt gegund op basis van kwalitatieve criteria en is sterk afhankelijk van samenwerking tussen opdrachtgever en aannemer. Daarom moet de ervaring in de sector worden vergroot om goed te presteren in deze fase, en zijn verschillende competenties nodig tijdens de eerste fase.

Het onderzoek heeft als doel de rol van empathie bij het verbeteren van projectprestaties door samenwerking tussen opdrachtgever en aannemer in de eerste fase van een tweefasenmodel te verkennen en praktische inzichten te bieden aan professionals over hoe empathie effectief kan worden ingezet in hun projecten. Om dit doel te bereiken, vereist de hoofdonderzoeksvraag een antwoord:

Hoe kunnen de projectprestaties worden verbeterd door te focussen op empathie in samenwerking tussen opdrachtgever en aannemer in de eerste fase van het tweefasenmodel?

De methodologie is gebaseerd op drie opeenvolgende delen. Deel I bestaat uit een literatuuronderzoek van de onderzoeksvariabelen om deze te begrijpen. De onderzoeksvariabelen zijn de competentie van empathie, het twee-fasen model, samenwerking en projectprestaties. Het resultaat van dit deel is een theoretisch kader dat dient als basis voor het selecteren van de juiste onderzoeksaanpak en het sturen van het onderzoeksontwerp, de dataverzameling en de data-analyse. Deel I eindigt met de verwachte uitkomst van het onderzoek geformuleerd door drie hypothesen, gepresenteerd in Figuur 2.

De onderzoeksaanpak bestond op basis van het theoretisch kader uit het selecteren van meerdere cases om onderzoeksgegevens te verkrijgen. De selectie van de cases is gebaseerd op theoretische replicatie, namelijk geselecteerd op twee projectkenmerken - de ontwerpdracht van de aannemer en de vorm van samenwerking van het projectteam - om vier kwadranten te creëren die verschillende vormen van een tweefasenmodel vertegenwoordigen. Uiteindelijk zijn vier cases geselecteerd uit de portfolio van Dura Vermeer, het onderzoeksbedrijf, die zijn gegund op basis van een twee-fasen model uit de Nederlandse infrastructuur sector. De cases zijn geanonimiseerd omwille van vertrouwelijkheid.

Semi-gestructureerde interviews zijn gekozen als de belangrijkste methode voor gegevensverzameling vanwege de open aard van de onderzoeksvraag. Een interviewprotocol is gebruikt om de interviews te voeren op basis van vooraf bepaalde onderwerpen uit het literatuuronderzoek. Het selectie criterium voor de geïnterviewden was dat hun rol in het project deel moest uitmaken van de geïntegreerde projectmanagementrollen (IPM-rollen). De geïnterviewden zijn geanonimiseerd omwille van vertrouwelijkheid.

De analyse werd uitgevoerd met behulp van kwalitatieve data-analyse software. De data-analyse van de interviews leverde drie resultaten op: (1) het begrijpen van de relatie tussen samenwerking

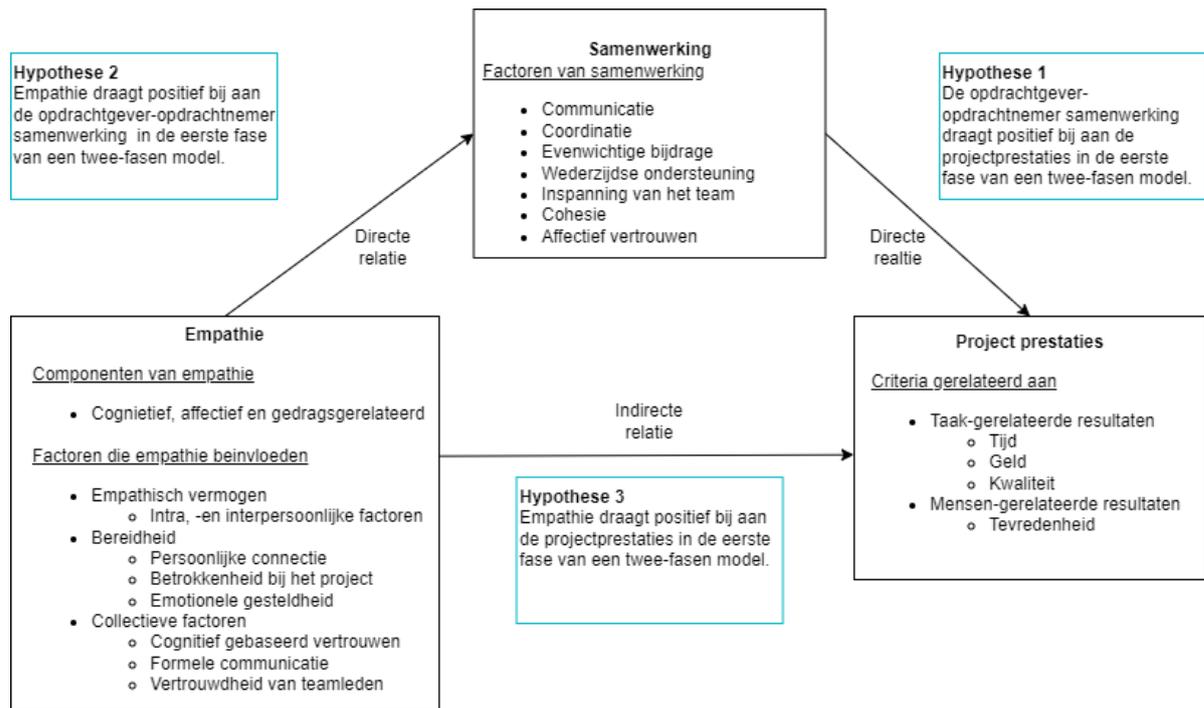


Figure 2: Onderzoekshypothesen.

en projectprestaties, (2) het begrijpen van de relatie tussen empathie en samenwerking, en (3) het onderzoeken van hoe deze relaties verband houden met verschillende projectkenmerken van de cases.

Onderzoekresultaten

De onderzoeksresultaten worden gepresenteerd op basis van de relaties tussen de onderzoeksvariabelen: 1) De relatie tussen opdrachtgever-opdrachtnemer samenwerking en projectprestaties. 2) De relatie tussen inlevingsvermogen en opdrachtgever-opdrachtnemer samenwerking.

1) *De relatie tussen opdrachtgever-opdrachtnemer samenwerking en projectprestaties.* De data suggereert dat de opdrachtgever-opdrachtnemer samenwerking de projectprestaties van de eerste fase beïnvloedt, waarbij de daadwerkelijke prestaties van het criterium kwaliteit en de perceptie van de criteria tijd en kosten worden beïnvloed. Waarbij de daadwerkelijke prestatie betrekking heeft op bijvoorbeeld verbeterde eindproducten en de perceptie betrekking heeft op het accepteren van een zekere mate van onzekerheid die gedurende de eerste fase afneemt. De onderzoeksbevindingen tonen drie significante verschillen in het samenwerkingsproces in het tweefasenmodel in vergelijking met meer traditionele aanbestedingsmodellen.

1. Een verschuiving van de focus van het eindproduct naar het proces dat tot het eindproduct leidt, waarbij het eindproduct impliciet bevredigend is als het voortkomt uit een bevredigend proces.
2. Een verschuiving naar gedeelde verantwoordelijkheid tussen opdrachtgever en opdrachtnemer. Het gezamenlijk maken van ontwerpkeuzes door middel van een besluitvormingsproces gebaseerd op collectieve verantwoordelijkheid.
3. Flexibiliteit toestaan in de criteria, waarbij het accepteren van onzekerheid in de grensvoorwaarden van de criteria essentieel is voor de perceptie van prestaties en voor iteratieve optimalisaties.

Bovendien zijn affectief vertrouwen, communicatie en cohesie de meest essentiële factoren voor het samenwerkingsproces. Tools zoals Project Start-Up, teambuilding sessies en samenwerkingsmonitoring moeten worden gebruikt om samenwerking te ontwikkelen, te onderhouden en te verbeteren. Veranderingen in het projectteam, verwaarlozing van kleine (samenwerkings)problemen en traditioneel gedrag zijn schadelijk voor samenwerking. De effectiviteit van samenwerking en investering in

samenwerking lijkt hoger te zijn in het twee-fasen model in vergelijking met een traditioneel aanbestedingsmodel.

De relatie tussen de competentie empathie en opdrachtgever-opdrachtnemer samenwerking. De data benadrukt de rol van empathie bij het faciliteren van begrip op teamlid- en organisatieniveau. Empathie houdt in dat men de belangen, cultuur, problemen en gedrag van anderen begrijpt om relaties op te bouwen, het samenwerkingsgevoel te verbeteren en anderen te ondersteunen. Empathie is cruciaal in projectfasen waar mogelijk onbekendheid is tussen de klant en de aannemer. Het doel is om motivatie en het vermogen om elkaar te ondersteunen te ontwikkelen. Verder kunnen beide organisaties van elkaar leren. In het algemeen is het de bedoeling dat begrip bewust wordt opgenomen in gedrag en besluitvorming.

Factoren die van invloed zijn op het optreden van empathisch gedrag zijn de werkomgeving, relaties tussen teamleden, communicatie, werklocatie, empathisch vermogen, houding ten opzichte van empathie en teamgrootte. Empathie beïnvloedt de meest essentiële factoren van het samenwerkingsproces (affectief vertrouwen, communicatie en cohesie). De instrumenten die worden gebruikt om samenwerking te ontwikkelen, te onderhouden en te verbeteren, kunnen worden gebruikt om empathie in het samenwerkingsproces op te nemen en gefocust te blijven. Over het algemeen is een proactieve houding ten aanzien van empathie en voortdurende ontwikkeling van empathisch gedrag essentieel.

De drie hypothesen worden ondersteund op basis van de onderzoeksresultaten. De belangrijkste redenering kan als volgt worden gesteld:

- *Hypothese 1:* Samenwerking tussen opdrachtgever en opdrachtnemer draagt positief bij aan de projectprestaties van de eerste fase van het twee-fasen model door de verbetering van het criterium kwaliteit door zich te richten op het proces en gedeelde verantwoordelijkheid en door de perceptie van de criteria tijd en geld te verbeteren door flexibiliteit in randvoorwaarden en begrip tussen organisaties.
- *Hypothese 2:* Empathie draagt positief bij aan de opdrachtgever-opdrachtnemer samenwerking tijdens de eerste fase van een twee-fasen model door begrip te faciliteren op teamlid- en organisatieniveau, wat leidt tot het opbouwen van relaties, het rekening houden met elkaars belangen en het stimuleren van de meest essentiële factoren van het samenwerkingsproces. Bovendien beïnvloedt samenwerking de empathie via de factoren samenwerking affectief vertrouwen en communicatie en wordt samenwerking in de eerste fase vergemakkelijkt. Benadrukt wordt dat empathie cruciaal is in projectfasen waarin organisaties onbekend zijn en in overweging moet worden genomen tijdens besluitvorming en in iemands gedrag.
- *Hypothese 3:* Empathie draagt positief bij aan de projectprestaties van de eerste fase van het twee-fasen model door het beïnvloeden van het samenwerkingsproces met betrekking tot de criteria kwaliteit, tijd en geld. Empathisch gedrag bevordert het begrip en draagt bij aan de kwaliteit, tijd en kosten van de criteria tijdens het geïntegreerde ontwerpproces. Verder ontwikkelt door empathisch gedrag het vertrouwen en cohesie, waardoor gedeelde verantwoordelijkheid en flexibiliteit in randvoorwaarden mogelijk zijn, wat de prestaties van de criteria tijd en kosten verbetert. Deze hypothese wordt ondersteund op basis van de relatie tussen empathie, opdrachtgever-opdrachtnemer samenwerking en projectprestaties.

Op basis van de onderzoeksresultaten en de ondersteuning van hypothese 3 is een conceptueel raamwerk ontwikkeld dat zich richt op empathie om de projectprestaties te verbeteren door samenwerking tussen opdrachtgever en opdrachtnemer via vier strategieën. Het conceptuele model is gevalideerd op basis van twee evaluatiesessies met experts uit de sector. Het uiteindelijke raamwerk (Tabel 2) wordt erkend als effectief en toepasbaar bij het bereiken van het doel. Het raamwerk maakt onderscheid tussen twee belangrijke fasen in de eerste fase: het begin van de eerste fase en de daarop volgende momenten tot het einde van de eerste fase. De projectmanagers van de opdrachtgever en opdrachtnemer moeten gezamenlijk dit raamwerk toepassen bij de start van de eerste fase. Het raamwerk gebruikt vier strategieën die gericht zijn op het verbeteren van de prestaties van de eerste fase. Om het resultaat van het raamwerk effectief te bereiken, moet er een focus zijn op de factoren voor empathie en het samenwerkingsproces, moet de samenwerking onderhouden en verbeterd worden, en moeten bedreigingen voor het samenwerkingsproces geminimaliseerd worden.

Discussie

De belangrijkste implicaties van het onderzoek hebben betrekking op de kwalitatieve test van de hypothesen. Bovendien waren niet alle geïnterviewden volledig bekend met het concept van empathie en hoe het verband houdt met de samenwerking tussen opdrachtgever en aannemer. Evenzo werden de samenwerkingsfactoren verschillend geïnterpreteerd vanwege hun onderlinge samenhang en subjectiviteit. Verder richtte de validatieaanpak zich impliciet op de effectiviteit en toepasbaarheid van het raamwerk en minder op de validatie van de uitgevoerde analyse om tot het raamwerk te komen. Ook is het raamwerk niet getest in de praktijk. Daarom wordt verondersteld dat het uiteindelijke raamwerk effectief en toepasbaar is op basis van evaluatie door experts. Een andere interpretatie heeft betrekking op samenwerking, dat als factor wordt gebruikt om projectprestaties te bereiken. Wat betreft samenwerking moeten de factoren die niet zijn opgenomen in het raamwerk echter nog steeds relevant worden geacht voor het samenwerkingsproces. Evenzo vormt de scope een discussiepunt vanwege het feit dat het niet mogelijk is om een onderscheid te maken tussen de twee projectkenmerken (samenwerkingsvorm en de ontwerpopdracht van de aannemer) vanwege de opgenomen factoren van samenwerking (affectief vertrouwen, communicatie en cohesie). Daarom moet het raamwerk op dezelfde manier worden toegepast over de verschillende formats op basis van de combinaties van de twee projectkenmerken. Tot slot moet empathie worden beschouwd als interpersoonlijk in plaats van collectief in het team door het aantal teamleden te overwegen om zo de effectiviteit van empathisch gedrag te vergroten.

Conclusie en aanbevelingen

Concluderend benadrukt het onderzoek de cruciale rol van empathie in het verbeteren van projectprestaties door middel van opdrachtgever-opdrachtnemer samenwerking in de eerste fase van het twee-fasen model. Het handhaven van een focus op empathie en samenwerking gedurende deze fase is essentieel. Het gebruik van het voorgestelde raamwerk, gebruikmakend van strategieën en tools, kan een omgeving creëren die empathisch gedrag mogelijk maakt, waardoor daadwerkelijke prestaties en de perceptie van prestatie worden verbeterd en potentiële uitdagingen worden aangepakt. Het onderzoek draagt bij aan het begrijpen van prestatiecriteria en opdrachtgever-opdrachtnemer samenwerking in projecten die worden aanbesteed via een twee-fasen model. Het benadrukt het belang van interpersoonlijke empathie bij het verbeteren van samenwerking en benadrukt de factoren die empathisch gedrag faciliteren. De studie benadrukt de betekenis van de cognitieve, affectieve en gedragsmatige componenten van empathie voor het ontwikkelen van wederzijds begrip. De bevindingen hebben praktische implicaties voor projectmanagers en geven aan hoe empathie effectief kan worden geïntegreerd in de eerste fase van het tweefasenmodel om de projectprestaties te verbeteren.

Op basis van de onderzoeksresultaten worden de volgende aanbevelingen voor toekomstig onderzoek en praktijk voorgesteld. Toekomstig onderzoek moet de hypothesen kwantitatief testen om de subjectieve interpretatie van de onderzoeksgegevens uit te sluiten. Verder moet het raamwerk in de praktijk worden getest, moet de scope van het raamwerk worden onderzocht en moeten aanvullende relevante competenties worden geïdentificeerd. De rol van empathie bij het faciliteren van begrip in de aanbestedingsfase moet verder worden onderzocht. De aanbevelingen voor de bouwsector omvatten het gebruik van een externe coach om het proces objectief te faciliteren in de eerste en tweede fase. Teamleden moeten worden geselecteerd op basis van empathie, vooral in het managementteam. De focus die is ontwikkeld op empathie en samenwerking in de eerste fase moet worden uitgebreid naar de tweede fase. Het is belangrijk dat zowel de opdrachtgever als de opdrachtnemer elkaars cultuur en werkprocessen begrijpen en een open houding behouden ten opzichte van leren van elkaar om de motivatie en ondersteuning te vergroten.

Dit onderzoek biedt waardevolle inzichten in de rol van empathie bij het verbeteren van projectprestaties door middel van opdrachtgever-opdrachtnemer samenwerking in de eerste fase van het twee-fasen model. Het ontwikkelde raamwerk kan dienen als basis voor toekomstig onderzoek en als instrument voor de bouwsector om zich te richten op de zachte, oftewel menselijke, kant van projectmanagement.

Table 2: Het raamwerk.

	Start of Phase I – Invest and develop a collaborative process	Throughout Phase I – Product development based on the collaborative process
Prepare Where do we stand?	<ul style="list-style-type: none"> • Team member level: limited understanding of team members' interests, culture, issues, and behavior. • Organizational level: limited understanding of other organizations' interests, culture, and work processes. The importance of understanding increases with increasing unfamiliarity. • No focus on the fundamental basis of the collaborative process and the factors that influence empathy 	<ul style="list-style-type: none"> • Focus on the end product instead of the process leading to the end product: not able to improve the performance criterion quality and facilitate an improved perception of the criteria of time and cost. • No focus on shared responsibility: not able to improve the performance criterion quality. • Not allowing flexibility in the criteria: not able to facilitate an improved perception of the criteria of time and cost
Vision What do we want to achieve?	<p>1) Developing an understanding</p> <ul style="list-style-type: none"> • Team member level: an understanding of the other team members' interests, culture, issues, and behavior through empathic behavior. Include this understanding into one's own behavior and into consideration during decision-making. Improved ability to support, let others flourish, and build relationships based on a deeper connection improves the collaborative feeling. • Organizational level: developing an understanding of other organizations' interests, culture, and work processes through empathic behavior. Increasing the motivation and ability to support through understanding the other organization. Both organizations can learn from each other. Include this understanding into one's own behavior and into consideration during decision-making. • Focus on the fundamental basis for the collaborative process: trust, communication, and cohesion. • Focus on the factors influencing empathic behavior: work environment, including work location, communication, empathic ability, relationships between team members, willingness to behave empathic, and the number of team members. 	<p>2) Focus on the process leading to the end product</p> <ul style="list-style-type: none"> • Improving the performance criterion quality. The end product is implicitly satisfactory if it results from a satisfactory process. If the process is not satisfactory, then the causes are known, and these are manageable due to the mutual process. Developed products are mutually supported, including a reduction in revisions. • Facilitating an improved perception of the criteria of time and cost. The perception is improved because both organizations know and understand the process leading to the product. <p>3) Focus on shared responsibility</p> <p>4) Allowing flexibility in criteria</p> <p>Facilitating an improved perception of the criteria of time and cost. Accepting a degree of uncertainty in the boundary conditions of the criteria is essential for the perception. Allowing optimizations by involving the other organization's expertise.</p>
Plan How will we get there?	<p>1) Developing an understanding</p> <p>Level: team member Activity: team building session¹ Goal: understanding interests, culture, issues, and behavior through sharing and retrieving underlying motivations and feelings, i.e., the why. Result: include this understanding into one's own behavior and consideration during decision-making. Points of attention: important on the tactical level, especially between client and contractor counter partners. Facilitated through external coaching. Include the development of trust and cohesion and consider the communication style. Facilitate a non-working environment during the session (informal).</p> <p>Level: organizational Activity: Project Start-Up² Goal: improving understanding and creating awareness of the other organization, their cultures, working methods, core values, project goals and objectives, and interests through sharing and retrieving underlying motivations, i.e., the why. Result: increasing the motivation and ability to support the other organization. Include this understanding into one's own behavior and consideration during decision-making. Points of attention: important on the tactical level. Facilitated through external coaching.</p>	<p>2) Focus on the process leading to the end product</p> <ul style="list-style-type: none"> • Understand and actually consider and carry out each other's interests. • Both organizations should be actively involved in the design process. • Make design choices collectively through a decision-making process based on collective responsibility. • Use integral design studios to facilitate the process. <p>3) Focus on shared responsibility</p> <ul style="list-style-type: none"> • Deviate from the strict acceptance procedure of the client. • Use the expertise of both organizations. • Make design choices collectively through a decision-making process based on collective responsibility. • Use integral design studios to facilitate the process. <p>4) Allowing flexibility in criteria</p> <ul style="list-style-type: none"> • Allow for scope freedom. • Allow the other organization their expertise for optimization. • Allow design loops to iteratively balance the performance criteria of time, cost, and quality.
Factors enabling empathic behavior and the collaborative process	<ul style="list-style-type: none"> • Working environment, including work location³: create an environment that fosters openness, ability to ask questions, and reveal vulnerability. Influences the extent of empathic behavior in team members • Communication⁴: communication is an aim and means. An aim by awareness of the communication style from the start on team member level and selective communication throughout the organizational layers. A means to facilitate empathic behavior through the communication style and the actual communication taking place in the team. Empathy improves information sharing among members. • Empathic ability⁵: influences the extent to which team members can behave empathic based on personal experiences. The importance increases with unfamiliarity in project phase or delivery model. • Trust⁶: establishing trust from the project's start is considered most essential for the collaborative process. It must be present at all organizational layers. It must remain a topic of discussion, even if not present. Empathic behavior facilitates understanding of each other's motivations and circumstances. 	<ul style="list-style-type: none"> • Relationships between team members⁷: some connection between team members is necessary to behave empathic. Establishing trust is a prerequisite. This connection is especially important on the tactical layer. • Willingness to behave empathic⁸: willingness to engage in empathic behavior on the team member level depends on two aspects: 1) one must be willing to express empathic behavior and position oneself vulnerably. 2) Receiving empathic behavior stimulates exhibiting the same behavior. At the organizational level, it is about the willingness to deviate from strictly following contractual provisions and allow for empathy in the process. • The number of team members⁹: the effect of group size should be considered for the effectiveness and outcome of the empathic behavior. • Cohesion¹⁰: important to invest and work on creating cohesion from the start of the project to increase the sense of collaboration. It must be maintained throughout the project by keeping the focus on the team aspect.
Maintain and improve the collaboration	<ul style="list-style-type: none"> • Activity: Project Follow-Up + collaboration monitor¹¹ Goal: measure compliance with the objectives, incl. collaboration goals set during the PSU. Result: improved compliance with the objectives through steering. Resolving issues in the process. Improved collaboration and ability to behave empathic, Points of attention: facilitated by an external coach. Recurring periodically. 	<ul style="list-style-type: none"> • Activity: check-in during meetings¹² Goal: understanding day-to-day issues and circumstances. Result: include this understanding into one's own behavior and consideration during decision-making. Points of attention: start with focus on members. Include in agenda. • Activity: Team (building) sessions¹³ Goal: maintain and improve the collaboration. Result: a maintained and improved collaborative process through active steering. Points of attention: facilitated by an external coach.
Reducing threats to the collaboration	<ul style="list-style-type: none"> • Early warning of small collaborative issues¹⁴ Goal: address the small collaborative issues. Result: having the conversation about the issues at the correct moment before there is no time, money, etc., to resolve the issue. Points of attention: the work environment must allow and accept openness. • Minimizing the impact of team changes through onboarding activity¹⁵ Goal: minimizing the impact on the established level of trust and cohesion. Result: aligned team members with the context of the two-phase model, project, and project team, incl. behavioral aspects. Points of attention: focus must remain on utilizing the activity by designating responsibility and enforcement. Especially the selection of the tactical layer should include a focus on empathic behavior. 	<ul style="list-style-type: none"> • Reestablishing focus on collaboration¹⁶ Goal: reestablish focus on the collaborative process during traditional behavior and external influences. Result: focus on the collaborative process and, therefore, a smoother performing first phase. Points of attention: communication at both organizations throughout the entire first phase is essential to reestablish the focus on collaboration.

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Glossary

Table 3: Glossary.

Concept	Definition
Criterion	A parameter used to assess the actual performance of the project against the preestablished project objectives.
Factor	A circumstance or variable that influences or contributes to an outcome.
Precondition	A condition that should be satisfied or met in order for something else to be achieved. It applies to the contribution of one research variable to another variable.
Project characteristics	The project characteristics are used to differentiate between different formats of the two-phase model. The research focuses on two project characteristics: 1) the form of collaboration and 2) the design assignment of the contractor.
Strategy	An approach to achieve a specific goal. Developed based on the underlying principles and the relationships between the research variables. Including the starting point, desired outcome, and steps to achieve the outcome.
Activity	Used to facilitate a strategy of the framework or facilitate an action to achieve the desired outcome. The activity is used to increase the ease and effectiveness of achieving the outcome.
Underlying principle	An outcome of the literature review or research findings used to develop the foundation of the framework. It may serve to develop or facilitate the strategies in the framework.

1

Introduction

1.1. Background

Construction projects worldwide are becoming more complex, affecting the projects' performance (Luo et al., 2017). Awareness of the contributing elements of complexity is important to identify management strategies (Hertogh and Westerveld, 2009). Such elements include complex project contexts and integrating a growing number of disciplines (Keusters et al., 2022). The Dutch Ministry of Infrastructure and Water Management (Rijkswaterstaat), the largest public client in the Netherlands, acknowledges the increasing complexity of the project context in a report on the challenges of the Dutch construction sector (Rijkswaterstaat, 2019). This report by Rijkswaterstaat introduces a project delivery model to cope with the increasing complexity because reducing complexity should not be the focus (Bosch-Rekvelde, 2011).

Over the past 20 years, Dutch infrastructure projects have been procured through three project delivery models (PDM): *traditional* (UAC), partially *integrated* (UAC-IC) with a focus on integrating the design and construction, or the completely integrated *life-cycle* oriented Design, Build, Finance, and Maintain (DBFM) (TwynstraGudde, n.d.). The partially integrated Design and Construct (D&C) contract is the most frequently used of both integrated models and will therefore be focused on as the more traditional PDM. Recurring problems, i.e., complex and uncertain procurement processes, little flexibility, high transaction costs, and unforeseeable risks for contractors, can arise when focusing on large Dutch infrastructural construction projects procured through an integrated or life-cycle model (Koppenjan et al., 2020).

Complex projects could benefit from a PDM that allows for a flexibility-focused, or soft, project management approach rather than a control-based, or hard, project management approach (Eriksson et al., 2017). However, the integrated model does not allow this flexibility due to its focus on contractual terms and the level of specifications provided by the client in terms of demands and requirements (Lenferink et al., 2013). Moreover, there is a need for client-contractor collaboration based on a trustworthy, open, and committed relationship (Chakkol et al., 2018). Collaboration between the client and contractor is, among other practices, important for implementing a flexible project management approach (Eriksson et al., 2017).

A way for project managers to deal with complexity is by introducing the need for Emotional Intelligence (EI) (Zhang and Fan, 2013). It enables the capability to process, understand and utilize emotions and manage feelings (Mayer and Salovey, 1997). A component of EI that seems relevant in relationship building between parties is attentive behavior (Clarke, 2010). Hoegl and Gemuenden (2001) suggest that the performance of the project (in terms of both project and team performance) is affected by the effectiveness of project teams during the collaboration. The EI competence of empathy is associated with behaving attentively (Clarke, 2010). The competence of empathy consists of different stages that entail feeling an emotional response, understanding the empathizer towards the empathee through perspective-taking, and the importance of the self-other distinction (Cuff et al., 2016). Kouprie and Visser (2009) illustrate empathy as the empathizer creating understanding for the circumstances and

experiences of the empathetic. Eklund and Meranius (2021) capture the recurring elements found in literature in the following definition that is adopted in this research: "Empathy is to understand, feel, and share what someone else feels, with self-other differentiation."

Returning to the need for complex projects to include a flexibility-focused project management approach (Eriksson et al., 2017) and client-contractor collaboration (Chakkol et al., 2018), the EI competence of empathy could contribute to achieving these needs. Through the association with attentive behavior, empathy could contribute to client-contractor collaboration, and indirectly, the flexibility-focused project management approach could benefit from this improved collaboration to improve performance, as it is one of its practices.

Complex projects would benefit from the earlier involvement of the contractor to create the requirements and design together in collaboration. Internationally, Early Contractor Involvement (ECI) is an integrated PDM to involve the contractor earlier in the project (Wondimu et al., 2018). The objective is to involve the contractor and, therefore, construction knowledge and experience in an earlier stage of the project. The client and contractor develop the requirements, design and project plans and collaborate on risk management. The tendering strategy often applied in ECI is first to select the best contractor for the project and second to determine the final bid, a two-stage tender (Scheepbouwer and Humphries, 2011).

Internationally ECI is predominantly used in Western countries such as Australia, the UK, the USA, Scandinavian countries and The Netherlands (Scheepbouwer and Humphries, 2011; Rahmani et al., 2013). Differences in the application of ECI exist between countries and within countries. Differences between countries are present in the contractual relationships between the client and contractor, influencing the level of collaboration between the parties (Scheepbouwer and Humphries, 2011). The difference within countries follows from the fact that clients are using ECI models that are fit for project purposes. On the one hand, some relationship-based models endure for the entire project. On the other hand, models have a hybrid nature where the design phase is based on intensive collaboration and the execution phase is a more traditional type of contract (Wondimu et al., 2018).

Predominantly the hybrid model refers to the two-phase model used in The Netherlands and the Bouwteam is a well-known collaboration model (Bouwteams, 2021). This model is used in the first phase of the two-phase model. However, the Bouwteam is only one of many possible formats for the first phase of the two-phase model. The adaptation of the two-phase model has been increasing fast over the last couple of years. Because Phase I of the model is performed strictly differently than standard procured projects, experience is lacking within the sector. Research indicates that successful implementation relies on collaboration between the client and contractor (van Wijck, 2018; Wondimu et al., 2018).

Focusing on the first phase of the hybrid model, it is essential to understand client-contractor collaboration. Patel et al. (2012) defines collaboration as "two or more people engaged in interaction with each other, within a single episode or series of episodes, working towards common goals" (Patel et al., 2012). A way to look at collaboration in teams is through the quality of teamwork. Seven factors are used to assess and steer the quality of the collaborative team process (Hoegl and Gemuenden, 2001; Suprpto, 2016).

Whether the contractor for the first phase can continue in the second phase depends on the successful completion of the first phase of the two-phase model. In other words, delivering a certain level of performance based on predetermined performance criteria. Therefore, it is essential to understand what criteria determine the performance of this first phase. Furthermore, as the first phase is mainly awarded based on qualitative criteria during the tender, the competencies of the project team (soft skills) are becoming increasingly important in the new project delivery model.

1.2. Problem statement

International projects in the construction sector are becoming increasingly complex. Clients use project delivery models to involve the market earlier during the project and integrate project phases. However, numerous projects fail because of too many uncertainties and unforeseeable risks for contractors. Hence, the application of the two-phase model is increasing rapidly in the sector to cope with the increasing complexity.

In The Netherlands, the two-phase model is significantly different from the integrated models—phasing the design and execution—where the first phase is mainly awarded on qualitative criteria and heavily dependent on client-contractor collaboration. Therefore, experience is lacking, and different competencies are needed during the first phase. Focusing on the competence of empathy could contribute to project performance by improving client-contractor collaboration.

1.3. Research gap

Research into the key aspects that impacts the integrated design process and, in turn, project performance indicates empathy as a relevant competence to research to determine the contribution in civil engineering projects. As empathy could contribute to the integrated approach and project performance (Keusters et al., 2022). This recommendation is acknowledged by Batelaan (2021) and she adds extending the research on empathy outside of integrated project delivery models. Experts indicated that empathy could contribute to a great extent in two-phase models (Batelaan, 2021).

Cuff et al. (2016) recommends looking into the differences in how research and practitioners view empathy and relate it to what the practitioners want to achieve.

Literature on the two-phase model in The Netherlands is carried out to determine the design of a two-phase model to match the goal and context of the project (Miedema, 2022). The author indicates recommendations related to early investment in increasing mutual understanding between the client and contractor because this positively influences collaboration (Miedema, 2022). Mutual understanding can be achieved through communication, understanding interest, and concern about each other's work (Miedema, 2022).

Finally, having the capacity to be empathetic does not necessarily mean that people behave as such. It is recommended to look into the drivers for stimulating empathetic behavior (Bertels, 2022).

1.4. Research objectives

The main objective is to identify how the competence of empathy can improve project performance through client-contractor collaboration in the first phase of the two-phase model. The underlying objectives are to 1) determine how the client-contractor collaboration affects the criteria that determine the project performance of the first phase of the two-phase model. Furthermore, 2) determine how the competence of empathy affects client-contractor collaboration, including what factors facilitate empathic behavior and if empathy can contribute to mutual understanding through perspective-taking. Moreover, 3) determine the view of practitioners on empathy and what they want to achieve with such a competence. Lastly, 4) establish a framework indicating when and how practitioners can steer on the competence of empathy to influence the criteria that determine the project performance of the first phase through client-contractor collaboration.

1.5. Research questions

The main research question must be answered to comply with the research objective. This answer will follow by answering the following four subquestions.

The main research question that must need an answer is:

How to improve project performance by focusing on empathy through client-contractor collaboration in the first phase of the two-phase model?

The following subquestions will be used to answer the main research question:

Subquestion 1) *What are the components of the competence of empathy?*

Presenting the components of the competence of empathy through a literature review. First, understanding what components empathy has and what factors influence empathy in the preconstruction phase. Focusing on the preconstruction phase because this phase includes Phase I of the two-phase model.

Subquestion 2) *How can client-contractor collaboration affect project performance during the first phase of the two-phase model?*

The answer to this subquestion is based on qualitative data from the literature review and case studies. Answering this subquestion clarifies how collaboration can affect project performance during the first phase of the two-phase model. To do so, collaboration in teams and project performance are first studied through a literature review. Thereafter, the relation between both topics is researched in the case studies.

Subquestion 3) *How can empathy affect collaboration during the first phase of the two-phase model?*

Following the same process as subquestion 3, this subquestion elaborated on how the competence of empathy can affect collaboration during the first phase of the two-phase model. To do so, the competence of empathy is first studied through a literature review. Thereafter, the relation between both topics is researched in the case studies.

Subquestion 4) *How can be steered on empathy to improve project performance through collaboration?*

Combining the results from the preceding subquestions in a framework and presenting how empathy can influence project performance of the first phase of the two-phase model through collaboration.

1.6. Research design

This section elaborates on the design of the research. Starting with an outline of the research scope (1.6.1). Followed by the methodology in which the different parts of the research are discussed (1.6.2). Closing this section with the criteria for quality of the research design (1.6.3).

1.6.1. Research scope

Demarcation of the research scope is essential in answering the research question. The focus of this research is on the Dutch grond-, weg- en waterbouwsector (GWW-sector or infra sector). This sector entails "disciplines such as construction of levees, bridges, canals, earthwork, dredging, hydraulic engineering and road construction" (PIANOo, n.d.). Looking into projects within this sector procured using the two-phase project delivery model. While the two-phase model consists of two phases, this research focuses on the first phase. Focusing on the early phases of projects is beneficial for project performance because, during these early stages, it is easier to influence the project through decisions and interventions (Keusters et al., 2022, Garold Oberlender, 2022). Another reason to focus on early phases is that the influence of the competence of empathy reduces as the project proceeds (Batelaan, 2021). Furthermore, this research will focus on the collaboration between the client and the contractor

because this collaboration is the foundation of the project and therefore is most significant for project performance (Batelaan, 2021). Therefore, during this research, the term project team refers to the team working on the project composed of both the client and contractor.

1.6.2. Research methodology

The research is divided into three parts to answer the main research question. The parts are successive, meaning that the knowledge and results obtained in the preceding parts are necessary to complete the next part. Part I presents a literature review of the research variables to develop an understanding of each variable. Part II builds on Part I by using case studies to develop an understanding of the relationships between the different variables and to test the hypotheses developed in Part I. Part III combines the results from Part I and Part II in a framework proposing how empathy can be used to improve project performance through collaboration.

Research method of Part I

The main objective of Part I is developing an understanding of the four variables relevant to this research, developing hypotheses, and answering subquestion 1. The relevant variables are the competence of empathy, the two-phase model, collaboration, and project performance. Part I extends the variables identified for this research by building a theoretical framework using a qualitative research method: a literature review. The literature review is performed by searching for textbooks, published papers, and articles, standards, or rules published by governments or professional organizations. However, literature will be used to build the theoretical framework for this research, scientific, and therefore peer review. Non-peer-reviewed documents are consulted to gain valuable insights; however, these are not used for building the theoretical framework. The review is not limited to the construction sector because other fields also contain valuable insights into the variables. Data management, which consisted of collecting, organizing and processing literature, took place through the software Mendeley ("Mendeley Reference Manager", 2022).

Research method of Part II

The results from the literature review of Part I serve as input for Part II. Part II aims to understand the relationships between the variables (subquestions 2 and 3) and test the hypotheses developed in Part I. Using a qualitative approach consisting of a multiple-case study will serve as the main data source of the research. The appropriateness of using this approach is explained in Chapter (3).

The approach consists of selecting case studies; analyzing the case studies through reviewing case-specific documents; using semi-structured interviews to obtain the empirical data; and, finally, analyzing the data. The data collection method consists of conducting semi-structured interviews. Using semi-structured interviews has an advantage when the interview topics are clear (the research variables), and a fixed list of questions is not desirable. This type of interview allows for the opportunity to ask follow-up questions to interviewees' responses. It can guide the researcher toward new areas of interest in the topics, creating a solid foundation for answering the research question. The interviews aim to study the relationship between the variables. Four project participants were individually interviewed for each case, resulting in 16 interviews, of which 8 were with the client and 8 with the contractor. The interview protocol used for the semi-structured interviews can be found in Appendix A. The protocol was a guideline during the interview to structure the variables logically. Subsection 3.2.2 elaborated further on the appropriateness, protocol, selection of interviewees, and quality of the interviews.

The outcome of the data analysis of the interviews is threefold: (1) understanding the relationship between collaboration and project performance, (2) understanding the relationship between empathy and collaboration, and (3) how the relationships relate to the varying project characteristics of the case studies. The interviews are held across the four cases used for this research. Subsection 3.2.3 explains the process in further detail.

Research method of Part III

Part III develops a framework proposing how empathy can be used to improve project performance through collaboration (subquestion 4). Starting with developing an initial framework based on the results obtained in Part II. This preliminary framework is validated using expert validation with practitioners from the construction sector. Based on the validation, the framework is revised, and the final framework is developed. Chapter 6 elaborates on the set-up of the framework, the expert evaluation, and the final framework.

1.6.3. Criteria for quality of research design

The quality of the research design should be considered while conducting the research. Yin (2018) proposes the following four tests: *construct validity*, *internal validity*, *external validity*, and *reliability*. Chapter 7 discusses whether these criteria are met.

Construct validity: "identifying correct operational measures for the concepts being studied" (Yin, 2018). This criterion is especially relevant for the research variables. The variables are defined in Part I and Part II. During Part I, it is recommended to use the tactic proposed by Yin (2018) to use varying sources as evidence to define the measures of your variables. These sources include textbooks, published papers, and articles during Part I. For Part II, these sources are the 16 interviewees. Another tactic that the same author proposes is to use practitioners for reviewing. This tactic can be operationalized in this research by the expert validation in Part III.

Internal validity: "seeking to establish a causal relationship, whereby certain conditions are believed to lead to other conditions, as distinguished from spurious relationships" (Yin, 2018). The notion of internal validity is twofold. First, whether the proposed causal relationship is valid, in other words, whether event x caused y or another, perhaps unknown, event z caused y. A second, broader notion is about whether every inference the researcher makes is valid or if there is evidence that has been overlooked (Yin, 2018).

External validity: "showing whether and how a case study's findings can be generalized" (Yin, 2018). Striving for external validity ties together with the extent to which the research outcomes can be generalized outside the research. Case studies are subject to analytic generalization, meaning generalizations are used for lessons learned outside the distinct case study (Yin, 2018). In addition, the analytic generalization should be based on a substantive proposition instead of a numerical proposition (Small, 2009). The external validity will be tested by evaluating the research findings based on an expert evaluation.

Reliability: "demonstrating that the operations of a study - such as its data collection procedures - can be repeated, with the same results" (Yin, 2018). This criterion seeks to reduce mistakes and biases in research. Conducting the same research should reflect the same outcomes. The approaches used during the research should be explicit about dealing with this criterion.

1.7. Relevance of the research

This research will practically have relevance for practitioners that work on projects procured with the two-phase model (1.7.1) and scientific relevance by contributing to the existing body of knowledge (1.7.2).

1.7.1. Practical

The application of the two-phase model is increasing rapidly, resulting in a lack of experience. Practitioners must adapt from working with a project delivery model that is less dependent on collaboration to a project delivery model that heavily depends on collaboration. Work experience will not guarantee success with this new model. The primary practical outcome of this research is increasing practitioners' awareness by providing the framework on how competencies, and empathy, can be used to influence the project performance of the first phase of the two-phase model through client-contractor collaboration.

1.7.2. Scientific

Next to the practical relevance, this research will contribute scientifically by connecting the competence of empathy, which has already been proven to positively influence project performance, to the rapidly increasing application of the new two-phase project delivery model through client-contractor collaboration.

By providing insight into (1) how client-contractor collaboration influences the defined criteria that determine project performance in the first phase (hypothesis 1). (2) How the competence of empathy influences client-contractor collaboration (hypothesis 2). (3) How the competence of empathy can improve the project performance of the first phase of the two-phase model (hypothesis (3) by (4) differentiating between different formats of the two-phase model.

1.8. Thesis outline

The thesis follows the outline in Figure 1.1. Starting with Part I with the literature review of the research variables in Chapter 2. Hypotheses are formulated based on the findings of this chapter and serve as input for subquestion 1. Chapters 3, 4 and 5 form Part II, which cover the main data gathering of the research. First, the characteristics of the case studies are presented, followed by the semi-structured interviews. The output of this Part is answers to subquestions 2 and 3. Part III builds upon this output by presenting a conceptual framework for improving project performance through empathy and collaboration in Chapter 6. It also covers the evaluation of the conceptual framework using expert evaluation with practitioners from the construction sector and presents the revised framework based on the evaluation. The final chapters of the research discuss the results and limitations of the research (7) and conclude the research by answering the main research question and providing recommendations for practice and future research(8).

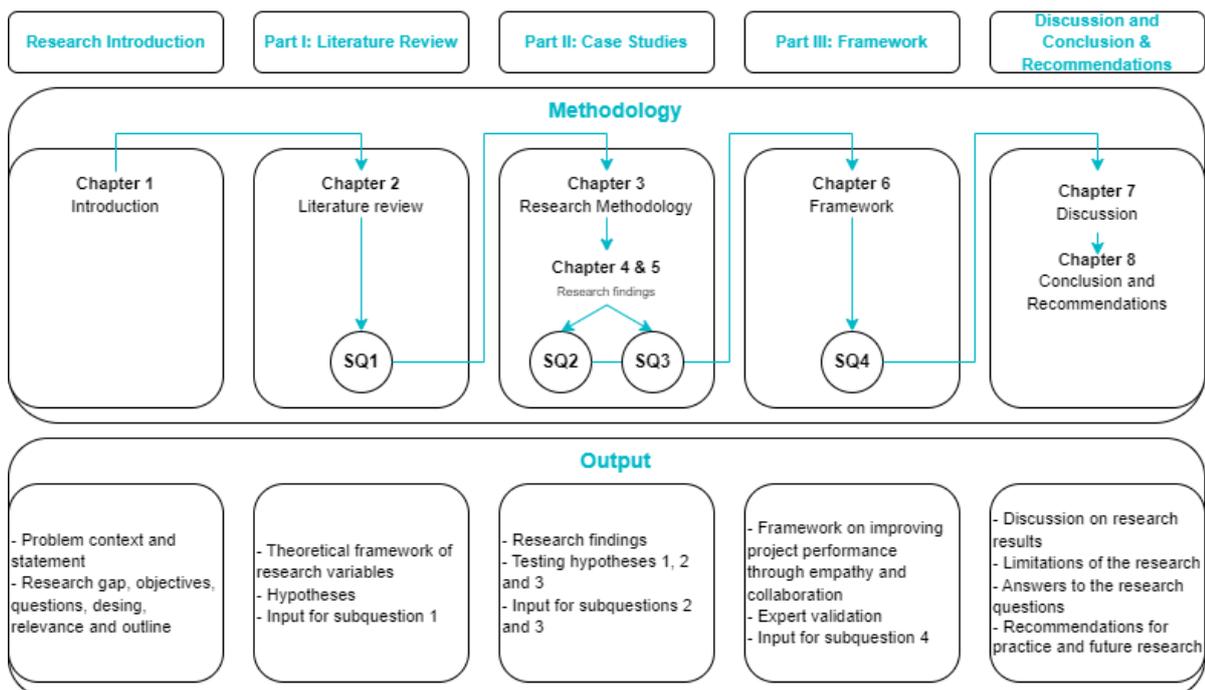


Figure 1.1: Thesis outline (own figure).

2

Literature review

This chapter entails a literature review to understand the research variables better, as introduced in the introduction and research design. The aim is to develop a theoretical framework providing a foundation for selecting the appropriate research approach and steering the research design, data collection, and data analysis.. Section 2.1 describes the concept of Emotional Intelligence and focuses on understanding the competence of empathy. Section 2.2 describes the project delivery model of Early Contractor Involvement. Inducing one form of this PDM, namely the Dutch two-phase model, and explaining its characteristics. Section 2.3 describes the different aspects of collaboration within a project and how to measure the quality of teamworking as a measure of collaboration. Section 2.4 looks into project performance measurement. It indicates the difference in the types of criteria used to determine the performance of the project. Section 2.5 concludes the chapter in the theoretical framework. Finally, the hypotheses are presented in Section 2.6. This chapter, and specifically, the review of the competence of empathy, will contribute to answering subquestion 1 in Chapter 8.

2.1. Empathy

This section elaborates on the topic of Emotional intelligence and, in particular, empathy competence. The different components of the competence are discussed and an explanation of how empathy can be facilitated or inhibited in interaction is provided.

2.1.1. Emotional Intelligence

As a type of social intelligence, Emotional Intelligence (EI) is mentioned as an ability to deal with personal relations within a project team, it is essential to understand how it works. In general, and as stated by Mayer and Salovey (1997), the definition of EI is the "ability to perceive accurately, appraise, and express emotion; the ability to access and/or generate feelings when they facilitate thought; the ability to understand emotion and emotional knowledge; and the ability to regulate emotions to promote emotional and intellectual growth" (Mayer and Salovey, 1997). The importance of this ability for project managers is suggested to be fourfold. First, emotional competencies are needed to establish interpersonal connections between team members in the early stages of the project due to the non-lasting nature of projects, resulting in trust and commitment. Second, building on the previous, building relations allows the project manager to better handle the one-off nature of projects due to knowledge exchange. Third, EI enables the project manager to understand the effect of ambiguity and an unstable project environment on team members and motivate them to embrace change. Lastly, EI and empathy would contribute positively to conflict management (Clarke, 2010). A good client-contract relationship is essential because the first phase of the two-phase model depends on collaboration between the client and contractor. Both parties need to behave attentively to establish a relationship. Attentive behavior entails taking care of the needs and concerns of team members and facilitating an equal decision-making process. This behavior contributes to "relationship building, social integration, enhancing group identification, and developing commitment and trust, all seen as key elements associated with the effectiveness of teams" (Clarke, 2010). Moreover, empathy is the EI competence associated with the necessary attentive behavior (Clarke, 2010). Therefore, empathy will be described.

2.1.2. Competence of empathy

The consensus on the definition of empathy remains unstated in literature, and it contains many different definitions. Kouprie and Visser (2009) and Cuff et al. (2016) have examined different definitions and found similarities. According to Cuff et al. (2016), empathy has two successive stages. At first, the empathizer has an emotional response to the empathee through interaction and secondly, this emotion transforms into the empathizer understanding the empathee through perspective-taking. Furthermore, he indicates the importance of the self-other distinction (Cuff et al., 2016). Kouprie and Visser (2009) illustrates empathy as the empathizer creating understanding for the circumstances and experiences of the empathee. The process of the empathizer is a movement of "stepping into and stepping out of the empathee's life; and in between, the empathizer wanders around in this other person's life. The stepping in is needed for deep understanding, the stepping back for competent action" (Kouprie and Visser, 2009). They also stress the importance that the empathizer should not confuse the emotion of the empathee with one's own. Empathy can turn into sympathy if this self-other differentiation is not in place, i.e., a sense of agency is crucial. Furthermore, empathizing is about sharing someone else's perceived emotional state through experiencing similar emotions (Eklund and Meranius, 2021). This research adopts the definition of empathy proposed by Eklund and Meranius (2021) that includes the four recurring elements found in literature: "*empathy is to understand, feel, and share what someone else feels, with self-other differentiation*".

2.1.3. The components of empathy

The first two elements of the definition (understand and feel) can be linked to the two components of empathy, namely the cognitive and affective components. The *cognitive* component is someone's ability to put oneself in the shoes of another and perceive the world through their eyes and create understanding through perspective-taking. The *affective* component is about perceiving and resonating with somebody's feelings to experience an emotional response (Kouprie and Visser, 2009). The sharing element from the definition is important because the empathizer should be able to share the experiences, perspectives and feelings of the empathee. Whether or not the empathizer has related personal experiences could determine how much someone can share (Eklund and Meranius, 2021). Chiu et al. (2011) and Akgün et al. (2015) propose to include a third component, namely the behavioral component. This component entails the behavior expressed through (non)verbal communication with the empathee to display an understanding of the perceived feelings (Chiu et al., 2011; Akgün et al., 2015). This component is often addressed in literature in the medical sector because it is action-related, focusing on expressing cognitive and affective processes (Tamayo et al., 2016) to enhance medical-related outcomes. Furthermore, the behavioral component is seen as a skill used for the interpersonal process, i.e., between individuals. In contrast, the cognitive and affective components are viewed as intrapersonal processes, i.e., experienced personally about individuals (Shapiro, 2002; Larson, 2005). The behavioral response may present itself in someone's attitude, as a skill ((non)verbal or listening), or as actionable behavior (Shapiro, 2002). On the other hand, others argue that the behavioral response should be separated from empathy because, in some cases experiencing empathy would be more desirable without a behavioral response, e.g., in situations of competing interests (Cuff et al., 2016).

2.1.4. Factors that are influencing empathetic behavior

Empathy is considered an essential quality for the design process as it facilitates activities relating to the other involved parties and creates an understanding of their needs, requirements, and interests. This understanding is relevant for the design process because a project team has to create suitable design decisions for stakeholders with different views and organizational cultures (Kouprie and Visser, 2009). The first phase of the two-phase model relates to the design process because, among others, the goal is to create a design based on the needs, requirements, and interests of involved parties, which need to be understood. Therefore, it is crucial to understand which factors influence empathy positively and negatively during the design process. However, first, it is essential to understand what a factor is. The Cambridge Dictionary defines a factor: "a fact or situation that influences the result of something" (Dictionary, 2022). Relating the definition to empathy, it entails that, e.g., different circumstances can influence empathy by facilitating or inhibiting the empathic process.

People have different abilities to be empathic. This *empathic ability* is defined by personal experiences and referred to as someone's empathic horizon. This horizon indicates the "limits on a designer's individual ability to empathize beyond certain characteristics of his or her group, such as nationality,

background, age, gender, culture, experience and education” (Kouprie and Visser, 2009). Because this horizon is based on the characteristics of an individual, it is not fixed but may evolve and be developed through training and experience. Decety and Lamm (2006) distinguishes between intra- and interpersonal factors that influence the ability of the empathizer to share and experience empathy. *Intrapersonal factors* are related to one’s ability, e.g., whether an individual has experience with the situation, how well he or she can deal with the emotions of others, and the individual’s mood. On the other hand, *interpersonal factors* are the type of connection with the other and whether or not the relationship is competitive or cooperative. This latter factor deals with the affective attitude of the individual that determines the emotional reaction based on the fact that the empathizee is considered a competitor or a cooperator. Whether one is seen as a cooperator or competitor determines whether the response is respectively empathic or counterempathic (Decety and Lamm, 2006).

Someone’s *willingness* to behave empathically is crucial because of the personal engagement needed in the design process. The extent to which one is willing depends on three factors, namely the personal connection to the other individual or group, one’s emotional condition (e.g., personal well-being or a meeting after a long day at work), and the commitment to the project (e.g., level of responsibility) (Kouprie and Visser, 2009). According to Kouprie and Visser (2009) their empathy framework, willingness is created in the first out of four phases, i.e., whether or not the empathizer creates willingness influences the whole empathic process. Furthermore, they indicate that an individual’s ability and willingness should be considered while composing a design team.

Empathy could play a role between two people (interpersonal empathy), but it may also play a role within a team. A definition for collective empathy is “a shared state of empathy that includes more than one person and indicates the extent to which team members collectively empathize within the team” (Akgün et al., 2015). The following are the three main factors influencing the extent to which collective empathy can develop. *Cognitive-based trust* is the degree to which members trust each other’s skills or competencies. *Formal communication* influences collective empathy through regular sessions and sharing memos among the team. Members can learn to understand, are affected by, and react to the emotions of the other members. In last, *team member familiarity* influences “effective information sharing and problem solving and coordination, cohesion, and trust formation among team members (...) when people know each other from previous projects, they are empathically attuned, emotionally responsive, authentically present, and open to change” (Akgün et al., 2015).

2.1.5. Overview

To sum up, four elements of empathy that are recurring throughout the literature and explain the sequence of the empathic process and important characteristics are:

- to understand the empathizee through perspective-taking,
- to feel the empathizee’s feelings to experience an emotional response,
- to share what the person feels through his/hers experiences, perspectives and feelings, and
- with self-other differentiation.

Understanding can be linked to the cognitive component, and feeling and sharing to the affective component. The behavioral component is mentioned as a third component that expresses through (non)verbal communication (interpersonal) with the empathizee to display an understanding of the perceived feelings (intrapersonal).

Factors influence empathetic behavior. These factors can either contribute positively or negatively. The factors that are found in the literature are:

- empathic ability, including the distinction between intra- and interpersonal factors,
- willingness, and
- collective empathy factors (cognitive-based trust, formal communication, and team member familiarity).

As the literature indicates, the competence of empathy is important for the design process. Therefore, arguably, in the first phase of the two-phase model, an understanding of the two-phase model, particularly the first phase of the model, is needed. Therefore, the next section will look into the two-phase model.

2.2. Two-phase model

This section aims to understand better if and how empathy can be used in this model. First, to understand the two-phase model, the literature review discusses the overarching project delivery model of Early Contractor Involvement. After that, the two-phase model is analyzed with emphasis on the first phase of the model.

2.2.1. Early contractor involvement

The objective of ECI is to involve the contractor and, therefore, construction knowledge and experience earlier during the project. The client and contractor develop the design and project plans and collaborate on risk management. After completing these tasks, the contractor proposes a final bid for the execution of the project. The tendering strategy often applied in ECI is first to select the best contractor for the project and second to determine the final bid, a two-stage tender. The benefits of this early involvement are a more extensive effect on the project budget and outcome and more consistency throughout the project phases. Additionally, earlier involvement means fewer constraints, creating opportunities for innovation and constructability optimizations. However, involving the contractor earlier in the project means both parties must collaborate to complete the abovementioned tasks. Examples of implementation barriers are different corporate cultures and interests that may create conflicts (Scheepbouwer and Humphries, 2011). Lahdenperä (2013) addresses barriers such as formal barriers regarding legislation, demanding contractor selection methods that comply with procurement law and using a combination of both quality and price as selection criteria, where the price is difficult due to uncertainties and risks (Lahdenperä, 2013). Clients are using ECI models that are fit for purpose for their project. On the one hand, some relationship-based models endure for the entire project. On the other hand, models have a hybrid nature where the design phase is based on intensive collaboration, and the execution phase is a more traditional type of contract (Wondimu et al., 2018). Particularly this model refers to the two-phase model used in The Netherlands.

The Bouwteam is a well-known example of ECI in The Netherlands. In this ECI format, the contractor is involved early in the project to benefit from his execution know-how to improve constructability and cost expertise. In the Bouwteam format, the client and contractor have a partnership in which the tasks, roles and responsibilities are clearly divided (Bouwteams, 2021).

The partnership is based on a bouwteam agreement between the client and contractor. The Netherlands has other agreements, and the applicability varies from project to project. Two examples are the Modelovereenkomst Bouwteam DG 2020 and the KBNL Model bouwteamovereenkomst 2021. The second agreement is the successor of the VGBouwmodel 1992 (Bouwteams, 2021). The agreements contain general conditions between both parties regarding the tasks, roles, responsibilities, and liabilities (Chao-Duivis et al.).

2.2.2. Two-phase model

For a two-phase model to succeed, Miedema (2022) suggests general requirements that are essential for the implementation of the model. Their importance is independent of the format of the model. The requirements focus on the capabilities of the organizations involved in the project and their behavior and attitude. Qualifications of the organizations are to show professionalism during the collaboration, being able to release control, and for the client, it is important to possess technical and cost expertise. The behavior and attitude of the actors should be such that they are aware of the differences in corporate culture and interests and collaborate using open communication and trust (Miedema, 2022).

One of the differences between standard contracting and two-phase contracting is the integrated but phased parts of the project after the tender phase (see Figure 2.1). Looking at both Phase I and Phase II, Phase I requires a different way of working compared to standard contracting. This phase requires more (intense) collaboration between the client and contractor based on a joint objective and responsibility. Utilizing the knowledge and expertise of each other (Moonen and Brusse, 2022). On the other hand, Phase II has more similarities to standard contracting. Based on this difference in the necessary collaboration, Phase I will be analyzed in more detail.

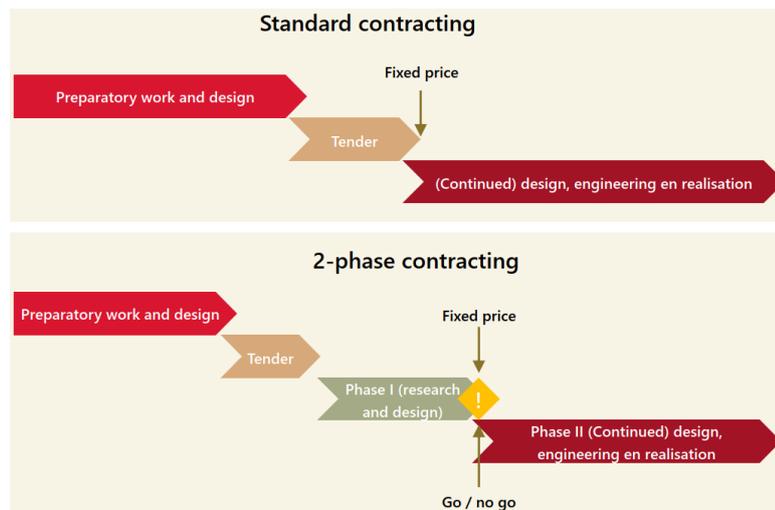


Figure 2.1: Standard and two-phase contracting (Moonen and Brusse, 2022).

2.2.3. Phase I of the two-phase model

For Phase I of the model, the client should make organizational choices to structure the phase. There are four different sequential elements with underlying topics that need a decision. The elements and related choices are:

- Motivation (the client should have a motivation applying a two-phase model)
 - Early involvement of contractor
 - Delayed price determination
 - Full or part of the scope
- Result of 1st phase + responsibility
 - Design assignment
 - Design responsibility
- Form of collaboration
 - Intensive or coordinated collaboration
 - Task and role division
- Contractual reinforcement
 - Price determination
 - Incentives
 - Risk measures
 - Dispute management (Miedema, 2022)

Choices made by the client on the result of the first phase in terms of the contractor's design assignment, together with the allocation of design responsibility between the client and contractor, significantly influence many organizational choices, e.g., how the organization will be organized. The extent of the *design assignment* for the contractor depends on a narrow or wide solution space for the contractor, during which project phase the contractor is involved, i.e., an early or late involvement, and the level of specification needed for the second phase to start. The owner decides to allocate *design responsibility* between the client and the contractor. It entails either that the client stays responsible (with or without limited liability for the contractor) or that the contractor becomes responsible for the risk allocation, role division, and decision-making process. The allocation determines to a large extent, the contractual agreements (Miedema, 2022).

The established choices influence the *form of collaboration* of the format. In other words, whether there is a necessity for intensive or coordinated client-contractor collaboration and how the tasks and roles

are divided between the client and contractor. The decision on the form of collaboration for the project influences what the management team (separate or integrated) and what the decision-making process and meeting structure look like (Miedema, 2022). A factor that influences the form of collaboration is the culture and the client's in-house resources (Miedema, 2022), specifics of the project, and the envisaged distribution of responsibilities and preferences of the parties (Moonen and Brusse, 2022). Both authors Moonen and Brusse (2022) and Tukker et al. (2020) acknowledge the differentiation between these two forms of collaboration by referring to them as integrated collaboration and coordinated collaboration.

Based on agreement on the definitions of both forms of collaboration, Moonen and Brusse (2022), Tukker et al. (2020) and Miedema (2022) define *integrated client-contractor collaboration* as a form of collaboration where both parties work as one integrated team in a relationship that is based on equality. While working as one joint team, respect and trust are essential, and traditional behavior negatively influences collaboration and project performance. Tasks and roles do not have clear boundaries and are divided based on expertise. Both parties have input in the design. The management team is balanced and has an integral structure with representatives from the client and contractor. Finally, the decision-making process is based on agreement from both parties and the meeting structure is integral and based on disciplines. On the other hand, *coordinated client-contractor collaboration* is a form of collaboration where both parties work based on clearly divided tasks and roles where the client is the assessor and the contractor is the producer—resulting in both parties mainly contributing to their role in the project. Collaboration only facilitates the process; however, it is unnecessary because the client is responsible for the project's progress. The management team has an integral or mirrored structure. Finally, the decision-making process is based on agreement from both parties, but the client can overrule the contractor, and the meeting structure is based on disciplines. Moonen and Brusse (2022) emphasizes that between these two forms of collaboration, there are intermediate forms depending on the needs of the project (Moonen and Brusse, 2022).

One final note on the structure of the management team is that there are three possible structures that a management team can use: (1) an integrated team with representatives from either the client or contractor or as little representatives forming one management team; (2) a mirrored integrated team with representatives from both parties forming one management team; and (3) a separated mirrored team with two separate management teams from both parties (Miedema, 2022).

2.2.4. Overview

The Early Contractor Involvement model, which refers to the two-phase model often used in The Netherlands, is characterized by Phase I and II. In general, each two-phase model should comply with the requirements that focus on the qualifications of the organizations in the project and the behavior and attitude of the involved actors. At the start, the client must make choices to structure the model. Elements that need choices are the motivation to apply the model, the result of Phase I in terms of the design assignment and the design responsibility of each party, the form of collaboration which depends largely on the preceding choice, and the contractual reinforcements. Two streams are identified, which make differentiation possible between two opposite formats: the integral stream and the risk reduction stream.

The next section will elaborate further on the concept client-contractor relationship because of the indicated importance in the first phase of the two-phase model.

2.3. Collaboration

This section defines the concept of collaboration. The composing factors and the different outcomes of collaboration are described together with the factors that compose the quality of teamwork.

2.3.1. The concept of collaboration

To collaborate during the first phase, it is important to understand what collaboration is and how it works. In a broad sense, Patel et al. (2012) defines collaboration as "two or more people engaged in interaction with each other, within a single episode or series of episodes, working towards common goals" (Patel et al., 2012). This definition is in line with the definition provided by Dictionary (2023). The benefits of collaboration can be linked to traditional project aspects such as time, cost and quality but also to increased satisfaction of the involved actors (Bresnen and Marshall, 2000).

2.3.2. The factors composing collaboration

Patel et al. (2012) distinguishes between six main categories of factors that compose a collaboration, and these factors can be facilitators or inhibitors. The main categories are context, support, task, interaction processes, teams, and individuals (Patel et al., 2012). Furthermore, a category of overarching factors is identified, which constitutes sub-factors that apply to all or most primary categories: mutual trust and willingness to communicate openly and transparently, conflict management, experience in collaborating, clearly defined and shared goals, incentives to collaborate, constraints in terms of time, culture and skills, management support, team performance, and changes over time. The factors' importance may alter throughout the team's, project's, or organization's lifespan (Patel et al., 2012).

A way to look at collaboration in teams is through the quality of teamwork. Hoegl and Gemuenden (2001) states that how well a team, defined as "a social system of three or more people, which is embedded in an organization (context), whose members perceive themselves as such and are perceived as members by others (identity), and who collaborate on a common task (teamwork)", performs work depends on two outcomes of collaboration, namely task-related outcomes (e.g. quality, cost compliance and schedule) and people-related outcomes (e.g., team member satisfaction and team feasibility potential). Because "success of work conducted in teams depends (beyond the quantity and correctness of the task activities) on how well team members collaborate, or interact" (Hoegl and Gemuenden, 2001). The two types of outcomes and their criteria for project performance are further discussed in Section 2.4. Hoegl and Gemuenden (2001) came up with six factors that are used to assess and steer the quality of the collaborative team process. The factors are communication, coordination, the balance of member contributions, mutual support, effort, and cohesion. Important to mention is that these factors focus on the quality rather than the content of the work process. In other words, focusing on how well teams coordinate their work instead of what is coordinated. A collaborative team would exercise behavior related to all factors (Hoegl and Gemuenden, 2001). Expanding on the six factors of collaboration, Suprpto (2016) proposes a seventh factor: affective trust (between the different parties). This factor reflects trust focusing on the affective, i.e., feelings, of one another. Opposite of cognitive trust, which focuses on pre-established trust based on predictability and reliableness from other relationships than the one at hand. Affective trust focuses on "the basis of feelings generated by the level of care and concern the partner demonstrates" and is to a lesser extent dependent on reputation because it relies more on own perceived affairs with the other party (Johnson and Grayson, 2005).

Um and Kim (2018) acknowledges the different types of collaboration. Making a distinction between collaboration focuses on the process and the relationship. When looking at the process, the goal of investing in collaboration is to reach joint objectives. The investment relates to task-related activities, e.g., information sharing and process integration. Additionally, investing in the relationship aims to establish a work environment with a collective working mindset. Close and long-term relationships are the starting point. The article focuses on collaboration related to the process (task-related activities). Three collaborative activities are embraced for steering collaboration to improve project performance: information sharing, incentive alignment, and joint decision-making (Um and Kim, 2018).

2.3.3. Overview

In summary, collaboration depends on two or more people interacting and working towards common goals. Collaboration has two main outcomes, task-related activities (process-related) and people-related outcomes (social/relationship-related). The factors of the concept of teamworking quality, together with the factor of affective trust, can be used to assess the quality of the collaboration in teams related to both outcomes.

2.4. Project performance

This section elaborates on the concept of project performance. The changing criteria in determining project performance are discussed as to what criteria are used to measure project performance and the role of success factors.

2.4.1. Success criteria measuring project performance

The concept of project performance has been studied extensively, and traditionally project performance is measured based on time, costs, and quality, i.e., the Iron Triangle (Atkinson, 1999). Time, cost, and quality are the success criteria for measuring project performance. These three criteria remain

well-known to determine whether or not the project is delivered as intended (Pollack et al., 2018). Success criteria reflect the goals and objectives of the project and are used to determine the performance (Cooke-Davies, 2002). Using terms such as project success and project performance interchangeably in literature occurs frequently. This research adopts the term project performance and is defined as measuring how well a project meets predetermined goals and objectives (Nicholas and Steyn, 2012). The performance of a project can vary on various levels. Such as between the different actors involved in the project (e.g., client and contractor) (S.-R. Toor and Ogunlana, 2008), between stakeholders due to their different interests (Bryde and Brown, 2004), and even disciplines within one organization due to their specific goals and objectives (Cox et al., 2003).

Due to these diverging views of performance, measurement based on the objective and quantitative criteria of time, cost, and quality would only be some-encompassing. Therefore, additional subjective and qualitative criteria, such as stakeholder satisfaction, must include their needs and expectations (Chan and Chan, 2004; S. Toor and Ogunlana, 2010; Khan et al., 2021). Additionally, Silva and Warnakulasooriya (2016) emphasizes that the human factor is an essential competence for project performance (Silva and Warnakulasooriya, 2016). It would be unattainable to create one list of criteria that fits every project, i.e., measuring project performance should be fit for purpose. However, many authors have indicated generalizing criteria into perspectives, clusters, or levels to grasp project performance. Silva and Warnakulasooriya (2017) distinguishes between the short-term and long-term *perspectives*. The short-term is related to efficiency, i.e., time, budget, and specifications. The long-term is related to effectiveness, i.e., attainment of project goals and objectives, the involved parties' satisfaction, and the project's exploitation (Silva and Warnakulasooriya, 2017). Westerveld (2003) suggests result areas that represent *clusters of criteria* that define the entire spectrum of performance, namely project results, client, project personnel, users, contracting partners and stakeholders (Westerveld, 2003). Moreover, S.-R. Toor and Ogunlana (2008) developed *three levels of performance criteria*. The core level of project performance evaluation fosters time, cost, and quality (i.e., the iron triangle). However, the author indicates that those are not the criteria for evaluating a project. Criteria, such as effectiveness, efficiency, and safety that make up the middle level are equally important to determine the project performance. Criteria related to the project actors and environment include stakeholder satisfaction, disputes and conflicts, and high quality of work. These criteria are often causing for delays and or overruns on the criteria at the core level; time, cost, and quality (S.-R. Toor and Ogunlana, 2008).

Finally, a distinction between different types of success criteria can be made, namely criteria relating to 'task outcomes' and 'people outcomes'. Among others, Hoegl and Gemuenden 2001 makes this distinction by relating criteria such as quality, time and cost (e.g., the Iron Triangle) to task-related outcomes and criteria such as team member satisfaction and viability of the team to people-related outcomes. The combination of both types of criteria is called project team success. It consists of the variables of team performance, defined as "the extent to which a team can meet established quality and cost and time objectives and personal success of team members, operationalized by working as such that team members experience increased motivation and the proficiency to encounter in future teamwork" (Hoegl and Gemuenden). Within the latter, a distinction is made between the variables 'work satisfaction' and 'learning' (Hoegl and Gemuenden, 2001).

2.4.2. Overview

The concept of project performance is traditionally measured by time, cost, and quality, known as the Iron Triangle. However, due to diverging views on performance, additional subjective and qualitative criteria, such as stakeholder satisfaction, are necessary to measure performance accurately. Different perspectives, clusters, and levels of criteria are suggested for evaluating project performance, such as short-term and long-term perspectives, clusters of criteria, and three levels of performance criteria. Additionally, the distinction between task-related and people-related success criteria and the combination of both criteria is called project team success. Table 2.1 presents an overview of the performance criteria found in the literature.

2.5. Theoretical framework

This section presents the theoretical framework that contains the interpretations of the research variables empathy (2.5.1), two-phase model (2.5.2), collaboration (2.5.3), and project performance (2.5.4)

Table 2.1: Overview of performance criteria from different literature sources.

Categories	S. Toor and Ogunlana, 2010	Westerveld, 2003	Suprpto, 2016	Um and Kim, 2018	Hoegl and Gemuenden, 2001
Task related outcome	According to specifications	<u>Project results</u> Time Cost Quality/scope	<u>Effectiveness</u> safety and quality of project output operability	<u>Effectiveness</u> quality	<u>Team performance</u> - effectiveness (quality) - efficiency (schedule & budget)
	On time and under budget		<u>Efficiency</u> cost and schedule performance	<u>Efficiency</u> completion of project on time and within budget	
	Doing the right thing (effectiveness)				
	Efficiently (use of resources)				
	Safety				
	Conform stakeholder expectations	Appriciation by stakeholder	Percieved satisfaction on overall result	Stakeholders' satisfaction	
	Free from defects (high quality of workmanship)	Appriciation by client	Percieved success of owner and contractor	Clients' satisfaction	
	Minimized construction aggravation, disputes and conflicts	Appriciation by users			
People related outcome		Appriciation by contracting partners			<u>Work satisfaction</u> - personal satisfaction - desire to work in teams in the future
		Appriciation by project personnel			<u>Learning</u> acquisition of knowledge and skills

based on the literature review.

2.5.1. Empathy

This research will focus on empathy regarding the cognitive, affective and behavioral components. The cognitive and affective components are adopted from the literature because they are indicated to be important in the actual development of the empathic response (intrapersonal process). This response depends on a cognitive understanding through perspective-taking and an affective response based on perceiving and resonating with somebodies feelings. The behavioral component is adopted from the literature because it seems important in the relationship between the client and contractor. The outward response of cognitive and affective understanding may surface through attitude, skill, or actionable behavior.

Furthermore, factors are indicated that influence the extent to which individuals can empathize (empathic ability) and whether people are intended to behave empathic (willingness). These factors are essential to influence the environment in which team members can and are willing to behave empathic. Collective empathy is considered relevant because the first phase occurs in a project team. A distinction is made regarding someone's ability to behave empathic between intrapersonal factors (one's ability to empathize) and interpersonal factors (type of connection with the individual). Another distinction is made regarding someone's willingness between whether individuals have a personal connection, someone's willingness to the project, and someone's emotional conditional at a particular moment.

2.5.2. Two-phase model

This research focuses on the two project characteristics used to differentiate between four different formats of the two-phase model. Using these formats, it is possible to substantiate more reliable outcomes due to more considerable expected differences. Furthermore, by looking into the extremes represented by the quadrants, one can predict/interpolate what is suitable for combinations between the extremes.

The project characteristics used to create the four quadrants are the *form of collaboration* assessed based on how the tasks and roles are divided between the two parties. Furthermore, the structure of the management team and, finally, the relationship between both parties. The *contractor's design assignment* is assessed on whether the solution space of the contractor is narrow or wide, the moment of involvement in the project, and the level of specification that is needed before moving to Phase II (see Figure 2.2).

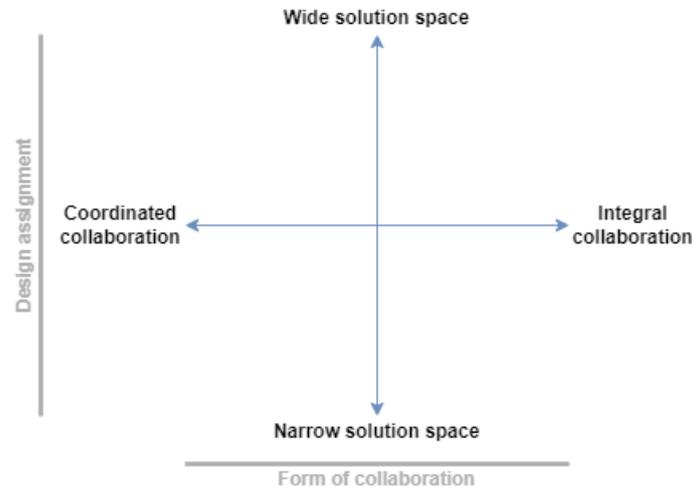


Figure 2.2: Four quadrants representing different choices for two-phase model formats (Adjusted from Tukker et al., 2020).

2.5.3. Collaboration

This research adopts the notion of teamworking quality as found in the literature by Hoegl and Gemunden (2001) with the addition of affective trust to the list of factors proposed by Suprpto (2016). The definitions of the factors are presented in Table 2.2. Using teamwork quality as the measure for collaboration over the antecedents proposed by Suprpto (2016) is because "there is no empirical evidence that these antecedents (relational attitudes, teams' joint capability, and collaboration practices) directly influence project performance: do not automatically lead to a successful collaboration without day-to-day managerial intervention in teamworking processes" (Suprpto, 2016). The factors proposed by Um and Kim (2018) related to improving the process-related activities/outcomes are included in the antecedents and are therefore not adopted in this research.

2.5.4. Project performance

Due to the lack of results on criteria that determine the project performance for the two-phase model and specifically for the first phase of the two-phase model, the research will consider the criteria related to both types of outcomes, task-related and people-related that may be the criteria that determine the project performance of the first phase of the two-phase model. Based on the review of the two-phase model, it can be argued that both types of outcomes may determine the performance of the first phase. First, the project characteristic related to the involvement of the contractor, including more construction knowledge and experience earlier during the project, relates to task-related outcomes. Second, the form of collaboration relates to the people-related outcomes, and therefore how the client and contractor collaborate. Finally, because of the importance of client-contractor collaboration, it is important to include whether the client and contractor have the same view on the criteria that they find important for the first phase.

Table 2.2: Definitions of the factors composing teamworking quality, including affective trust.

Factor	Proposed by author	Definition
Communication	Hoegl and Gemuenden (2001)	Communication enables information exchange among team members. The quality of communication depends on the frequency, level of formalization, structure, and openness of the information exchange. The communication should be frequent, informal, have a direct structure (no intermediaries), and be shared openly with team members (Hoegl and Gemuenden, 2001).
Coordination	Hoegl and Gemuenden (2001)	Factor coordination is about the importance of awareness of dependencies and the progress of individual tasks within the team. The team should establish a working structure to make this process effective and efficient (Hoegl and Gemuenden, 2001).
Balance of member contributions	Hoegl and Gemuenden (2001)	Whether the contributions of the team members are in balance depends on if each discipline or team member can share his task-related knowledge and experience within the team. This is mainly important when many disciplines or team members are involved. Furthermore, care must be taken that certain members refrain from dominating, resulting that others cannot contribute their views and ideas. This would nullify the integral team aspect (Hoegl and Gemuenden, 2001).
Mutual support	Hoegl and Gemuenden (2001)	The factor of mutual support influences collaboration in a positive manner if the mindset of team members is cooperative rather than based on competition. Competition results in suspicion and frustration, whereas mutual support bundles the expertise of the team members. Furthermore, it manifests itself through offering help, being open to others' ideas and respect towards each other (Hoegl and Gemuenden, 2001).
Effort	Hoegl and Gemuenden (2001)	For the factor effort, it is important that within the team, there is a uniform understanding of the norm that the team comes first and efforts of team members should be equally distributed. This norm forms a common expectation within the team of the behavior of others (Hoegl and Gemuenden, 2001).
Cohesion	Hoegl and Gemuenden (2001)	Cohesion is the factor that entails the degree to which team members identify as a team and radiate this—acting as a motivation to work (intensively) together. Cohesion is stimulated through (1) commitment/responsibility for the goal, (2) the presence of team spirit, and (3) mutual relationships within the team (Hoegl and Gemuenden, 2001).
Affective trust	Suprpto (2016)	Affective trust is based on the feeling one has toward another. This trust is not built up through established trust based on predictability and reputation but based on trust that is worked out from the collaboration itself, for example, through the bearing of care and showing concern (Johnson and Grayson, 2005).

2.6. Hypotheses

The hypotheses presented in Figure 2.3 can be formulated based on the theoretical framework.

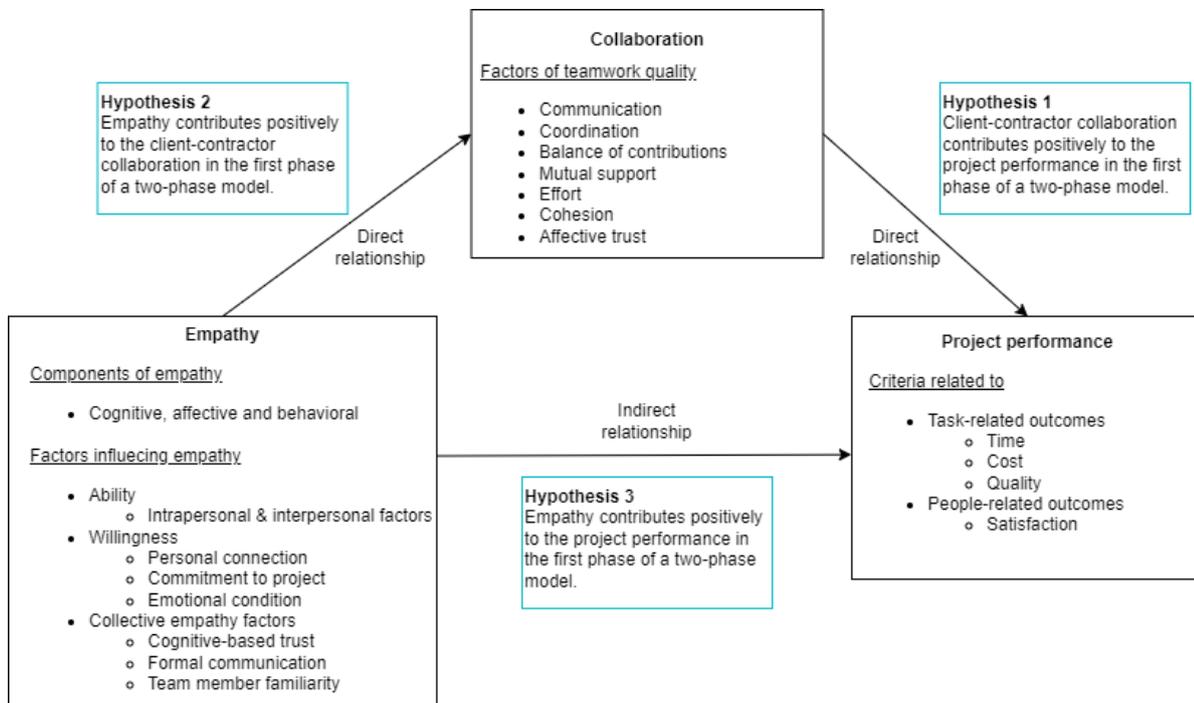


Figure 2.3: Hypotheses of the research.

3

Research Methodology

This chapter introduces the research methodology. Starting by selecting the most appropriate research approach (3.1). After that, the design of the approach is outlined, including the data collection method and data analysis process (3.2).

3.1. Choosing research approach

The choice for a multiple-case study follows from the conditions to choose for a research design addressed by Yin (2018). The first condition relates to the explanatory nature of the main research question: 'how'. The second condition deals with whether or not behaviors need to be manipulated during the research. This condition is met because no behavior manipulation is needed to answer the research question. The third condition concerns the need for direct observation of the case, and interviews can be held if needed (Yin, 2018).

3.2. Research design

For the design of the research approach, the following matters are addressed. First is the case studies' selection process (3.2.1). Secondly, the primary data collection method is outlined by elaborating on the choice for semi-structured interviews, including how they are conducted using the interview protocol, the selection and background of the interviewees, and the reliability and validity of the interviews (3.2.2). Finally, Subsection 3.2.3 elaborates on how the data analysis is performed and how the data is used.

3.2.1. Case study selection

The cases are selected based on theoretical replication to create a clear understanding of how empathy can influence the project performance of the first phase across different formats of a two-phase model (Yin, 2018). The two project characteristics found during the literature review that make up the different formats in this research are used to select cases that foresee opposing but expected results. The two characteristics are the *contractor's design assignment* and the *project team's form of collaboration*. By assessing projects on the two project characteristics, it is possible to divide them into the four quadrants developed in the theoretical framework (see Section 2.5). The case studies are used in this methodology to determine whether the project characteristics yield a different answer to the main research question. Table 3.1 shows the assessment process of four selected projects within the Dutch construction sector. The projects are from the portfolio of the research company Dura Vermeer. The assessment is based on case-specific documents. The case studies are anonymized to create a safe environment for the interviewees.

As addressed, the two characteristics are found in the literature review (see Section 2.2). The *form of collaboration* is assessed based on how the tasks and roles are divided between the two parties. Furthermore, the structure of the management team and, finally, the relationship between both parties. The *contractor's design assignment* is assessed on whether the solution space of the contractor is narrow or wide, the moment of involvement in the project, and the level of specification needed before

moving to Phase II. Case study 1 (CS1) can be characterized through an integrated form of collaboration between the client and contractor and a design assignment of the contractor with a wide solution space. Case study 2 (CS2), like CS1, has a wide solution space; however, it does have a form of collaboration that depends more on coordination between the client and contractor. For case study 3 (CS3), just as in CS1, there is a form of collaboration based on integration. On the other hand, the design assignment is relatively narrow. Case study 4 (CS4) is moderate in both characteristics compared to the other three cases. Figure 3.1 show the case studies on the four quadrants.

Table 3.1: Assessment of case studies on project characteristics form of collaboration and contractor's design assignment.

Project characteristics	Assessment criteria	CS1	CS2	CS3	CS4
Form of collaboration	Division of tasks and roles	No clear division	Clear division	Clear division	No clear division
	Structure of management team (integrated or separated management teams)	Initially integrated, changed to separated	Initially integrated, changed to separated	Separated	Separated
	Role of relationship	Equality and necessity	Inequality and facilitating	Equality and necessity	Equality and necessity
Contractor's design assignment	Solution space	Wide	Wide	Medium	Narrow
	Moment of involvement	Early	Early	Medium	Late
	Level of specification	Execution design	Execution design	Execution design	Execution design

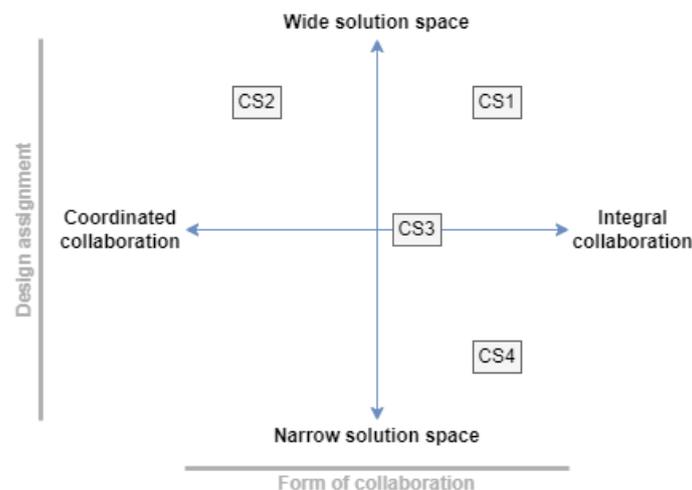


Figure 3.1: Case studies are spread over the two project characteristics (adjusted from Tukker et al., 2020).

3.2.2. Semi-structured interviews

The purpose of an interview is to answer a central question. A distinction is possible between two main types of interviews: structured and unstructured. The structured interview is characterized by the fact that all questions are predetermined, the order of the questions is fixed, and deviating from this structure is not allowed. Even the responses are, to a certain extent, predetermined by using answer categories. On the other hand, the unstructured interview has no strict questions and order. Also, no answer categories are defined upfront. The central question determines the type of interview. Open central questions ask for an unstructured approach, and a closed central question asks for a structured approach (Baarda et al., 2012).

This research uses the unstructured approach because it has an open central question: the relationship between the competence of empathy, client-contractor collaboration, and project performance. Differ-

ent types of unstructured interviews are possible. Table 3.2 presents the characteristics of the different types of unstructured interviews. The choice depends on the degree of prior knowledge (Baarda et al., 2012). The topics of the interview are predetermined based on the literature review. However, the opportunity to ask follow-up questions to the interviewees' responses can guide the researcher toward new areas of interest in the topics, creating a solid foundation for answering the research question. Therefore, the semi-structured interview is most suitable for this research.

Table 3.2: Degree of standardization open interviews (free translation from Baarda et al., 2012).

Free-attitude interview	Semi-structured interview	Partly-structured interview
No fixed topics, no fixed order	Topic list, no fixed order	Fixed questions and order, but possibility to ask follow-up questions

Reliability of the semi-structured interviews

The reliability of the interviews depends on the extent to which the answers are subject to coincidence (Baarda et al., 2012). George (2022) indicated measures to ensure the reliability of the semi-structured interviews.

- *Interview protocols should be standardized.* The semi-structured interviews are conducted using the interview protocol presented in Appendix A. All interviews are in Dutch because all interviewees have Dutch as their first language. However, a Dutch and English version of the interview protocol is included in the appendix. The structure of the protocol starts with an introduction that introduces the central question of the interview and the aim/purpose of the interview. After that starts the actual interview. First, some questions are asked about the interviewee from where the actual topics of the interview are discussed. The first question is written down for each topic, which should be broad and neutral to prevent steering. All topics together form the topic list of the interview. Input for the list is the topics addressed in the literature study. The order of the topics is the two-phase model, project performance, collaboration, and empathy. This protocol is used for each interview regardless of the interviewees' background to create uniformity and structure in the answers. The protocol is structured such that the topics become progressively more difficult. This way, the interviewer and interviewee can get used to each other and get used to being interviewed. The interview ends by thanking the interviewee for participating, asking whether he or she has any questions and whether interest is in the research results (Baarda et al., 2012).
- *Pilot test the interview protocol.* A practice interview is used to evaluate the interview protocol for redundant or missing topics, clarity of the structure and formulation, and if there is enough information for the interviewee to respond to the topics. The interview was held with a project team member of CS2.
- *Documentation of the interview.* Audio recordings of the interviews have been used to increase the reliability of the interview transcripts used for the analysis. The statements from those transcripts used in the report are presented in Appendix B and Appendix C. All interviewees have been informed through an informed consent document. Furthermore, a risk assessment and mitigation plan have been made to perform research involving human participants. The data generated during the research is stored according to the data management plan. The informed consent document, the risk assessment, the mitigation plan, and the data management plan have all been approved by the Human Research Ethics Commission (HREC) of the Technical University of Delft.
- *Systematic data analysis.* This process is explained in Subsection 3.2.3.

Validity of the semi-structured interviews

The validity of the interviews deals with whether the obtained data is a good representation of reality (Baarda et al., 2012) and reliable, credible, and trustworthy (George, 2022). George (2022) indicated measures to ensure the validity of the semi-structured interviews.

- *Determine relevant interview topics.* The content of the interview protocol is based on the theoretical framework from Chapter 2 and should, therefore, be relevant to answer the research question.
- *Develop a structured interview.* All interviews are conducted based on the same interview protocol to ensure consistency in the data.
- *Use a diverse sample.* A total of 16 semi-structured interviews were conducted. Four interviewees are selected for each case study, two representing the client and two the contractor. This choice has been made to investigate whether different views regarding the topics are present between the two organizations. The interviewees are selected based on their role in the project. More specifically, their role had to be part of the integrated project management roles or project director, therefore, project manager, manager project control, technical manager, contract manager, stakeholder manager, or project director. Table 3.3 present background information on each interviewee¹. The interviewees are anonymized to create a safe environment.
- *Neutral environment.* The premise was to interview each participant physically at their project location. Ultimately, 3 out of the 16 interviews are conducted through MS Teams.
- *Documentation of the interview.* Audio recordings of the interviews have been used to increase the reliability of the interview transcripts used for the analysis.

Table 3.3: Overview interviewees.

Interviewee	CS	Client/contractor	Role	Job experience	Role experience
1	1	Contractor	SM	Current contractor only	HOE, PL
2	1	Contractor	TM	Current contractor only	PC
3	1	Client	PM	Current client only	SAC, PL
4	1	Client	SM	Current client only	SAC
5	2	Contractor	MPC	Contractor only	DL, DM
6	2	Contractor	TM	Contractor only	DL
7	2	Client	PM	Current client only	-
8	2	Client	CM	Engineering firm, client	-
9	3	Contractor	PD	Engineering firm, contractor	Tender manager, PM
10	3	Contractor	TM	Current contractor only	Project planner, PL
11	3	Client	Pm	Current client only	PL
12	3	Client	TM	Client only	-
13	4	Contractor	PM	Current contractor only	-
14	4	Contractor	CM	Contractor only	Project planner, tender manager
15	4	Client	TM	Current client, freelance	Tender manager, CM, PL, Se
16	4	Client	PM	Current client only	CM

3.2.3. Data analysis

Essential with semi-structured interviews is data management and data analysis because the questions are less comparable to structured interviews (George, 2022). The outcome of the data analysis of the interviews is threefold: (1) understanding the relationship between collaboration and project performance, (2) understanding the relationship between empathy and collaboration, and (3) how the relationships relate to the varying project characteristics of the case studies. The interviews are held across the four cases used for this research.

¹SM = stakeholder manager, TM = technical manager, PM = project manager, PC = project controller MPC = manager project control, CM = contract manager, PD = project director, PL = project leader, HOE = head of execution, SAC = supervisory authority construction, DL = design leader, DM = design manager, BPV = best value procurement, SE = system engineer

The approach for the data analysis is based on the following steps. The actual analysis is carried out using the software program Atlas.ti 2023 ("Atlas.ti", 2023) to systematically organize and analyze the data. Table 3.4 shows examples of steps 3, 4, and 6 of the data analysis.

1. Transcribe the audio recordings of the interviews.
2. Import the transcripts into Atlas.ti 2023
3. Create codes that capture the meaning of each text segment.
4. Create categories of codes based on the topics of the interview protocol (according to the literature review as explained in 3.2.2).
5. Revise codes throughout the coding process because, due to the repetition of all interview transcripts, codes may become too broad and need sub-codes.
6. Create groups of codes to identify patterns and connections between different or within topics).
7. Interpret the results based on the groups of codes and search for parallels and discrepancies between the interviewees' statements.
8. Process the analysis findings by clearly indicating what each interviewee or group of interviewees stated. The results are substantiated by including statements from the interviews in the report.

Table 3.4: Coding process in Atlas.ti 2023.

Interv.	Examples of text segments	Step 3) Codes capturing meaning of text	Step 4) Create categories of codes based on interview protocol	Step 6) Create groups of codes for analysis
18	Feeling safe to indeed ask questions by creating a safe environment so not when for example someone asks a question, but giving someone the space to ask questions or at least to say what they think.	Creating a safe working environment to facilitate empathy	Empathy_factors influencing empathy	Empathy_factors influencing empathy_work environment
113	It helps if you dare to be open by simply stating what is going on, feeling okay with it, and not being insecure about it.	Creating a safe working environment to facilitate empathy		
115	That does require a safe atmosphere where people feel that they can put on the table what they want to put on the table. That they can put down a judgment or an observation, even if it is harsh. Of course, everyone tries to express themselves respectfully and without attacking anyone personally.	Creating a safe working environment to facilitate empathy		
12	To connect with colleagues by talking, for example, about problems, domestic or financial or health-related, and after all, these are matters you only share with each other when you have spent a certain amount of time together.	Non-work related topics that are important to discuss	Empathy_factors influencing empathy	Empathy_factors influencing empathy_communication
19	You have a good conversation with someone. When you know how someone is in the game, I find it very important. (...) This afternoon I also had a conversation with two managers. Why are you reacting like that now? What is happening now? What are the interests of each other? This way, you make it very discussable.	Discussing topics so that you provoke empathy		
116	Also giving the other the chance to know and understand that at all (...) But also trying to tell from yourself of understand for a moment that this is how this works in my organization (...) so being proactive about empathy, not just being empathetic yourself, but giving the other a chance to be empathetic. I think we spend a lot of time doing that with each other over and over again.	Being proactive, providing the other the opportunity to behave empathic		

4

Results on the relationship between client-contractor collaboration and project performance

This chapter presents the research findings based on the data analysis of the semi-structured interviews, together with a conclusion to the chapter that discusses hypothesis 1. This outcome of this chapter is used to answer subquestion 2 in Chapter 8. An overview of the results is presented at the end of each section. The analysis uses Atlas TI to categorize the interviewees' statements per topic, as listed below, based on the interview protocol. An overview of the statements that have been used throughout this chapter is presented in Appendix B. The statements are organized in line with the structure of this chapter to increase traceability.

- Criteria that determine project performance (Section 4.1).
- Factors of collaboration (Section 4.2).
- Relationship between collaboration and project performance (Section 4.3).
- activities for collaboration (Section 4.4).

4.1. Criteria that determine project performance of the first phase

During the interviews, the interviewees were asked to provide the criteria that determine the performance of the project's first phase (4.1.1). The interviewees also indicated differences in views on the criteria between more traditional project delivery models and the two-phase model (4.1.2). The outcome of this section contributes to answering subquestion 2.

4.1.1. Criteria for determining the project performance

The interviewees indicated six different criteria through which the performance of the first phase can be measured. These criteria are time, cost, quality, collaboration, stakeholder satisfaction, and safety.

Time

The first criterion to determine the performance mentioned by 10 out of the 16 interviews is complying with the schedule specified at the beginning of the project (I1,2,3,6,7,8,9,11,12,14). The schedule is mentioned as a criterion because the project is part of a program or a portfolio of projects and therefore interfaces with other projects.

Interviewee 9 mentioned "finishing the project within schedule so the client could continue with the program" (I9), and Interviewee 11 added that the project serves a program and "therefore time is an important criteria in order to complete the program" (I11). On the other hand, if interfaces with other projects are a lesser concern, Interviewee 14 mentions that "with good considerations and justifications, it has actually led to, together with the client, a shift in the project schedule" (I14). The interviewee furthermore indicated that "this is a whole new insight and it did lead to a lot of calm in the project organization" (I14).

Cost

The second criterion is complying with the intended budget of the project. 11 out of the 16 interviewees mention cost as a criterion for determining the performance of the first phase (I2,3,7,8,9,11,12,13,14,15,16).

How the cost is used as a criterion is different for all projects. CS1 and CS3 are part of a program. This is one of the reasons for focusing on these two quantitative criteria. However, interviewees of CS1 indicated that "of course there is a focus on the cost however it should be a consequence of the process" (I2) and "the cost, time and quality are always important but in combination with the design loops and shared responsibility" (I3). In comparison, the client of CS3 used the cost during the contractor selection to ensure that the project was feasible within the specified budget. Resulting in the contractor experiencing cost as an "important criterion of the client to finish the project within budget" (I9). The cost was used as a steering mechanism.

In CS2, the focus shifted from a focus more on softer criteria towards a focus on harder criteria such as cost. Interviewee 8 mentioned that during a two-phase project "you would deal with hard criteria in a different way when it runs normally, but due to dynamics in project there is now more focus on money because the original scope no longer fits within budget" (I8).

The client uses the cost in CS4 only after selecting the contractor because only qualitative criteria were used. The client had to verify that the price established by the contractor was fair for the project. This process was carried out in collaboration between the client and the contractor.

Besides the pure quantitative criteria, time and cost, the interviewees also mentioned criteria that include qualitative aspects determining project performance. CS4 implemented alongside the legal contract criteria, which included, among other costs, a contractual provision that states that both parties declare, based on the satisfactory completion of Phase I, that they see no reason to terminate the agreement and proceed on to Phase II.

Quality

The criterion is quality is mentioned in 9 out of 16 (I3,8,10,11,12,13,14,15,16). Already this criterion is considered less quantitative than time and cost, but not less important. Quality is not mentioned as a steering mechanism compared to time and cost. Interviewee 8 states that "initially, quality might have been the biggest goal" however, due to the external influences in CS2 "we have been caught up in time and this resulted in budget cuts" (I8). Interviewee 10 mentions that in a two-phase model, compared to an integrated Design and Construct contract, there is more focus on the quality criterion because there is no competition during tendering.

Collaboration

Building onto what is stated above, collaboration is included as a criterion used to determine the performance of the first phase. In total, 4 out of the 16 interviewees mentioned collaboration as a criterion for project performance (I10,11,12,16). Interviewee 12 stated, "of course money is an important one, planning is an important one (...) but if you then say what is a less tangible criterion, collaboration" (I12). Collaboration is more often mentioned (8 out of 16) as an activity to comply with the more hard criteria such as time and cost and therefore meet those project objectives: "it contributes to our control to stay within time and money to achieve our quality" (I11). However, the case-specific documents mention collaboration as a project objective in three cases. In the other case, it is listed as a critical success factor.

Four interviewees have indicated collaboration as a criterion for project performance (I10,11,12,16). However, in this research, collaboration is considered a factor that can affect the performance of the first phase. This is in line with how the majority of the interviewees view collaboration: as a factor, as explained in Section 4.3.

Stakeholders satisfaction

Regarding the objective of project stakeholders, only 2 interviewees (both stakeholder managers) mentioned this as a criterion (I1,4). The case-specific documents, however, revealed that 3 out of the 4 cases (CS1, CS2, and CS3) have a criterion regarding creating value or limiting nuisance for the environment/stakeholders. The non-appearance of this criterion, despite its inclusion in the case-specific documents, may be explained by the following two reasons. First, in the case-specific documents of

CS1 and CS3, stakeholder satisfaction is included as a project objective to create added value for the stakeholders by designing on the basis of requirements that have already been acquired (CS1) and added value for the stakeholders (CS3). These project objectives, especially how it is included in CS1, rather seem to be a matter of carefully incorporating the requirements into the design. Second, the objectives related to stakeholder satisfaction in the case-specific documents of CS2 and again, CS3 have a description concerning the nuisance for the stakeholders during the execution of the project. Therefore these objectives relate to the second phase of the project rather than the first phase.

Safety

All 4 interviewees mention safety from CS4. In this case, safety was one of the three criteria for Phase I (I13,14,15,16). The interviewees indicated that this criterion is project specific due to the distinctive project characteristics of specifically required craftsmanship. Interviewee 15 mentioned, for example, "in my experience, I have not asked this criterion in other projects already in this in-depth manner. We applied it here and it worked well, but this is also a very specific type of work" (I15). It is indicated that the criterion was specifically included to examine the capabilities of the contractor to execute the specific tasks and did work well.

4.1.2. Views on the use of criteria between different project delivery methods

According to the interviewees, the main differences in the views on the criteria determining project performance between different PDM's have to do with: the shifts in the (1) focus from the product to the process, (2) sole responsibility for the contractor towards shared responsibility between client and contractor and (3) the extent that criteria are set in stone or remain relatively flexible throughout Phase I.

Focus on the process instead of the products

The shift in focus from looking at the products toward the process facilitates an implicitly satisfactory end product. 11 out of the 16 interviewees spoke explicitly about this shift (I1,2,3,6,7,8,9,10,12,13,14). The result of the process, which is between the client and the contractor, is about "more understanding of why the process went as it did and so much more mutual understanding of why the outcome is what it is" (I13). The necessity for focusing on this process is because developing a product in collaboration between the client and contractors creates discussions that contain differences in interests between both parties. Completing this process demands collaboration to resolve the discussions and interest differences (I12).

"In traditional PDM's the focus is on the product, and this product is measured against the criteria. From there, it is then simply a matter of check marks or crosses (...) in a two-phase contract, you implicitly assume that if the process (of developing the product) is good and has gone well, that result will come. If the result is not quite satisfactory, then there are valid reasons because you walked the path together and remember that tree-trunk you had to climb over. Yes, that made you reach the top a few days later, but we all know how that happened" (I2).

Shift toward shared responsibility of criteria

This shift follows from the preceding and is indicated by 5 interviewees (I3,4,8,14,16). In a traditional PDM, the contractor is responsible for complying with the criteria set for the project; however, in the first phase of the two-phase model, the responsibility may shift from solely the contractor towards a more shared responsibility between the client and the contractor.

For example, the case-specific document of CS4 describes the design responsibility of the client and contractor. In this case, the design responsibility of the client is the final design and the contractor is responsible for the execution design. The contract manager (I14) mentioned that the contractor would not be responsible for every flaw in the execution design. Because many design decisions are made with collective responsibility between the client and contractor, by using this collaborative process, it was possible not to use the acceptance procedure of the client (as used in, i.e., an integrated Design and Construct contract) but develop a decision-making process based on equality. Resulting in a shift in non-contractual liability from the contractor to the client.

Flexibility of criteria throughout Phase I

Flexibility in criteria can have both a positive and negative effect. 7 out of the 16 interviewees spoke explicitly about this shift. Starting with the negative influence on CS2. The flexibility in the criteria resulted from external factors (e.g., rising building costs), causing costs to exceed the budget and reducing the project scope. Interviewee 8 argued that the intended freedom at the start became their pitfall because of the project's complexity: "because we intended scope freedom in the beginning of the project and we do not yet have execution contract, it is still possible to change the scope. Even though it was initially intended to have this option to increase the scope, it resulted in scope limitation" (I8).

The positive effect, on the other hand, can be found in CS1 and CS4. The first positive effect started during the dialogue sessions of CS4. During the discussion between the client and contractor about the schedule proposed by the client, the contractor argued that it would not be feasible. The statements of Interviewee 14 related to this shift can be found under the criteria time. The second positive effect is related to design loops in CS1 and CS4. Interviewees 3 and 16 mention the design loops during the first phase. These are important because during Phase I, the client and contractor work together to create the design and plans, and in this process, criteria should be flexible in terms of being unclear and uncertain. Compared to more traditional PDM's where during procurement, contractors should submit designs and plans based on the client's concrete boundary conditions to compare them in competition. Furthermore, Interviewee 16 adds that working with and accepting a certain degree of uncertainty in the boundary conditions of the criteria is essential for the perception of project performance.

4.1.3. Overview of the criteria that determine project performance of the first phase

The interviewees were asked to provide the criteria that determine the first phase within the two-phase model. The criteria of time and cost are not the main focus of the first phase. They are predominantly used as steering mechanisms if the project is part of a program, limiting schedule and budget. Alternatively, when external influences on the project are no longer manageable, on the other hand, quality is the first phase's primary focus. There is more focus on the quality criterion because there is no competition during tendering. Other criteria are stakeholder satisfaction and safety. Finally, collaboration is mentioned as a criterion for project performance. However, it is often mentioned as a factor to comply with the criteria that are considered quantitative, such as time and cost and therefore meet those project objectives. Collaboration is considered a factor that affects project performance rather than a criterion of project performance in this research.

Furthermore, while providing the criteria, the interviewees indicated differences in using the criteria between more traditional PDM's and the two-phase model. These differences are, first, the shift in focus from products to the process leading to the products. If a product results from a good collaborative process, then the product is implicitly also satisfactory. When the process is not satisfactory, the causes are valid. The second shift is regarding the shift towards shared responsibility. Following the preceding shift, design choices are often made collectively, resulting in a shift in non-contractual liability from the contractor to the client. The final shift is based on more flexibility in the criteria. Negatively, flexibility in the first phase makes it possible for external factors to influence the project. Positively, flexibility creates opportunities for optimizations.

Table 4.1 presents the distribution of criteria per case. This distribution clearly shows that the client emphasized the criteria most (61%). Shifting to the criteria that are used as steering mechanisms, time and cost, these are predominantly used for projects that are part of a program (CS1 and CS3), encountered external factors that influenced the project resulting in a shift in focus (CS2), and used for checking cost after a complete qualitative tender procedure (CS4). As with the complete list of criteria, it is also valid for the time and cost criteria the client often refers to (60%).

The quantitative and qualitative criteria, quality and safety, are overly represented by CS4 after a complete qualitative tender procedure (61%). Whereas the two stakeholder managers from CS1 only mentioned stakeholder satisfaction together with Interviewee 2, who related to all objectives set for the project, including stakeholder satisfaction. Moreover, collaboration is acknowledged in CS1, CS3 and CS3. For CS2, the criterion was important during the beginning of the project; however, the focus shifted towards time and cost.

The criteria listed above are applicable, depending on the implementation, either specifically for the first phase or for both phases of the two-phase model. The quality criterion is applicable in CS4, specifically for the first phase. With the criteria the client had chosen to select the contractor, the client wanted to include quality as a criterion in the first phase to test the contractor for proficiency. However, the quality criterion is included in the second phase in a different form of quality control. Other criteria, such as cost and time, are applied similarly in the first and second phases. Nevertheless, the criteria their flexibility may differ between the two phases.

Table 4.1: Criteria that determine the project performance of the first phase.

CS	Interviewee	Client/contractor	Criteria					
			Cost	Quality	Time	Safety	Collaboration	Stakeholder satisfaction
1	1	Contractor			x			x
	2		x		x			
	3	Client	x	x	x			
	4							x
2	5	Contractor						
	6				x			
	7	Client	x		x			
8	x		x	x				
3	9	Contractor	x		x			
	10			x			x	
	11	Client	x	x	x		x	
12	x		x	x		x		
4	13	Contractor	x	x		x		
	14		x	x	x	x		
	15	Client	x	x		x		
	16		x	x		x	x	
Total			11	9	10	4	4	2

4.2. Factors of collaboration

During the interview, interviewees were asked to score the seven factors of collaboration as found during the literature review (Section 2.5): communication, coordination, balance of member contributions, mutual support, effort, cohesion, and affective trust. The scores represent how important each factor is for the collaboration in their project relative to each other. A five-point Likert scale was used where 0 indicates 'not important for this project's collaboration' and 5 indicates 'it is essential for the collaboration'.

During the interviews, no interviewee used the score 0 and only one used the score 1 once. It resulted in less clear data because more factors would have the same score. To compensate, based on the answers provided by the interviewees, the ranking system became: 0 to 3, meaning 'not important for collaboration', 3 to 4, meaning 'important for collaboration', and 4 to 5, meaning 'essential for collaboration'. See Appendix D for the answers leading to the developed ranking system.

Next, the results of every factor is elaborated on based on the answers provided by the interviewees. Furthermore, the results are linked to the two project characteristics of the form of collaboration and the contractor's design assignment. The standard deviation for the first two factors, communication and coordination, is moderate compared to the other five factors: 0,23 and 0,26, respectively. Therefore they may explain any difference between the four cases and their project characteristics.

4.2.1. Communication

Most interviewees related to how the information should be exchanged, i.e., how to communicate. An essential and challenging aspect of communication appears to be whether one understands what the other is trying to convey and does the other person understand what one is trying to convey (I10,13,14). Interviewee 14 adds other factors that influence how information is conveyed "it depends on so many factors. For example it is important to know how something is said, what you say and how it is received"

(I14). Another related aspect is the type of language that is used. For example, communication should be open about opposing interests (I15,16).

Furthermore, communication between organizational levels within the project seems to be a point of attention. Interviewees 4, 7 and 8 recognize that being selective in what communication is transferred to what organizational layer is essential. This becomes more important when the number of team members and disciplines increases. However, related to this point is the relationship between communication and trust which three interviewees address. They address the relationship as a lack of communication causes distrust because members can feel that the information exchange is not open and transparent. Vice versa, a lack of trust makes it more difficult to openly and transparently communicate (I6,10,14). Another relationship is between the factors of communication and coordination. Entailing that communication creates an understanding and gaining insights of the other party and helps to convey coordination (I9,12,13).

The data does not directly indicate a difference among the four cases based on the project characteristics form of collaboration and the contractor's design assignment. Likewise, no apparent difference between the cases can be established based on the underlying argumentation.

4.2.2. Coordination

Interviewees from cases 1, 2 and 3 describe the importance of coordination in terms of the need for awareness of dependencies and working integrally (I1,2), being aware of the progress of other disciplines (I3), increasing need for coordination when the number of disciplines increases (I8,9), and coordination as a factor that is not depending on a PDM because it is business as usual (I4,5,7,11).

Especially interviewees from CS1 and CS4 mention the importance of specifying a clear working structure. Interviewee 3 further emphasizes that the first action during the plan execution phase was to elaborate on the high-level specified roles and tasks defined during the tender phase. All interfaces between these roles and tasks were determined during this process. Especially Interviewees 15 and 16 acknowledge the importance of specifying a clear working structure. Interviewee 15 mentions that "because of everyone's involvement in the collaboration and their personal interpretation of it, we have the pitfall of everyone getting involved in too many subjects. You have to be clear about the division of tasks and roles and arrange meetings so that not everyone is involved, but only those in charge" (I15). Interviewee 16 indicates the difference between the situation in the two-phase model and more traditional PDM's. Mentioning that contract provisions create a strict division for coordination in an integrated Design and Construct. Especially in a more integrated collaboration, this division of tasks and responsibilities of the tactical layer is often specified on a high level in case-specific documents. To prevent the uncontrolled involvement indicated by Interviewee 15, Interviewee 3 suggests further specifying these at the start of the first phase. Noteworthy is the low score of Interviewee 14. Arguing that coordination is less critical for collaboration. However, the statements of Interviewees 3, 15 and 16 do not directly mention the client-contractor collaboration but address the need for coordination for a more efficient process. Explaining the lower average score of CS4.

In CS2, Interviewee 6 also mentions that specifying clear roles, tasks and responsibilities should be established at the beginning of the project. However, it did not become clear whether this is a concern caused by the changing organizational structure throughout the project.

A difference in the project characteristic form of collaboration can be seen from the results. For the integrated collaboration, CS1 and CS4 do reflect more on the need for a clear working structure because of the integrated project team. Between the two cases, however, less outstanding, a differentiation in the project characteristic contractor's design assignment is visible. For the larger design assignment, CS1 depends more on the need to elaborate on the high-level specified roles and tasks from the start.

The following three factors, balance of member contributions (4.2.3), mutual support (4.2.4), and effort (4.2.5), all have a relatively more significant standard deviation than the other four factors. Therefore they may explain any difference between the four cases and their project characteristics.

4.2.3. Balance of member contributions

First, the interviewees of CS1 mainly focus on an integral way of working between the different IPM disciplines and stressing the importance of maintaining one team (I1,3,4). Furthermore, the decision-

making process should be monitored closely, and dominant behavior must be avoided. Being essential to ensure that all team members continuously share their knowledge to benefit from the integral working method. Decision-making should be based on consensus and communication to ensure fairness. To create the balance of the contributions, Interviewee 2 indicates the effort of creating matching profiles of the management team members of the client and contractor during the tender phase. The Interviewee also indicates that this factor is influenced by communication and coordination. Possibly explaining the relatively lower score.

Second, interviewees of CS2 address having dominant team members as essential to facilitate decision-making. Interviewee 8 describes dominant team members as people who make decisions and steer the project even when these are less favored. Interviewee 9 adds that dominance is expressed through single-minded decision-making or steering. Both Interviewees 6 and 8 indicate that the two-phase model should "guard for the cloak of love" (I6) and "it should not be one happy place" (I8). Mentioning that this may be a pitfall of the two-phase model. These dominant members should be in the management team to steer the project. Interviewee 7 indicates that this factor is not used differently than in a more traditional PDM and there should be less emphasis on the factor when both parties act as one joint team and vice versa.

Moreover, only Interviewee 13 from CS3 did mention anything about this factor. Indicating why this factor was necessary because of the project characteristics. Stating the importance as follows: "in the storming phase of the project, the phase where everybody wants to prove themselves, so with behaviors like "I know better than you. I understand we are in that phase, but I do not want to see that behavior here now because otherwise, we will not make it in time" (I13). The Interviewee also indicates that the importance of this factor would reduce if there would have been more time.

Finally, for CS4, Interviewees 15 and 16 indicate that the management teams were mindful of how this factor should be approached during the early phases of the collaboration. The management team members' expertise and strengths and weaknesses were identified during the first meetings. It was becoming the basis for developing different products based on consensus. Two critical aspects were determining what party and disciplines/team members were in the lead. Interviewee 16 mentions that it may be easier to deal with during collaboration in a two-phase PDM than a more traditional PDM because processes become more explicit due to the investment in collaboration. Interviewee 13 added that the importance of this factor varies with the number of disciplines and members.

Connecting the above to the two project characteristics seems complicated based on the scores provided. However, the underlying argumentation reveals differences between the cases. CS2 does not relate to the importance of the factor. Alternatively, it follows from the argumentation that this factor might form a pitfall for the two-phase model. Dominant team members are essential in facilitating decision-making.

CS1 stresses this importance, especially in ensuring knowledge exchange and a fair decision-making process. Dominant team members could reduce the willingness of less dominant members by, e.g., interrupting or neglecting their input. Furthermore, the case focuses on an integral way of working and remaining one joint team where communication is vital because it has to be based on consensus and therefore understanding each other. CS4 is in line with CS1 and focuses on determining in the beginning what party and disciplines or members should be working on what task.

Therefore, it may be due to the importance of the relationship between both parties that an integrated collaboration depends more on this factor. Where the outcome is a fair decision-making process and a setting in which every team member can share their knowledge. On the other hand, when the format is more focused on coordination between parties, one focuses less on the relationship, and decision-making may be less fair and 'best for project' through more dominant behavior. Additionally, imagine the design assignment of the contractor is broader, often accompanied by earlier involvement. In that case, it emphasizes the relationship and knowledge exchange for designing between the two parties.

4.2.4. Mutual support

Interviewees 1 and 3 of CS1 focus on the cooperative mindset. It is all about respecting each other, looking at one's discipline, and focusing on the other disciplines. The mindset should be present among all team members, as Interviewee 1 emphasizes that the other team members should also accept the support. Interviewee 2 indicates that mutual support depends on communication and coordination. The benefit of mutual support was experienced because communication facilitated expressing the need for

support. Coordination contributed to mutual support because it facilitated the two organizations to work together on the products, focusing on the process. Additionally, it is facilitated by the team members' matching profiles. Interviewee 4 scored this factor relatively low (2.5). The argumentation revealed the dependence on the presence of factor cohesion. On the importance of the factor itself, the interviewee states, "you should be willing to think with somebody about certain problems, I think that is also where the real added value lies" (I4).

CS2 scored relatively low on the factor. According to interviewee 7, the factor entails understanding the bigger picture but depends on communication, trust, and cohesion. Interviewee 8 indicates that the current problems cause a lack of this understanding of what the case is facing. Noteworthy is the point of not overusing this factor. Team members should support each other if needed; however, they should be competent to fulfill their tasks correctly. Therefore it is not necessary to check each other the entire time. Stressing the importance of the factor communication to address the need for mutual support.

Opposing CS2 and more in line with CS1, the interviewees of CS3 address the importance of this factor for establishing collaboration. Mutual support is needed to develop an understanding of how the team (members) function(s) and what their interests are (I11). This interviewee indicates the need for this factor to facilitate other factors. The argumentation of Interviewee 12 shows the dependence of this factor on the criteria time: "due to the project characteristics, it was less relevant in the project. However, if the schedule would not had been so tight, there would have been more focus. It is important if you want to have the collaboration right because we are in this project together and we have to deliver it together" (I12).

Where CS4 scored relatively high on the factor, interviewees 13, 15 and 16 all indicate the relation between the factors of mutual support and effort. The overall argumentation follows from the intensive collaboration between the IPM counter partners of the client and the contractor. They would support each other in their tasks. Interviewee 13 mentions the decreasing need for an integrated management team with representatives from the client or contractor. Interviewee 14 expands this statement by linking a high level of mutual support to intensive collaboration and vice versa. Interviewee 13 acknowledges the need for matching team member profiles by selecting at least the management team members from Interviewee 2. Furthermore, interviewee 15 acknowledges the relationship between the factors of mutual support and communication. Finally, interviewee 16 relates mutual support to the difference between design responsibility and making design choices. The project has a strict demarcation of responsibility. However, design choices are made collectively by offering expertise without shifting responsibilities.

The scores provide a first indication that the importance of this factor increases when focusing more on integration instead of coordination. The underlying argumentation's of the interviewees do substantiate this. CS2 has the lowest score, and its interviewees indicate that it is crucial to see the bigger picture. However, the factor should not be overused because one can assume the competence of people working on the projects. The use of the factor depends on communicating the need for help. The consensus between all four cases is the dependence on the factor of communication. Moreover, the other three cases agree on offering help and looking after each other even without the other expressing their need for help, furthermore, indicating the need for this factor when exercising a more intensive collaboration and a decreasing need when management teams do not use counter partners from the client and contractor. There is, however, no direct link to the contractor's design assignment.

4.2.5. Effort

The argumentation of the interviewees of CS1 explains the relatively low average score. The main argumentation follows from the integral collaboration between the client and contractor. Interviewees 1, 2, and 3 indicated the priority of teamwork in the two-phase model. Resulting in no need to emphasize the need to worry about the effort of the team members. However, interviewee 2 stresses the importance of understanding each other's way of working/work culture. Indicating that if this understanding is lacking, it results in incomprehension, and "if you don't express it, then another person can't explain why they're doing something the way the do it and before you know it, you're kind of in that swoon of yeah you know, we're running wild here, kind of that idea, but (...) I have the confidence that in this phase, everybody generally comes to work to add a little bit of value (...), assuming that we all do it with the same intention and our way of effort" (I2). The feeling of where the effort is embedded in the way of working is also expressed in CS4. Interviewee 15 did not have any doubts about the effort that

every team member was putting in. As mentioned, for mutual support, this feeling may follow from the clear vision determined by the management team using counter partners. Both interviewees 15 and 16 indicate the importance of communicating about the current working method. Because of the mutual understanding of each other's principles, it was easy to get to the point and efficiently resolve issues such as a mismatch in the effort.

Already less embedded in the way of working and more need for more emphasis on the factor effort is expressed in CS3, where interviewee 10 indicates that they needed to work hard on prioritizing the shared goal of the team and interviewee 12 stressing the essence of understanding each other efforts to work as a team. Finally, the interviewee of CS2 indicated most steering on role and task distribution. Interviewee 6 states, "you have to make sure that you just divide the tasks so that everyone makes a more or less equal effort" (I6). Interviewee 7 indicates that this is somewhat ensured by dividing the tasks per discipline.

The form of collaboration can be explained by the argumentations of the interviewees. Dependent on whether the scores are interpreted as 'the amount of effort needed' or 'importance', they align with this project characteristic. The amount of steering needed on this factor is reflected by the characteristic. If an integrated collaboration is applied, then little steering is required during the project (CS1 and CS4), and if a coordinated collaboration is applied, more steering is required. Furthermore, no clear differentiation can be made based on the contractor's design assignment.

The two factors, cohesion (4.2.6) and affective trust (4.2.7), have relatively low standard deviations: 0,10 and 0,05, respectively. These factors will, therefore, most likely not explain any difference between the four cases and their project characteristics.

4.2.6. Cohesion

Interviewees from all cases mention the essence of investing in and working on creating cohesion from the start of the project (I1,7,11,15). After that, it should be monitored throughout the project to maintain it. The focus should be on working as one team towards one shared goal. Stressed by interviewee 16 as "seeing ourselves as a team is a prerequisite for truly fundamental collaboration" (I16). Interviewee 2 indicates that cohesion is about "the implicit, it is not on the products or on the letters, it is very much in on dealing with each other (...) and initially a little bit on the subjective and the non-verbal" (I2). Therefore the interviewee indicates a growing team as a hurdle for the factor. An activity to overcome this hurdle is an onboarding session with new team members to share the context of the entire project and stress the necessity of contributing as one team to the shared goal (I7). This onboarding process is elaborated on in Section 4.4. Consensus throughout the cases is the decreasing level of cohesion when there is less focus on the team aspect. However, there is no clear distinction between the four cases related to the two project characteristics.

4.2.7. Affective trust

All interviewees indicated affective trust as the most essential factor for collaboration, independent of what type of PDM. Trust should be established at the beginning of the project and before focusing on the other factors and performance. It should be treated carefully, as interviewee 14 states, "it is hard to gain but easy to lose" (I14). All cases made in some way use of an external party to assist in establishing and maintaining the focus on trust. It should be established at all levels of the organization: strategic, tactical, and operational (I7). Understanding each other, including each other's interests, and getting to know the team members are essential for creating trust. Furthermore, changes in the team should be considered harmful and can disrupt the level of trust (I14). However, if trust is present, it enhances decision-making: "we had trust in the fact that we made collectively the right decisions" (I2). If, on the other hand, it is not present, it can harm communication (I10) and makes it more difficult to communicate openly (I5).

4.2.8. Overview of the factors of collaboration

During the interviews, interviewees were asked to score the seven factors of collaboration. The scores represent how important each factor is for the collaboration in their project relative to each other. A five-point Likert scale was used where 0 indicates 'not important for this project's collaboration' and 5 indicates 'it is essential for the collaboration'. The result of this process is shown in Figure 4.1 and

Appendix E presents an overview of the individual scores. In the figure, the lines represent the average scores of all interviewees of each case for each factor. Therefore, the blue line represents the average of all scores of the interviewees of CS1 for each factor and so forth.

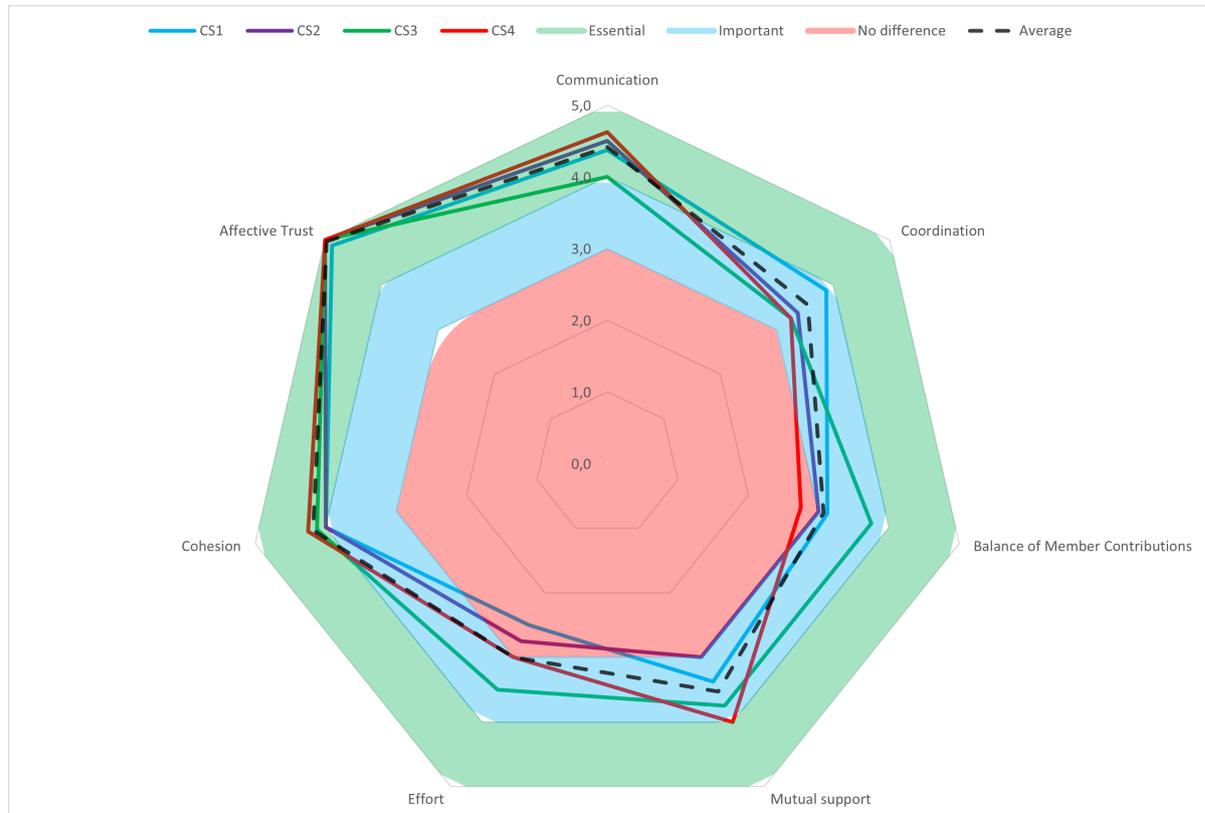


Figure 4.1: Ranking of the factors of collaboration.

The average scores per case study are presented in Table 4.2, together with the standard deviations between the averages of the different cases. First, the average score indicates the importance of the criteria for collaboration. Affective trust (ave 5.0), communication (ave: 4.4) and cohesion (ave: 4.1) are essential for collaboration (green). Mutual support (ave: 3.5), coordination (ave: 3.4) and balance of member contribution (ave: 3.2) are considered to be essential for collaboration (blue). Finally, effort (ave: 2.9) is considered unimportant for the project's collaboration (red). Second, the standard deviation "is a measure of variability", and a high standard deviation indicates a large variability. A low standard deviation indicates a low variability around the mean (Altman and Bland, 2005). The table shows that affective trust (0.05) and cohesion (0.10) have low variability, indicating consensus among all cases that these are essential for collaboration. Alternatively, communication (0.23) and coordination (0.26) show a more significant variability and, therefore, less consensus on the importance of collaboration. Finally, balance of member contributions (0.37), mutual support (0.38), and effort (0.37) show the most considerable variability. An increasing variability may explain any difference between the four cases and their project characteristics.

The factor of *communication* is about how information is exchanged. Critical is whether one understands what the other is trying to convey and does the other person understand what one is trying to convey. Furthermore, communication between organizational levels should be appropriately arranged. Facilitating other factors, such as coordination and mutual support, by creating a better understanding and gaining insights into the other party. It seems to influence the factor of trust and vice versa. Based on the results, no precise differentiation based on the two project characteristics can be made.

Coordination is about awareness of dependencies and the progress of other disciplines, including working integrally on the one hand (CS1 and CS4). On the other hand, more coordination is needed when the number of disciplines is increasing (CS2 and CS3). Across all cases, there seems to be consensus on the need for coordination for an efficient process rather than strictly important for collab-

Table 4.2: Ranking of the importance of the factors of collaboration.

Factor of collaboration	CS1	CS2	CS3	CS4	Average	STDV
Affective Trust	4,9	5,0	5,0	5,0	5,0	0,05
Communication	4,4	4,5	4,0	4,6	4,4	0,23
Cohesion	4,0	4,0	4,1	4,3	4,2	0,10
Coordination	3,9	3,4	3,3	3,3	3,6	0,26
Mutual support	3,4	3,0	3,8	4,0	3,5	0,38
Balance of Member Contributions	3,1	3,0	3,8	2,8	3,1	0,37
Effort	2,5	2,8	3,5	3,0	3,0	0,37

oration. Based on the form of collaboration, a more integrated collaboration seems to depend more on a clear working structure—a result of a less strict division in roles and tasks in the project team. Combined with a difference in the contractor's design assignment (CS1), this need seems more critical from the start of the project.

The *balance of member contributions* is important for formats where decision-making focusing on a good relationship between the client and contractor is crucial—being the matter in an integrated collaboration. Furthermore, knowledge exchange by all team members is essential when the design assignment of the contractor increases, and therefore, the balance should be present. Furthermore, these formats focus on an integral way of working and remaining one joint team. Communication is essential because one must do it in consensus and understand each other. When the format is focused on coordination, there may be less focus on the relationship, and decision-making may be less fair and 'best for project' through more dominant behavior.

The importance depends on the format for the factor of *mutual support*. Primarily based on the form of collaboration. Working with an integrated collaboration asks for more mutual support, particularly when the organization of the management team is composed of representatives of both the client and contractor. Offering and accepting help and looking after each other should be embedded in the way of working, even without expressing the need for help. On the other hand, when working with a coordinated collaboration, this factor mainly depends on expressing a need for help. This dependence on the factor of communication is stressed in all four cases. Weaker links with other factors are proposed, but there is no consensus between cases on them.

The team members' *effort* depends on the priority of teamwork in the two-phase model. Therefore, in the case of integrated collaboration, this factor is more embedded in the working process. Understanding each other's way of working/work culture should be the basis. If this understanding is lacking, it results in incomprehension. Communication is again an essential related factor. Moving towards a more coordinated collaboration, the factor needs more steering. Steering to ensure that the team works towards a shared goal and the importance of doing it together. Additionally, steering is needed in the role and task distribution.

To develop *cohesion* is essential to invest from the start of the project. After that, it should be monitored throughout the project to maintain it. The focus should be on working as one team towards one shared goal. (Fast) growing teams are indicated as a negative influence on cohesion due to the need for it to develop. Onboarding new team members is suggested as an activity to overcome this hurdle. Consensus throughout the cases is the decreasing level of cohesion when there is less focus on the team aspect. No explicit differentiation is visible for the two project characteristics.

Affective trust is unanimously it is ranked as the most essential factor for collaboration among all cases and therefore also no differentiation is found between the project characteristics. Affecting decision-making by letting go of control, counting on one's word, about give and take throughout the process and trusting the other in that sense. Just as cohesion, it should be established at the beginning of the project and before focusing on the other factors and performance. Trust is fragile and takes time to develop; however, it can quickly disappear. All cases used in some way external assistance in the process. Trust should be established at all levels in the organization. Understanding each other, including each other's interests, and getting to know the team members are important for creating trust. Furthermore, changes in the team should be considered harmful and can disrupt the level of trust.

The following subsections discuss the relationship between the competence of empathy and collaboration. The topics that are discussed are (1), in general, the relationship between both variables, (2) the influence of empathy on the factors of collaboration, and (3) the factors that influence the occurrence of empathic behavior.

4.3. Relationship between client-contractor collaboration and project performance

Since the criteria that determine the project performance of the first phase of the two-phase model and the factors that define the quality of collaboration have been established, it is important to understand the relationship between these two variables. Therefore, this section discusses the relationship between collaboration and the project performance of the first phase.

4.3.1. Procurement process

Focus on collaboration should start during the procurement process. 10 interviewees mentioned the importance of already focusing on collaboration during the procurement process (I1,3,4,5,6,7,10,13,15,16). It provides the possibility to determine whether the profiles of the proposed management teams of both the client and contractor match and can collaborate throughout the project (I4,13). However, the procurement process is not part of the scope of this research.

4.3.2. Collaboration as a factor for criteria

10 interviewees indicated collaboration as a factor influencing the outcome of criteria, especially the criteria time and cost (I1,2,3,4,5,9,11,13,14,16). Interviewee 16 suggests collaboration as a factor that also affects the aspects of enjoyment of work, being predictable, and the qualitative success following from those aspects. Furthermore, the interviewees refer to the importance of the relationship between the client and contractor for collaboration to focus the process for developing products (Section 4.1). The mutual understanding contributing to the collaborative process results in agreements on design decisions that fit the interest of both parties, e.g., about an appropriate budget and schedule for the project (I9). However, if exceedances occur, collaboration is needed to understand what caused the exceedance. Noteworthy is that collaboration should have a goal or purpose. One should not collaborate for the sake of collaboration resulting in losing focus on the project's progress (I2).

4.3.3. Mutual supported products

In CS1 and CS3, design studios between the client and contractor design integrally based on the interests of both parties. The design was mutually supported by collaborating in this manner. Utilizing both parties' expertise can also increase the quality of design (I1,3,4,9,10,12). Another benefit of collaborating to develop products is indicated by interviewees 2 and 14. Interviewee 2 indicates the result of collaboration for the performance is a smooth decision-making process. And interviewee 14 elaborates on this decision-making process where in CS4, the client and contractor mutually agreed upon omitting the strict approval process: "now we were designing together, which allowed direct decisions to be made about certain practices and design choices. As a result, the approval process went very well" (I14).

If the design process is not based on a good collaboration, as in the case of CS2, the collaboration comes under pressure due to misalignment in the effort of both parties. The contractor worked predominantly on the design in the early stages of the project. The client intensified their effort in later stages, which resulted in involvement while many design choices were already made. Interviewee 8 indicates: "in a two-phase model, you want to combine the expertise of both parties. This happened too little in the initial phase, which has put the collaboration under pressure because now, as the client, you get involved in the design and raise questions about the contractor's choices".

4.3.4. Achieving performance through understanding

In the integrated PDM, both the client and contractor have their project phases in which they are familiar with the tasks and ways of working, resulting in the differences in cultures between the two organizations. However, in the first phase, there is unfamiliarity, more significantly on the contractors' side.

Understanding each other's cultures, including working procedures and tasks, is essential to collaboration. Through collaboration, the expertise of both parties can be combined to deliver the intended products. Therefore, 10 interviewees indicate to invest in understanding each other from the project's start to improve the first phase's performance (I1,2,3,6,7,8,9,10,14,15). Interviewee 8 indicates that the contractor did not always understand the impact of external factors on the project and extensive work procedures because they were unfamiliar with what the client traditionally deals with. The importance increases when unfamiliarity increases, i.e., when the design assignment of the contractor increases, likely, the unfamiliarity increases.

Not falling into traditional behavior was indicated as an essential threat to the collaborative process. Interviewee 2 indicates (un)familiarity with project phases as a cause for falling into traditional behavior. This applies to both familiar and unfamiliar organizations in a particular project phase. Both organizations should be willing and have an open attitude to adapt to another way of working by learning from the other organization and not sticking to traditional working methods. Another cause addressed by interviewee 15 relates to influences in the project that can generate frustrations or critical decisions. It is essential to keep collaborating and not engage in traditional behavior during these moments. Another influence is a changing project team.

Interviewee 10 stipulates the importance for the two-phase model of understanding the other party's interests; "then we also became increasingly aware that the environment here is very important to the client, so we really need to do something with that" (I10). Adding the main difference compared to a more traditional PDM is the possibility to act on this type of insight because the scope and price are not fixed in a contract. These interests should be explicit as to how these are manifested in the different IPM roles (I15). Interviewee 15 stated: "because both parties shared everything, which by the way, was new and exciting to take a look into each other's world, we knew each other better and respect each other. This resulted in a smooth process despite many potential points of conflict" (I15). Understanding the interests of the other party is acknowledged by 5 interviewees (I1,7,9,10,15).

Changes in the project team harm the collaboration within a project team. Changes can be imposed by the mother organization, project team, or member. All four cases intended to finish the project with the initial management team; however, all in cases, changes in the management team did occur. In CS2, due to the rapid increase in the number of team members combined with changes in the existing team, the selection process fell into the background, and the priority shifted away, harming the collaboration (I5,6,7,8).

4.3.5. The relationship compared between project delivery models

The relationship between collaboration and project performance is equally important between two-phase and integrated project delivery models for a good project outcome. However, the willingness to invest in collaboration and the effectiveness of the investment are higher in a two-phase model. Interviewee 3 indicates this difference because the dependence on each other is more significant in the two-phase model, resulting in a different mindset of working together in an open, trustworthy, and transparent manner. Furthermore, indicating that in an integrated PDM, organizations are less dependent on each other in fulfilling their contractual obligations and delivering the project. This could result in double agendas and closed doors, i.e., less transparency. Also, Interviewee 6 indicates that the absence of a contract in the two-phase model creates the opportunity to get to know each other without the clear traditional role division from the start of the project during Project Start-Up. The client does not have the assessor role from a distance, but both parties have the mutual goal of delivering the products.

Interviewee 5 appointed the influence of the demarcation of tasks, roles, and responsibilities and a more specified contract that influences the extent of the outcome of the collaboration in the case of an integrated PDM to be lower. In the two-phase model, there is more incentive to collaborate for 'best for project' because there is less financial influence and room for scope definition. Interviewee 16 adds, "truly the realization that we tackle it as a team and here we really have to start finding each other, because otherwise it just won't work. In that, the way of tendering and how we selected the contractor, how we worked together with the attitude of both teams towards the collaboration. That is almost impossible to capture in a contract".

Additionally, in traditional PDM's the collaboration had to yield some benefits, often financially. Benefits in the first phase, e.g., financial benefits, result from the added value of the integral design process facilitated through the collaboration between the client and contractor (I1,2).

4.3.6. Overview of the relationship between client-contractor collaboration and project performance

The interviewees were asked to identify the relationship between collaboration and project performance. The relationship is explained through four main aspects. Furthermore, the interviewees indicated differences in the relationship between the two-phase model and the integrated PDM.

The first aspect is where collaboration is considered a factor rather than a criterion for project performance, especially for quantitative criteria such as time and cost. Furthermore, it is considered a factor contributing to aspects of enjoyment of work, being predictable, and the qualitative success following from those aspects. Finally, collaboration, and the resulting mutual understanding about the process, facilitate the outcome of the end product.

Second, the collaborative process allows utilizing both parties' expertise to increase design quality and smoothen the decision-making process. A lack of collaboration may result in traditional behavior from both organizations. In other words, the contractor is designing, and the client controls and reconsiders design choices.

Third, as already mentioned, understanding is essential to facilitate the process leading to the end product, and investment will increase the performance of the first phase. This understanding must cover each other's cultures, including working procedures and tasks. The importance increases when unfamiliarity increases, i.e., when the design assignment of the contractor increases, likely, the unfamiliarity increases. Not falling into traditional working methods is crucial for the collaborative process. Causes are identified as unfamiliarity with project phases resulting in the figurative distance and difficult moments such as frustrations and essential decisions. The unfamiliarity can be tackled by being willing and open to adapting to another way of working by learning from the other party. During difficult moments in the project, it is important to focus on the collaborative process.

Fourth, changes in the project team harm the collaborative process. Changes can be imposed by the mother organization, project team, or member. Adopting and maintaining an onboarding process is crucial.

Finally, the relationship for project performance seems equally important between the two PDM's. However, the differences come down to the willingness to invest in collaboration and the actual effectiveness of the investment. These seem to increase in the two-phase model. The willingness, i.e., incentive, results from less financial influence and more room for scope definition. The effectiveness comes down to an extended mutual dependence on the end product. Additionally, collaboration no longer has to yield financial benefits. However, this benefit results from the added value in the products resulting from the collaboration.

The importance of collaboration for project performance is indicated already in the tender phase. However, this phase is not part of the scope of this research.

4.4. Activities for collaboration

In order to benefit from the positive effect of client-contractor collaboration on the project performance of the first phase of the two-phase model, the interviewees mentioned several activities to develop, maintain and improve the collaboration. The activities may have different moments during the first phase when needed.

4.4.1. Team selection

The client and contractor should consider collaboration while composing their project team (I14). The *team assessment* activity should be applied during the process to assess whether the two teams are suspected to be able to collaborate and connect throughout the project. However, establishing collaboration takes time. Therefore the assessment reflects on the matching profiles of the team members (I2, I13). The criteria for selecting the contractor contribute to the collaboration during procurement. In order to focus on collaboration, the client of CS4 solely used qualitative selection criteria for the contractor.

Team selection is continuously essential during the project when team members leave or join the project team. The *onboarding* activity is mentioned by 9 out of the 16 interviewees (I5, I6, I7, I8, I10, I11, I13, I14). It entails sharing with the new members, "explaining the context of the model through indicating, for

example, why we have chosen this model and how we interact with each other" (I7), "what is the project about, what do we expect from you" (I8), and "what we have done together and what we have accomplished over time" (I14). Interviewee 7 explains why it is important to use this activity: "you must be open to insights from others and collaboration should be in your DNA. The attitude of 'I know best and I'll retreat to do it myself' does not work here." Therefore the activity is about aligning the new team member with the context of the PDM, the project, and the project team. Important to note is how well the activity is applied in practice depends heavily on the process. The activity quickly becomes obsolete when external factors influence the project and other control mechanisms take over (I5,6,7,8). The result is indicated by Interviewee 5: "you noticed that it made collaboration worse."

4.4.2. External coaching

External coaching is used to invest in collaboration in three cases. CS2 used a team composed of internal team members. The external team is involved from the start of the project. It works with the client and contractor in tasks and processes such as the Project Start-Up and Project Follow-Ups, team-building sessions, support conversation about interests, shared project goals and objectives, and core values (I1). Furthermore, providing exercises to keep the focus on collaboration through facilitating conversations about collaboration during regular meetings (I4,11,15). An example is through weekly meetings in which core values are discussed to see whether they meet the agreed-upon level (I3).

The advantage of an external over an internal team is that every team member can participate in the sessions. Furthermore, the external team is not biased and can better analyze the collaborative process objectively (I11). The project director of CS3, interviewee 9, indicated that participation and not hosting the sessions had added value. The project manager of the same case, Interviewee 11, acknowledges this by stating that the project manager is also part of the team and should be left out of the process. Finally, the external team has added value in focusing on the collaborative process instead of moving to the substantive matters of the products (I4,15). The external coach should remain during Phase II (I16).

4.4.3. The work environment for collaboration

11 out of the 16 interviewees mentioned *working from one project location*, and 7 of those 12 specifically indicated *arranging the office rooms per IPM role* as a good activity for creating a better understanding of the other team member and eliminating ambiguities in communication (I1,2,3,4,7,8,10,13,14,15,16). All of those 7 interviewees were responsible for one of the IPM roles. Noteworthy, Interviewee 16 appointed a side-effect of arranging the office rooms per IPM role. The interviewee noticed the straining of interdisciplinary collaboration compared to the more traditional office arrangement, where the rooms were arranged per organization.

4.4.4. Building and sustaining collaboration

At the start of the project, a *Project Start-Up* (PSU) is held, and multiple *Project Follow-Ups* (PFU) are organized continuously throughout the project.

The PSU is applied at the start of the project and aims to get to know the other involved parties and understand each other's cultures, working methods, and interests (I3,10). CS3 worked the first two months of the project on aligning each other's principles and interests: do we understand each other, and are we well aligned to start working (I9)? Often this process is facilitated through external coaching. The PSU is organized with the management teams of the client and the contractor.

Often part of the PSU is a *team-building session*. Interviewee 1 indicated the urge for connection in order to collaborate. The sessions are used to work on this connection. The aim is to develop a connection with the team members through a more profound understanding of each other beyond the professional level. Interviewee 10 stipulates the importance of understanding the other party's interests in the two-phase model. Interviewee 15 adds that the sessions create a feeling of social security within the team and cohesion to emerge, remain and grow during the project: "By embedding it here in the organization of the tender and keeping a keen eye on it in those team building sessions, you actually organize your own cohesion." The team-building sessions are, in general, organized with the management teams. CS4 also started organizing team-building sessions with teams outside the management organization in Phase II. The frequency should be determined based on preferences. CS4 has these sessions four times a year. Besides the more extensive team-building sessions, other minor team-building activities are proposed. More formal activities are 'weekly's' to address the core values

of the project (I3), 'collaboration meetings' to talk about the quality of the collaboration (I3), and 'monthly starts' to provide the opportunity for team members to catch up with the highlights (I7). Interviewees 10 and 11 indicated additional sessions for disciplinary teams to determine the character traits, personality color, and what motivates people during their work. A drink after work is a more informal team-building activity (I7).

PFU's are applied continuously throughout the first phase if considered necessary. The sessions are regularly used to maintain and increase collaboration through a team-building session (I15). Alternatively, they are used on request to resolve a weakened collaboration caused by problems in the project (I10). Furthermore, finally, it is used to monitor if the project still complies with the goals set during the PSU (I9). Again, the PFU is often facilitated through external coaching. In CS3, this activity was used when the client felt left behind during the design sessions by the fast working culture of the contractor. The hiccup could be resolved by creating the opportunity to talk about differences in viewpoint (I9,10).

Part of the PSU in CS3 is monitoring the compliance with the goals set during the PSU regarding collaboration, specifically the core values, through the *collaboration monitoring* activity. This activity is facilitated through external coaching (I9).

Starting (regular) meetings with a *check-in*. First, focus on the team members, e.g., how everyone is feeling and whether there are any issues, and then on the actual content of the meeting. This activity made it easier to understand what is driving someone and get to know them; this benefits collaboration (I5).

The underlying aim of the activities, as mentioned above, is to retain the focus on collaboration throughout the project. Being especially important when external factors are influencing the project. Priority shifts from focusing on collaboration to complying with the schedule and budget. Similarly, changes in project teams harm the focus on collaboration (I5). In CS2, the responsible team member left the project, after which the priority shifted, negatively impacting the collaboration. Interviewee 16 stipulates the importance of keeping the focus on collaboration: "I do not think that a two-phase model is really necessary in order to build a good collaboration with each other, but I do think that it is necessary to have the conviction that a good collaboration is necessary and to have the will and the courage to invest in it" (I16).

The focus on collaboration should be maintained throughout the first phase, and as Interviewee 1 appoints, also into the project's second phase. The benefits of the collaboration in the first phase also continue into the second phase.

4.4.5. Overview of the activity for collaboration

The interviewees indicated different activities during the interviews. The suitability of the activity varies throughout the first phase. The first phase can be divided into two stages: project start and continuous throughout the phase. The activities regarding the procurement process (team assessment and selection criteria of the contractor) are not included in the overview because the procurement process is separate from the first phase and, therefore, not part of the scope of the research. However, 9 interviewees indicated the importance of considering collaboration during this phase.

The activities are presented in Table 4.3 and categorized by the two stages along with the activities described by who should be involved while applying the activity and how it should be used. Some activities can be used throughout both stages. External coaching is considered a catalyst for other activities and is therefore not listed as an activity.

From the next Chapter onward, the competence of empathy is discussed and the relationship the competence has with collaboration. These sections relate to the topic of empathy from the interview protocol (see Appendix A).

Table 4.3: Activities for collaboration.

When	Activity	Who (organizational level)	How	Aim
Project start	Project Start Up	Tactical	Often facilitated through external coaching. The PSU is considered a formal tool. Both management teams of the client and contractor share their cultures, working methods, core values, project goals and objectives, and interests	Understanding each other's cultures, working methods, interests, core values and project goals and objectives
	Team building session	Tactical	Often facilitated through external coaching and at an external location. The session is part of the PSU and considered an informal tool. Being around each other in a non-working setting while performing activities	Developing a connection between team members by getting to know them through a more profound understanding of each other beyond the professional level
	Work environment	Tactical + operational	- Both tactical and operational level should work from one project location - On tactical level, arranging office rooms based on IPM roles	Creating a better understanding of the other team member and eliminating ambiguities in communication
Continuous	Project Follow Up	Tactical	- In the form of a recurring team-building session - Creating the opportunity to talk about differences in viewpoint - Monitoring compliance with goals from the PSU	- To maintain and increase collaboration - To resolve a weakened collaboration caused by problems in the project - Monitoring project goals
	Onboarding	Tactical + operational	Based on onboarding protocol, explaining: - <u>context of the PDM</u> : reason why it is used, how you should interact/ behave - <u>context of project</u> : what is project about (not only high level) and what is expected from the new member - <u>context of project team</u> : how the team works, what we have achieved and how as a team Utilization of tool depends on the extent of external factors influencing the project.	Aligning the new team member with the context of the PDM, the project, and the project team
	Check-in	Tactical + operational	First focusing on the team members, e.g., how everyone is feeling and whether there are any issues, and thereafter on the actual content of the meeting	Understanding what is driving someone and getting to know the other
	Team building session	Tactical + operational	Combining more extensive sessions with smaller exercises: - <u>Weekly</u> : to address the core values of the project - <u>Monthly starts</u> : to provide the opportunity for team members to catch up with the highlights - <u>Collaboration meetings</u> : to talk about the quality of the collaboration - <u>For the disciplinary teams</u> : session to determine the character traits, personality color, and what provides people motivation during their work. - <u>Having a drink after work</u> Extensive sessions are often facilitated through external coaching	- To maintain and increase collaboration by understanding each other's viewpoints and problems - Developing connection with team members through a more profound understanding of each other beyond the professional level
	Collaboration monitor	Tactical + operational	Often facilitated through external coaching. The monitor is part of the PFU and used at both the client and contractor to measure the compliance with the collaboration tools set during the PSU	Monitoring the compliance with the goals set regarding collaboration, specifically the core values

4.5. Conclusion

The relationship between client-contractor collaboration and project performance is researched by conducting 16 semi-structured interviews. The topics from the interview protocol that are related to this relationship are listed below. The data from the interviews are analyzed using Atlas.ti 2023. Based on the research findings from the chapter, it is possible to test hypothesis 1, as indicated below. This conclusion is used in Chapter (8) to answer subquestion 2.

- Criteria that determine project performance (Section 4.1).
- Factors of collaboration (Section 4.2).
- Relationship between collaboration and project performance (Section 4.3).
- Activities for collaboration (Section 4.4).

Hypothesis 1: Client-contractor collaboration contributes positively to the project performance of the first phase of a two-phase model.

In order to support or challenge hypothesis 1, it is first important to understand what criteria determine the project performance of the first phase. Furthermore, establish important features of the collaborative processes in the first phase. After that, it is possible to support or challenge the hypothesis by

linking those features to the performance of the first phase.

The criterion quality is the predominant focus in determining the project performance of the first phase. Focus is possible because there is no competition during tendering regarding costs. Enabling space to increase performance through client-contractor collaboration. Noteworthy is the assumption that the project proceeds under manageable external influences. If those become unmanageable, the focus on the criterion quality shifts towards the time and cost criteria. The criteria of time and cost remain important in all projects. However, when projects are part of a program or portfolio, time and cost are more dominantly used as steering mechanisms. Dependent on the implementation of the criteria, they are specific to the first phase. Moreover, the collaborative process influences the performance of the criteria differently in the first phase of the two-phase model than in the integrated project delivery model based on the following three shifts. First, there is a shift in focus from products to the process leading to the products. Secondly, the shift towards shared responsibility between the client and contractor. Third, the shift towards more flexibility in the criteria. Based on the last two shifts, the perception of time and cost performance criteria is to be improved.

The client-contractor collaboration requires investment from the project start. Activities to invest in the development of collaboration are Project Start-Up, team-building sessions, and arranging the work environment. Continuously throughout the first phase, collaboration should be maintained and improved. Activities are Project Follow-Up, onboarding, check-in, team (building) sessions, and the collaboration monitor. By ranking the factors for collaboration based on the research findings, it can be concluded that affective trust, communication, and cohesion are essential factors for the collaborative process. Coordination, mutual support, and balance of member contributions are considered important. Effort is considered the least important for collaboration.

Therefore, it can be concluded that client-contractor collaboration affects the first phase's project performance via the quality criterion by facilitating the process as a factor rather than a criterion. It facilitates a different perception of the criteria of time and cost. Affective trust, communication and cohesion are essential to improve the collaborative process. Investment in the process should begin from the project start and continue throughout the first phase by applying activities.

The following research findings substantiate this conclusion:

- Interviewees indicated collaboration as a factor rather than a criterion for project performance during the first phase. Facilitating space for increasing the quality criterion and allowing a different perception of quantitative criteria such as cost and time. Furthermore, it contributes to aspects of enjoyment of work, being predictable, and the qualitative success following from those aspects.
- Process over products: focusing on the process facilitates an implicitly satisfactory end product. This focus is possible due to the collaborative process of the first phase, where the client and contractor develop a mutual understanding of how and why the end product turned out the way it did—demanding collaboration to resolve discussion topics and interest differences.
- Understanding is essential to facilitate the process leading to the product, and investment will contribute to an implicitly satisfactory end product. This understanding must cover each other's cultures, including working procedures and tasks on both the team member and organizational levels. Not falling into traditional working methods is crucial for the collaborative process.
- Shared responsibility: by shifting from sole contractor to (more) shared responsibility, the outcomes, a decision-making process based on equality and collaboratively designing by utilizing both parties' expertise. Resulting in partial non-contractual liability for the client.
- Flexibility of criteria: Flexibility allows for optimizations in the criteria by involving the expertise of the other organization. Accepting a degree of uncertainty in the boundary conditions of the criteria is essential for the perception of project performance of the criteria time and cost.
- Affective trust: Investment in this factor must be the main focus from the start of the project and indicated as the foundation for collaboration. Influencing decision-making, the credibility of other factors, e.g., communication, and the feeling one can count on (the professionalism of) other team members. Care must be considered because it is fragile and takes time to develop; however, it can quickly disappear. Trust must be established in all organizational layers. n

- Communication: how information is exchanged is the most critical aspect and crucial for collaboration by better understanding and gaining insights into the other team members and organization. Both affective trust and communication depend heavily on each other’s effectiveness. Communication between organizational layers should be arranged appropriately. Communication at the tactical and operational layers throughout the first phase is essential to reestablish the focus on collaboration.
- Cohesion: to be considered from the project’s start and monitored afterward. Working as one team toward a shared goal without differentiating between organizations must be the focus to maintain commitment, responsibility, team spirit, and mutual relationships. Fast-growing teams are considered harmful.
- Changes in the project team harm the collaborative process. Adopting and maintaining the onboarding process is crucial.
- Activities are used at the start of the project and continue throughout the first phase to develop, maintain and increase client-contractor collaboration.
- Finally, the relationship between project performance appears equally important between the two-phase and integrated Design & Construct models. However, the differences come down to the willingness to invest in collaboration and the actual effectiveness of the investment. These seem to increase in the two-phase model.

Hypothesis 1

Returning to the hypothesis. Since the criteria that determine the project performance of the first phase are appointed, together with how the collaborative process is related to the project performance, it is possible to test the hypothesis. Based on the research findings, it is believed that the client-contractor collaboration can positively contribute to the project performance of the first phase of the two-phase model. Doing so by improving the actual performance of the criterion quality by focusing on the process leading to the product and the shift towards shared responsibility between the client and contractor. Furthermore, the perception of the performance of the criteria of time and cost is improved through the same focus on the process and allowing flexibility in the boundary conditions. For the collaboration to positively contribute to the performance, there are, however, preconditions that must be satisfied. The first condition is that there should be an understanding of the other organization’s interests, cultures, and work processes. Secondly, the effect of threats to the collaboration should be minimized for collaboration to contribute to the performance. Finally, the indicated activities should be used to develop the collaboration and, after that, at least maintain the collaboration.

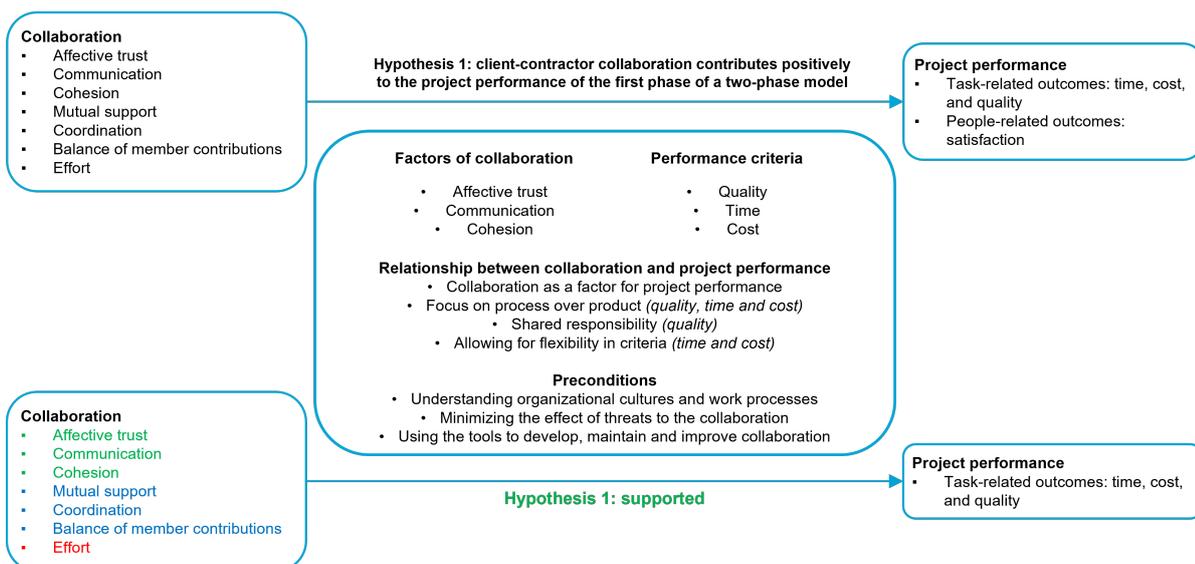


Figure 4.2: Test of hypothesis 1.

As stated above and presented in Figure 4.2, hypothesis 1 is supported: client-contractor collaboration contributes positively to the project performance of the first phase of a two-phase model.

The next chapter will continue analyzing the interview data, specifically on the relationship between the competence of empathy and client-contractor collaboration. By analyzing this relationship, the chapter will test hypothesis 2 and contributes to answering subquestion 3. Furthermore, combining this chapter's conclusion and the next chapter, hypothesis 3 will be tested.

5

Results on the relationship between empathy and client-contractor collaboration

This chapter presents the research findings based on the data analysis of the semi-structured interviews and a conclusion to the chapter that tests hypothesis 2. This outcome of this chapter is used to answer subquestion 3 in Chapter 8. Furthermore, by combining the conclusion of the previous chapter and the conclusion of this chapter, hypothesis 3 will be tested. An overview of the results is presented at the end of each section. The analysis uses Atlas TI to categorize the interviewees' statements per topic, as listed below, based on the interview protocol. Appendix C presents an overview of the statements used throughout this chapter. The statements are organized in line with the structure of this chapter to increase traceability.

- Relationship between empathy and collaboration.
- Influence of empathy on the factors of collaboration.
- Factors influencing empathic behavior.
- Activities for empathy.

5.1. Relationship between empathy and client-contractor collaboration

According to the interviewees, the competence of empathy is foremost about understanding, e.g., concerns and problems, and moving into each other's playing fields, including the interests of the organizations (I3,5,6,7,8,11,12,13,14,15). These insights help to understand why team members behave a certain way (I8,11,12,15,16), what the impact of decisions is on others (I7,9,10,12), allowing others to flourish (I2,6,10), support (I10,14,15), and relationship building between team members (I3,15,16).

5.1.1. The relationship between empathy and collaboration

Interviewee 6 indicates the need for understanding to collaborate. From there, Interviewee 16 explains why empathy is needed for this understanding: "understanding what interests are behind behavior and what that does to someone and why someone thinks something is important. If you dig into that, I think you can collaborate much easier and better" (I16). Furthermore, empathy is essential for collaboration because it facilitates a deeper connection between team members and results in a feeling of collaboration (I1,2,4). Establishing this connection through empathic behavior is based on trust. Multiple interviewees propose other relationships between empathy and factors of collaboration. These relationships and how empathy influences these factors are discussed in the next section (5.2).

An interviewee proposes empathy to influence collaboration through "connecting on a deeper level by sharing what troubles you and showing more from yourself than only being shallow" (I7). Noteworthy, reaching this more profound level should be established between a small group of individuals. It

is impossible with the entire team and adds little value (I7). When this deeper connection is established, the relationship between two members reaches awareness on how the other individual should be approached: "what are the do's and don'ts with this individual, and how can I prevent that hurt this individual?" (I11). Interviewee 16 acknowledges the importance of empathy for collaboration. "Actual consideration for each other. Understanding the other person's need and understanding what is going on. I can point it out and I have considered the interests this way and that way in how I act or what I decide" (I16). If empathy is not valued as part of a well-performing collaborative team, the focus shifts toward the result rather than the process of reaching the result. If there is no focus on the process, someone will not behave empathic if it becomes clear that the team is not succeeding in achieving the goal (I2).

5.1.2. Differences in cultures and ways of working

Creating understanding is essential because both organizations have different cultures and ways of working. This understanding is especially important in project phases where there is unfamiliarity regarding each other's organizational cultures and working processes. Interviewee 3 indicates the plan execution phase as such a phase because this phase is in a more traditional PDM often allocated to the client. Therefore the client is familiar with the tasks associated with this phase. Yet, the contractor needs to become more familiar with this project phase. Thus, during these phases, the two organizations need to get used to each others' cultures and ways of working.

It is essential to start understanding each other from the start of the project. Interviewee 3 states: "the great thing I have seen is that we can help each other in that respect and that a contractor understands better how that works, (...), at a client organization like ours, that it sometimes takes a lot of time. So there you also saw a movement towards our playing field, where we benefited greatly from the fact that a contractor is much more driven to meet the planning, look for solutions, and go ahead" (I3). Understanding what is important for the other is developed by sharing these differences. 10 interviewees indicate empathy to enable this understanding (I2,3,6,8,11,12,14,15,16).

Building upon working in each other's familiar project phases connects two traditionally more separate worlds, as stated by Interviewee 5. Traditionally, the client works on the contract, puts it to the marker and controls the contractor. The contractor engineers and executes the contract. Through the desire to work together in the two-phase model, the organizations are increasingly involved in each other's worlds. By doing so, both parties learn from each other; therefore, putting oneself in the other's shoes is easier. Furthermore, Interviewee 9 notes that project steering based on traditional project management practices does not suffice a two-phase model.

5.1.3. Empathy based throughout the project organization

The needed empathy level depends on someone's role in the project: generalist or specialist. Someone from the management team is considered a generalist, and someone who performs detailed calculations is considered a specialist. The specialist should be concerned with the calculation rather than considering the interests of the organization's goals. On the other hand, the generalist should consider those interests while interpreting the calculation results (I2,15).

Building on those two roles in the project and the impact of the two-phase model compared to an integrated PDM. According to Interviewees 7 and 10, the differences are only marginal for a specialist. Interviewee 10 indicates this by stating, "you must start sharing, getting another person's feelings, and probing more. Is what I'm working out really correct? Instead of reading through the requirements of a contract, basic black and white. Well, that's a very different game you are playing". However, for the generalist, the differences between the two PDM's are more significant, and they need other competencies to collaborate (I7,10). The differences become more insignificant for the team members who work on the construction site (I13). Management should recognize these differences and discuss the consequence (I9). Interviewee 4 adds insights from the non-management team perspective. The interviewee appointed the difference in how often members of the different organizational levels work together and indicated this as a cause for differences in empathic level. The management team worked together regularly and shared goals. However, these two were different for the organizational level below the management team. In order to maintain the team feeling, empathy should be stimulated more at the lower organizational level (I4).

Moreover, the two roles, the generalists and the specialists, can be linked to different organizational layers. The generalists are related to the tactical level and the specialists to the operational level. A third layer, however, not directly involved in the day-to-day practices of the project is the strategic level (I11). Each layer has different roles and responsibilities regarding empathic behavior. Consensus exists about the tactical level having the most significant responsibility because most decisions are taken at this level (I2,3,4,7,8,9,10,11,12,13,15,16). The role and responsibility of the tactical level work toward both the strategic and operational levels. Toward the strategic level, the tactical level should communicate openly and transparently by allowing the strategic level to behave empathically by sharing information (I7) regarding information about, e.g., project goals and core values (I11). Interviewee 8 appoints the responsibility towards the operational level, where it again connects to communication about decisions being made to provide the opportunity for allowing empathic behavior. However, the operational level should have an open attitude (I8,15,16). Interviewee 15 indicates as follows: "traditionally, as a client, maybe we would be pulling our weight now, but we do not. That awareness, knowledge, and insight into the underlying arguments are not there with the advisors, who are also more distant, so that is our role as IPM role-holders to explain that to the team members. Why things are going as they are and to stand up for that as part of the IPM team" (I15). Interviewee 12 refers to the difference between the tactical and strategic levels through the different groups of personality characteristics and the associated behaviors. At the strategic level, people should also behave 'red'¹ in other words, less empathic because the stakes about, for example, earning or losing money weigh heavier at that level. On the other hand, at the tactical level, people should not exert as much 'red' behavior: "give and take, and resolve issues together then you have a better result than if you do it by reacting 'red'. Then you lose empathy if you just say, listen for a moment; a deal is a deal. I can imagine that you sometimes need that attitude at the strategic level" (I12).

5.1.4. Developing empathy through collaboration

Collaboration is considered a activity to develop or bring out empathic behavior in individuals. Interviewees 2 and 4 note that empathic behavior can develop in individuals who are less empathic from nature. Interviewee 2 indicates it as taught behavior, "I am not a very empathetic person. I'm then at most a little bit on the level of sympathy. Because I'm aware of that, I've taught myself this, so for me, I consider it a little bit of learned behavior because I do see the importance of it. Still, I know that I have difficulty with it myself" (I2). Interviewee 4 acknowledges this self-taught behavior by working in such a collaboration, "empathy, I think, is just the thing that I have grown tremendously in as a project officer by working in such a collaboration" (I4).

The learning principle is noted by Interviewee 14 through an example where traditionally proactive behavior in sharing information with the client would not occur in the contractor's mind. However, in the first phase, the interviewee indicates, "why don't I share it now? Then at least he [client] also knows about the problem, there he [client] can maybe think along in solutions. At least for me, that was an eye-opener" (I14). Note that this process would take months to develop when experience with such behavior is lacking. Interviewee 15 indicates an active attitude towards developing empathic behavior to grow in exerting the behavior. Within a team, this is dealt with by coaching each other if undesirable behavior is exhibited. On the tactical layer, this was done through team sessions (I15).

Interviewee 13 relates to the level of empathic behavior of an individual due to his or her empathic ability; however, on the other hand, "you see it rising to the surface in people whom you thought: they would find empathizing really difficult" (I13).

5.1.5. Overview of the relationship between empathy and client-contractor collaboration

The competence of empathy is foremost about facilitating understanding of the other team member, e.g., concerns and problems, and moving into each other's playing fields, including the interests of the organizations. These insights help to understand why team members behave a certain way, the impact of decisions on others, allowing others to flourish, support, and relationship building between team members. Empathy influences collaboration by creating a connection between team members on a more profound level, eventually leading to a relationship between two members that consider each

¹An individual who has a 'red' personality that is highly dominant, task-oriented, decisive, and focuses on task completion (Lykourantzou et al., 2016).

other's interests and needs during decision-making and in one's behavior. Therefore, it is important to constantly reconsider not only the project team values but also the individual values.

Furthermore, understanding each other's cultures and ways of working is most crucial in project phases where there is unfamiliarity by either the client or the contractor. Establishing understanding should begin at the start of the project. Empathy enables this process, and the resulting understanding contributes to developing trust between team members.

The needed empathy level depends on someone's role in the project: generalist or specialist. The impact of the two-phase model is most significant for a generalist, i.e., someone from the management team, compared to the marginal impact on a specialist, i.e., someone from the discipline team. The impact reduces toward the personnel on the construction site. The needed empathic behavior corresponds with the two-phase model's impact on the project's role. A cause for the different levels of empathic behavior is the number of times team members from different roles work together and are committed to a shared goal. The tactical level generalists work together regularly and are more committed to the shared goal than the specialists on the operational level, decreasing the cohesion. Stimulating empathy in the organizational layer could reestablish cohesion. The tactical level should openly and transparently communicate with both layers. On the progression of project goals and core values (strategic level) and decisions (operational level). Creating the opportunity for gaining understanding and evoking empathy behavior.

Collaboration is considered a activity to develop or bring out empathic behavior in individuals. Empathic behavior can develop in individuals who are less empathic from nature. Through collaborating in the first phase, an individual can develop the necessity to teach him or herself to be involved in empathic behavior. This is a timely process but can have benefits, such as support from the other organization because they can think along if someone shares information. An active attitude toward empathy is needed. A way is to coach each other if undesirable behavior is exhibited.

5.2. Influence of empathy on the factors of collaboration

Two matters that should be noted are about interviewees 3, 9, and 15. First, interviewees 3 and 15 did not indicate any influences of empathic behaviors on the factors of collaboration. Both interviewees had difficulties indicating these influences, and due to limited time, this question was omitted. Second, interviewee 9 indicated that all factors are influenced by empathic behavior, indicating "that empathy works in general to improve the collaboration" (I9). Also, interviewees 5 and 13 indicated a positive influence of empathy on the factors; however, they did indicate differences throughout the factors.

Another noteworthy point mentioned by interviewee 7 relates to the effect of empathic behavior toward a small group of team members or the entire team. Stating, "I see that it (empathic behavior) does not have a direct link to the complete team, because in particular you also have empathy, trust and collaboration in a somewhat smaller group of people, i.e. with 2's or 4's. And that initially, that does not immediately affect the factors involved around the team. It has long-term positive side effects".

On the other hand, interviewee 11 related the behavior more toward the factors relating to the collaborative process in the team, addressing factors such as effort and mutual support, followed by cohesion and trust and less into communication, balance of member contributions, and coordination because they are more related to professional behavior (I11).

5.2.1. Communication

9 out of the 16 interviewees indicated a positive effect of empathy on the factor of collaboration (I2,4,7,8,-9,12,13,14,16). Exercising empathic behavior influences communication by facilitating information sharing or, in other words, sending information to other team members (I4). Sharing information is important to create the opportunity for other team members to understand interests, problems, or personal circumstances (I12,14). Additionally, sharing information creates an environment where others find it easier to engage in empathetic behavior (Section 5.3). On the other hand, one should be aware of how information is being sent, either written or spoken (I16). Interviewee 16 states, "understanding the effect of your communication on a person, say from another organization, makes communication easier" (I16).

3 interviewees indicated less effect on the factor of collaboration. Both /interviewees, 5 and 6, do not relate empathy to communication. Indicating the importance of well-conveyed information, however, not affected by empathic behavior. Interviewee 11 relates to this view. Stating the importance of conveying

what is important to the other party and ensuring that they understand is not influenced by empathy but is related to professionalism (I11).

No clear or no answer on the relationship between empathy and the factor of collaboration is provided by 4 interviewees. Interviewee 1 links the empathic behavior as a result of low-threshold communication. The interviewees indicated an effect of empathic behavior on trust (I1). Therefore, there may be an indirect connection between empathy and communication, reinforcing each other, starting with a certain establishment of trust.

5.2.2. Coordination

2 out of the 16 interviewees indicated a positive effect of empathy on the factor of coordination (I9,12). Interviewee 9 appoints the importance of a non-dominant approach regarding coordination. Allowing to understand the effect that coordination has on others (I9). Interviewee 12 did not provide an argumentation.

A more significant group (9 interviewees) indicated that empathy has less effect on the factor of coordination (I1,2,4,5,6,7,8,11,14). Coordination is indicated by many of the interviewees as a professional or practical factor and, therefore, less influenced by empathic behavior (I1,2,4,5,11).

5 interviewees did not provide a clear or no answer on the relationship between empathy and the factor of coordination. Interviewees 5 and 13 acknowledged the procedural side of coordination but indicated the influence of empathic behavior to steer on and be aware of dependencies between tasks (I5,13). This relates to the statement of interviewee 9. Interviewee 16 provided no direct link however makes the link to the factor communication by indicating, "what is the reason someone suddenly becomes very dominant in a meeting? For example, that could be from 'you being obstructive or annoying and not being so dominant', or 'interesting I suddenly see a very different role, tell more about that' " (I16). Suggesting it is about understanding the effects of coordination on others; however, empathic behavior is exerted through communicating about for example apparent behavior.

5.2.3. Balance of member contributions

Similarly, only 2 out of the 16 interviewees indicated empathy's positive effect on the factor balance of member contributions (I5,9). The influences of empathic behavior are reflected in understanding the strengths and expertise of others in the team and accepting this (I5).

8 interviewees indicated that empathy has less effect on the factor balance of member contributions (I1,2,7,8,10,11,12,14). The argumentations match what has been appointed for the factor coordination about being a fore, less influenced by empathic behavior (I1,2,11).

6 interviewees did not provide a clear or no answer on the relationship between empathy and the factor balance of member contributions. Interviewee 16 makes the same link to communication as provided for the factor coordination (I16).

5.2.4. Mutual support

No interviewees indicated an influence of empathic behavior on the factor mutual support. 12 interviewees indicated empathy's positive effect (I1,2,4,5,6,7,8,9,10,11,12,13). A recurring argument is based on increased mutual support based on a more profound understanding of the other to find solutions (I4,5,7) and offer help to each other (I9,16). Interviewee 11 states the influence of empathy in the area of collaborative relationships in the team (I11). Where interviewee 12 appoints how empathy is practically influencing collaboration through the factor: "I think empathy is very much in that mutual support. Because that means that you understand, as a contractor, that we (the client) have a problem because we cannot come to a decision because of the discussion with the municipality" (I12). Moreover, a connection between mutual support and affective trust and cohesion is indicated by Interviewees 2 and 4. Interviewee 4 stated about the connection with cohesion, "if you keep asking questions, you are more inclined to think along with someone. But you do that from your team's point of view, 'if you do not know the solution, we will do it together'" (I4).

The remaining 4 interviewees did not provide a clear or no answer on the relationship between empathy and the factor of collaboration. Interviewee 16 makes the same link to communication as provided for the factor coordination (I16).

5.2.5. Effort

On the one hand, only 3 out of the 16 interviewees indicated an influence of empathy on the factor of effort. Interviewee 11 states that the influence of empathy is in the area of collaboration between the client and contractor and is therefore linked to the effort between the two organizations (I11). The other two interviewees indicate how this collaboration is influenced by empathic behavior. Seeking the influence of empathic behavior on the factor effort by understanding team members' professional situation (I9,13). Interviewee 9 also appoints the importance of understanding the team members' personal situations (I9).

On the other hand, 7 interviewees indicated that empathy has less effect on the factor of effort (I1,2,5,7,8,12,14). The argumentations match what has been appointed for the factor coordination about being a professional or practical factor and being a subjective factor and, therefore, less influenced by empathic behavior (I1,2,5,8).

Furthermore, 6 interviewees did not provide a clear or no answer on the relationship between empathy and the factor of effort. Interviewee 16 makes the same link to communication as provided for the factor coordination (I16).

5.2.6. Cohesion

12 interviewees indicated empathy's positive effect on cohesion (I1,2,4,5,6,7,8,9,10,11,13,16). Empathic behavior increases involvement among team members by sharing, linking cohesion to the factor of communication, and relationship building, resulting in more mutual understanding (I4,5). Interviewee 9 states, "work together as one team, show commitment and responsibility for the team, and you have to know why project members acts in a certain ways. That way, you understand each other" (I9). Interviewee 13 adds the importance of a good balance between empathic team members and those who are less empathic. If this balance is present, you can move forward as a team.

Interviewee 7 indicated less influence of empathic behavior on cohesion. The argumentation relates to the statement at the beginning of this section regarding the influence of empathy on the number of people involved. Therefore, cohesion would be less influenced due to the size of the team. The remaining 4 interviewees did not provide a clear or no answer on the relationship between empathy and the factor of cohesion (I3,12,14,15).

5.2.7. Affective trust

12 out of the 16 interviewees indicated empathy's positive effect on the factor affective trust. The influence of empathy on trust results from mutual understanding as a result of empathic behavior. The improved trust would from there result in improved collaboration (I1). Understanding each other's motivations and circumstances is the foundation for developing trust (I10,12). A condition to improve trust would be consistently showing empathic behavior. Interviewee 3 indicates that "you can be empathetic today and hang a rope on someone with it tomorrow" (I3). This inconsistency would negatively affect the result of empathic behavior on trust. However, developing or improving trust is not solely dependent on empathic behavior. Interviewee 9 refers to the different characters of individuals in a team, for example a generalist versus a specialist. There may be differences in empathic levels between these two groups; however, by discussing these differences it is still possible to develop trust (I9).

1 interviewee indicated that empathy has less effect on the factor of collaboration (I5). The interviewee identified no link between empathic behavior and trust. The factors of cohesion and mutual support would be linked to the behavior (I5). The remaining 3 interviewees did not provide a clear or no answer on the relationship between empathy and the factor of cohesion (I3,13,15).

5.2.8. Overview of the influence of empathy on the factors of collaboration

During the interviews, interviewees were asked to indicate whether empathy influences the seven factors of collaboration. The scores represent if empathy does influence the factor of collaboration (green >), is of lesser influence to/subordinate influence the factors of collaboration (red <), or no clear answer was provided (orange -). The result is shown in Table 5.1.

Most interviewees indicate a positive effect of empathy on the factor of *communication*. Empathic behavior facilitates information sharing, especially sending information and creating possibilities for other team members to understand interests, problems, or personal circumstances. Keeping in mind the manner 'how' information is shared. A benefit of sharing, i.e., sending information, is creating

Table 5.1: Influence of empathy on the factors of collaboration. Green (>) = empathy does influence the factor of collaboration, red (<) empathy is of lesser influence to/ has a subordinate influence the factors of collaboration, or orange (-) no clear answer was provided.

CS	Interviewee	Factor						
		Communication	Coordination	Balance of member contributions	Mutual support	Effort	Cohesion	Affective trust
1	1	-	<	<	>	<	>	>
	2	>	<	<	>	<	>	>
	3	-	-	-	-	-	-	-
	4	>	<	-	>	-	>	>
2	5	<	<	>	>	<	>	>
	6	<	<	-	>	-	>	<
	7	>	<	<	>	<	<	>
	8	>	<	<	>	<	>	>
3	9	>	>	>	>	>	>	>
	10	-	-	<	>	-	>	>
	11	<	<	<	>	>	>	>
	12	>	>	<	>	<	-	>
4	13	>	-	-	>	>	>	-
	14	>	<	<	-	<	-	>
	15	-	-	-	-	-	-	-
	16	>	-	-	-	-	>	>

an environment where others find it easier to engage in empathetic behavior. The interviewees that indicate lesser effect in the factor acknowledge the importance of adequately conveyed information, however, to the more professional character of the factor.

Coordination is cited as a factor less affected by empathetic behavior. This results from the factor being practical and should be handled through professionalism. Therefore less influenced by empathetic behavior. If there were influence it would be to understand the effect of coordination on others. Furthermore, besides the procedural side of coordination, empathetic behavior could steer on and creates awareness of dependencies between tasks. Suggesting the influence of empathetic behavior is about understanding the effects of coordination on others; however, empathetic behavior is exerted through communicating about, for example, apparent behavior. Therefore the effect of empathetic behavior is indirect on coordination. This last notion of exerting empathetic behavior through communication is also relevant for the factors balance of member contributions, mutual support and effort.

There seems to be less influence of the competence empathy on the factor *balance of member contributions*. Suppose there would be an influence this would be through understanding the strengths and expertise of others in the team. In that case, however, this effect is not agreed upon due to the factor being practical and should be handled through professionalism. Therefore less influenced by empathetic behavior.

Increased *mutual support* based on empathetic behavior results from a more profound understanding of the other to find solutions and offer help to each other. Improving the understanding of the project phases where there is unfamiliarity regarding each other's cultures and ways of working. The factor mutual support is linked to affective trust and cohesion.

There is no consensus among the interviewees for the factor *effort*. If empathy affected the factor, it would be by focusing on understanding team members' professional and personal situations. However, the majority of the interviewees did not acknowledge the influence of the factor or could not provide a clear answer. The effort would be about being a professional or practical factor and being subjective.

Empathetic behavior influences the factor *cohesion* through increasing involvement among team members by sharing, linking cohesion to the factor of communication, and involving team members, creating more mutual understanding. Critical is a balance between empathetic and less empathetic team members to move forward as a team.

Empathy is confirmed to influence the factor *affective trust*. The influence of empathy on trust results from the starting point of mutual understanding's motivations and circumstances as a result of empathetic behavior. Consistency in showing empathetic behavior is important for creating and developing trust. Despite the importance of the factor trust, it is not solely dependent on empathy for it to develop as long as the differences in empathy are discussed.

Therefore, returning to the statements of interviewees 7 and 11 at the beginning of the section about the focus of empathic behavior, one can confirm the focus of interviewee 11 on factors relating to the collaborative relationship in the team. However, the focus of Interviewee 7 on the effectiveness of more intimate relations between smaller groups of team members through, for example, communication is also indicated by many interviewees. Based on the results, the influence of empathic behavior generally results in more understanding among team members.

5.3. Influencing empathic behavior

The factors influencing empathic behavior can be positive, negative, or work both ways. If a positive factor is present, it will create a setting in which empathic behavior may occur. Alternatively, if a negative factor presents itself, it may result in a situation where the behavior is absent. Activities can be applied to influence the level of empathic behavior. Depending on the progress of the first phase, different activities are identified. This section will present the factors (5.3.1) and activities (5.3.2) found during the interviews' analysis.

5.3.1. Factors influencing empathic behavior

During the interviews, the interviewees were asked to indicate factors that influence the extent to which empathic behavior occurs. In other words, these factors can be used to create a setting or environment that facilitates empathic behavior. All indicated factors found based on the data analysis are grouped into categories of factors and elaborated on in this subsection.

Communication

The category communication is mentioned by 9 interviewees (I1,2,5,8,9,12,13,14,15,16). A differentiation between two main topics is possible regarding communication: 1) the communication style and 2) the actual communication taking place in the team.

First, the communication style is discussed. To facilitate empathic behavior, the communication style should be low-threshold, open, transparent, and objective (I1,13,15). Eliminating personal accusations and being aware of someone's character (e.g., sensitive to words or reacting emotionally) using conscious words. Furthermore, having the habit of taking everything personally reduces the chance that someone exerts empathic behavior (I15).

Secondly, communication among team members is mentioned as a prerequisite for empathic behavior (I8,13). Proactively sharing information or feelings allows the other team members to be empathic (I8,16). Therefore, keeping information to yourself must be avoided (e.g., doubles agendas). Interviewee 13 indicated when they started communicating about interests in their project as: "we started sharing those interests in the first few weeks after the contract was awarded in order to explore them with each other. If you do that as you do that more often, you also share that much easier" (I13). This information sharing can entail issues and the impact and why you do certain things the way you do them (I9,13,15). Furthermore, empathic behavior can remain unnoticed, especially by people who are less empathic. Talking about empathy can create the feeling that someone is being heard, resulting in building trust (I16). Without being informed, it is more difficult to behave empathically. It is, therefore, important to share information throughout different organizational layers; it prevents those layers from closing off. Alternatively, other organizational layers should also ask questions (I8).

Finally, the formalization of communication, formal or informal, influences the room for empathic behavior. Starting meetings informally creates room for empathic behavior. A activity for creating this room is the check-in. Informal communication related to one's personal life is an important facilitator. Issues such as how things are going at home and your health. However, these things take time to surface (I2,5,8,9).

Empathic ability

Personal experiences influence the empathic ability of a person and are also referred to as the empathic horizon. Interviewee 14 indicates this ability is important to behave empathic and appoints that the horizon is about understanding what is happening on the other side of the table. Someone must have been in the situation once before in order to be empathic. This ability is crucial when encountering such a project model for the first time. "In this PDM where everything happens in a new manner

and you are unfamiliar with the other organization's processes, work, and cultures. As a result, it is sometimes difficult to be empathetic" (I14). The ability changes throughout time: "throughout Phase I, that definitely increases and you become more empathetic because you get more insight into what moves the other. You get more insight into what we all have as a goal and insight into what is going on in other parties. As a result, you become more empathetic" (I14).

As the empathic ability of a team member can evolve through experiences, this ability is influenced by earlier encounters with different PDM's. The discrepancy in experience increases with a lack of experience in integrated PDM's and solely experience in the traditional integrated PDM (I3).

Someone's willingness to empathize can exceed the ability. Interviewees indicate the importance of the characteristics of the team member and whether or not he or she finds it important to empathize (I1,2,10,12,15). Interviewee 2 indicates the increased effort someone less empathic has to put in to emphasize.

Relationships between team members

The relationship influences the extent to which team members can behave emphatically, as there should be some connection between them (I11,13). The connection may be based on matching profiles, for which onboarding new team members is a activity to preliminary assess this connection. The connection could also result from a former experience with someone because you know how to approach that person, i.e., a personal connection (I1,9,12,14,15). Furthermore, it is indicated that this connection is vital between management team members (I13). Interviewee 6 stated: "it is easier to be more empathetic when you know someone well, or at least with whom you have a connection" (I6). Interviewee 4 acknowledges this connection. Adding a prerequisite to behave empathically and to accept the empathic behavior of others, namely trust (I4). Interviewee 7 acknowledges the relationship between empathy, collaboration, and trust. Empathic behavior will not be present if trust is harmed, and collaboration will suffer under this condition. Proposing active steering is essential.

Activities such as team-building sessions can be used when there is no former experience to improve the relationship between team members (I10). Interviewees 2, 8, and 9 indicate topics that should be addressed to facilitate the connection, such as domestic, financial, or health-related achievements and problems.

Gaining experience with other team members is difficult when there is a literal distance between two team members or when no time is spent together (I2,14). The following two factors are closely related but are discussed separately due to their indicated importance. The factors related to the work location facilitate many of the underlying factors of the work environment.

Work location

The category contains two main factors: team members should generally work from one project location and not remotely (I2,3,4,8,10,13,14,16), and the management team members from the same IPM discipline should work in one project room (I3,4,8,13,16).

Interviewee 4 explains the effect of working from one location on empathic behavior by not only facilitating understanding of professional behavior but also on a personal level by improving the connection between project members. Informal communication between team members may take off, as indicated by Interviewee 10, "then you can also just literally start asking things like what are you struggling with? Or do I see that something is going on? Then you start acting on another person's feelings. Well, you might end up having a conversation where you get to hear her or his interests" (I10).

Compared to a non-two-phase model project, Interviewee 13 indicates the effect as follows: "Compared to previous projects, there is more empathy in this project because you work together more intensively and visit each other more often. For example, my counter partner and I share a room. You know each other much better and you can understand the interests much better" (I13). Interviewee 16 acknowledges the positive influence of arranging the office rooms per IPM discipline on the ability to empathize within one discipline. However, the interviewee also indicates a side effect: "we have seen that between the disciplines, the distance of one wall in the office can already have a disruptive effect on how well you understand each other and an effect on the ability to empathize between the disciplines to understand each other" (I16).

Building on the effect of actually working together, due to the office arrangements and the regular meetings of the management team, Interviewee 4 noticed a difference in the empathic level of the

management team and the disciplinary teams. Caused by the number of (regular) times the teams meet (14).

Work environment

Besides the positive effect of physically working together on facilitating empathic behavior, the work environment also affects the behavior and should be established during the beginning of the project (11,2,4,5,8,9,10,12,13,14,15). A safe environment where someone can be open, ask questions (18,9,13,15) and reveal vulnerability (114). Interviewee 15 provides the following example of a safe environment: "That people feel that they can put on the table what they want to put on the table. They can put down a judgment or an observation, even if it's harsh, and everyone tries to express themselves respectfully. Still, without attacking anyone personally" (115). Establishing this environment contributes to topics that should be addressed explicitly to facilitate empathic behavior, such as domestic, financial, or health-related achievements and problems. These topics need time to surface (12,8,9,15). Activities to maintain the environment are weeklies and the collaboration monitor.

Empathic behavior reinforces itself. If one receives empathic behavior, one may be more likely to behave as such and vice versa (11,9,12,13,15,16). An example provided by Interviewee 16 is regarding not only handling reactive by accepting the empathic behavior of the other but proactively sharing to provide the other with the opportunity to understand one's interests and explain why certain aspects are essential for one's roles in the project or due to organizational interests or circumstances. Being explicit about empathy makes people feel heard. Builds on trust and cohesion (116). Harmful for the empathic level are external factors influencing the project, causing the behavior to spill to the background and more traditional behavior to surface (18).

Finally, an aspect that influences the work environment entails the contract, proposed by Interviewee 5, where strict contractual arrangements inhibit empathic behavior because it facilitates narrow-mindedness among the organizations. However, the decision about the contractual details is not part of the scope of this research.

Number of team members

This category is related to the work environment. Regardless of the number of times the Interviewees mention it, it is assumed important to consider establishing understanding through empathic behavior.

The underlying factors of this category appoint the effect of group size on the effectiveness and outcome of empathic behavior (12,7,10). First, the effectiveness of empathic behavior increases when empathic attention is directed at a relatively small group of people (12,7). The group size depends on the team member's role in the project. Generalists, such as project managers, have the task of managing the people in the project team. Therefore their focus is relatively broad. Interviewee 3 points it out as: "It's that one of my main jobs is to see how everything goes, whether people understand each other and how people act and whether or not it fits within a group" (13). On the other hand, specialists in the project have a relatively narrow focus due to their role. Secondly, empathic behavior and the outcome of the behavior increase with decreasing group size because it is easier to express empathic behavior (110).

Willingness to behave empathic

The willingness to be empathic is a factor that works in two ways when looking at the team member level. On the one hand, it is about oneself where one should be willing to express empathic behavior and position oneself vulnerably. On the other hand, receiving the behavior stimulates exhibiting the same behavior. Interviewee 12: "If I kept a very tight attitude, I would get a tight attitude back". Nevertheless, the individual should have the ability to behave empathically. Interviewee 1 mentions the following about competence: "it is certainly good to look at the competencies of the of team members; does a person fit this approach?".

Looking at the organizational level, it is about the willingness to deviate from strictly following contractual provisions. Interviewee 5 states, "if you have a RAW contract where everything is prescribed to the letter, you obviously don't have to have empathize, you might say, because we just execute what it says, and if it deviates, then we document it".

Getting to know team members is essential to the willingness to behave empathically. This relates to members from the other organization (client or other contractors) and your organization, as they could also be unfamiliar. Interviewees 4, 6, and 8 indicate that it makes no difference whether a colleague of the project team is from one's organization behaves empathically. Interviewee 5 mentions that it can make a difference in how easy it is to exert empathic behavior due to a team member's background, being the 'same kind of people', due to the different organizational cultures (I5).

Behaving empathic among contractors working in a consortium could be inhibited by their standard competitive relationship outside the project. Because of this relationship, it is important not to share too much strategic information. Interviewee 14 explains an experience and the resulting behavior: "I have had a negative experience where the other contractor did not want to share much to avoid that kind of situation. On the other hand, I used to do a lot of tendering as well, and then you really want to give as little information as possible, because the next time, you do not want that to be to your disadvantage. The result on an empathic level is then adverse. You withhold information because you do not want another organization to become wiser than it already is" (I14).

5.3.2. Activities for empathy

During the interviews, the interviewees indicated activities used to develop, maintain or increase the level of empathy present in the project's first phase. The activities are not explicitly designed to facilitate empathic behavior; however, these are the activities used for collaboration as discussed in Section 4.4. External coaching is likewise considered a catalyst for the other activities and is therefore not listed as an activity. Next, each activity is elaborated on to indicate how it is used for empathic behavior.

Team selection

Noteworthy, the activities regarding the procurement process (team assessment and selection criteria of the contractor) are not included in the overview because the procurement process is not part of the first phase and, therefore, not part of the scope of the research. However, 9 interviewees indicated the importance of considering empathy during this phase.

A selection based on competencies was used in the *onboarding* process CS2. This was monitored by a separate team consisting of team members. The onboarding process started during the selection process of the new team members (I5,7,8) and continued with repeating onboarding sessions to monitor the onboarding (I9). Interviewee 6 indicated the importance of a balance between empathic team members and less empathic team members by stating: "a team should also have people who can make a blunt statement. If you understand how people are (empathic or not), contributes to group formation and cohesion" (I6). The activity should prevent members entering the project who are assigned by the boards of the organizations. The project team should know whether the profiles of the new members fit the project and act appropriately if this is not the case (I9,10,14). Additionally, Interviewees 3, 8, and 13 emphasize the importance of applying the selection based on competencies and the onboarding process during the management team selection.

The work environment for empathic behavior

Setting up a work environment at the start of the project where team members work from one project location allows for empathic behavior. This activity follows the factor work environment described earlier in this section (5.3.1).

Building and sustaining empathic behavior

At the start of the project, a Project Start-Up (PSU) is held, and multiple Project Follow-Ups (PFU) are organized continuously throughout the project.

Using *Project Start Up* as an activity for empathic behavior ties in with Interviewee 13 regarding how communication influences behavior. During the PSU, both parties started sharing their interests, resulting in more accessible communication and understanding throughout the project (I13). Furthermore, both organizations become aware of each other's cultures, working methods, and principles. Often this process is facilitated through external coaching.

Team-building sessions allow for reaching a more personal connection with team members and the resulting mutual understanding. The goal of these sessions is "not to force a friendship, but you know very quickly that someone is really comfortable in their skin, and this contributes to the success of

the whole team” (I10). Extending on how someone can work on the competence of empathy through the team-building sessions, Interviewee 15 explains it by sharing actual challenges or problems faced during the project or simulating a scenario. By sharing the challenges or problems one faces, the other team members can “think along and therefore hear the kind of challenge you have from your role and therefore gain an understanding of it” (I15). Furthermore, scenarios allow team members to gain experience and act more appropriately when those surface during the project. The same interviewee indicates it as follows: “through repetition and that you have practiced it once in a safe setting, you are able to recognize that suppose you have a tendency to respond traditionally, swallow that for a moment, and with the knowledge that you have gained, then apply that empathy and choose a different response” (I15). Interviewee 15 indicated expanding the team-building sessions outside the management team to stimulate the personal connection between specialists in the project team. Often this process is facilitated through external coaching.

The *Project Follow Ups* and the *collaboration monitor* open the conversation about collaboration. Topics include “how do they think the collaboration is going, what can we change, what is going good and not good” (I9)—resulting in understanding each other’s viewpoints and working methods, and from there, facilitating empathic behavior (I9). Often this process is facilitated through external coaching.

The formalization of communication influences the room for informal communication, affecting the facilitation of empathic behavior. An activity that creates this room is the *check-in* during regular meetings—allowing for topics that relate more to the person than the actual work (I2,5,8,9).

5.3.3. Overview of how to influence empathic behavior

The interviewees were asked to indicate factors that influence empathic behavior. Based on the data analysis, all indicated factors are grouped into categories of factors (See Figure 5.1).

The categories that are indicated most by the interviewees should be considered first. The categories that should be considered are:

- work environment,
- relationship between team members,
- communication,
- work location,
- willingness to behave empathic,
- empathic ability,
- number of team members.

Activities used to develop, maintain or increase empathy in the project’s first phase are not explicitly designed to facilitate empathic behavior. However, these are the activities used for collaboration that are able to facilitate working on the competence, namely the activities related to team selection, work environment for empathic behavior, and building and sustaining empathic behavior. External coaching is likewise considered a catalyst for other activities and is therefore not listed as an activity.

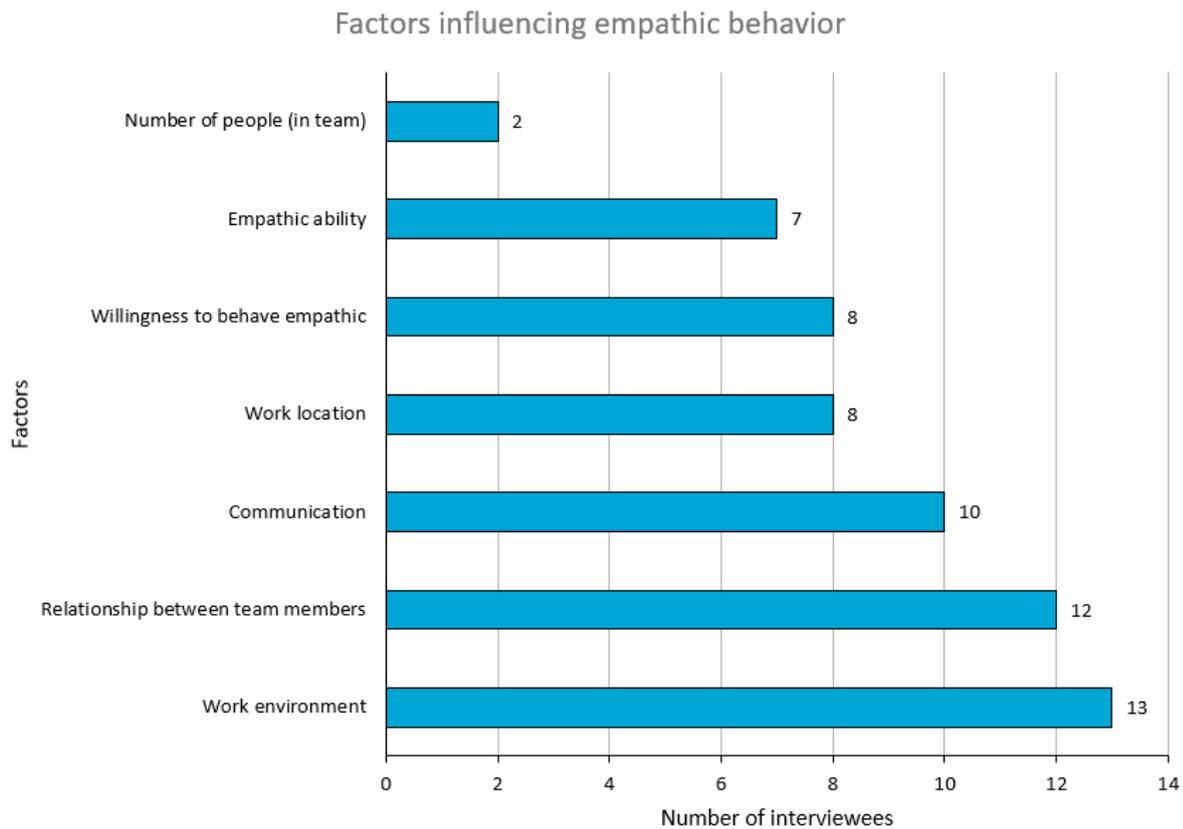


Figure 5.1: Factors influencing empathic behavior.

5.4. Conclusion

The relationship between the competence of empathy and client-contractor collaboration is researched by conducting 16 semi-structured interviews. The topics from the interview protocol that are related to this relationship are listed below. The data from the interviews are analyzed using Atlas.ti 2023. Based on the research findings from this chapter, it is possible to test hypothesis 2. Furthermore, combining the conclusion of the previous chapter and the conclusion of this chapter, hypothesis 3 will be tested. This conclusion is used in Chapter (8) to answer subquestion 3.

- Relationship between empathy and collaboration.
- Influence of empathy on the factors of collaboration.
- Factors influencing empathic behavior.
- Activities for empathy.

Hypothesis 2: Empathy contributes positively to client-contractor collaboration during the first phase of a two-phase model.

Hypothesis 3: Empathy contributes positively to the project performance of the first phase of a two-phase model.

In order to support or challenge hypothesis 2, it is first important to understand the outcome of the competence of empathy on the client-contractor collaboration, including what factors of collaboration empathy can affect. Finally, it is pivotal to facilitate empathic behavior; therefore, understanding the factors influencing empathic behavior and the activities that can be used in this process is essential. After that, it is possible to support or challenge hypothesis 2. After that, to support or challenge hypothesis 3, the conclusions of the preceding chapter and this chapter are used to test whether the competence of empathy can contribute positively to the project performance of the first phase of the two-phase model.

From the research findings, it can be concluded that the competence of empathy facilitates developing understanding. The development of understanding is essential from the start of the project on both the team member and organizational levels. On the team member level, it concerns understanding interests, culture, issues, and behavior. The aim is to improve the ability to support, let others flourish, and build relationships based on a more profound connection, improving the collaborative feeling. On the organizational level, it is about understanding interests, culture, and work processes. Using empathy to develop understanding turns out to be most important in project phases where there is unfamiliarity by either the client or the contractor. The aim is to develop increased motivation and ability to support through understanding the other organization. Furthermore, both organizations can learn from each other. The general aim is to include the understanding consciously in one's behavior and decision-making.

Establishing understanding should begin at the start of the project. Different needs for empathic behavior exist at the organizational levels. The tactical level consists of the management team and needs the highest level of empathy because of the decisions making at this level. Empathy is fostered at this level through close collaboration between the team, especially the counter partners and working towards the shared goal. This level is responsible for the other levels, mainly about communicating information openly and transparently.

Empathy affects the factors of collaboration that relate to the collaborative process in the team. Furthermore, the effectiveness of empathy increases among factors related to intimate relations between team members. Based on the results, it can be concluded that empathy affects the factors affective trust, communication, cohesion, and mutual support.

Facilitating empathic behavior is possible by focusing on the following factors: work environment, the relationship between team members, communication, work location, empathic ability, attitude towards empathy, behaving empathic towards other organizations, and the number of people. The factor of communication is the first example of the mutually facilitated relationship between empathy and collaboration. The data suggests communication is a prerequisite for empathy. Depending on the communication style of individuals, proactive information sharing, and the level of formalization. Another factor of collaboration is affective trust. Where collaboration is founded on trust, empathy is also founded on trust. Without trust, one would not exert empathic behavior. Finally, the collaborative process facilitates empathy. The collaboration in the first phase could foster the necessity for team members to develop empathic behavior. However, this is a timely process.

The activities to invest in empathic behavior from project start are Project Start-Up, team-building sessions, and arranging the work environment. Continuously throughout the project, the behavior should be developed and maintained. Activities are Project Follow-Up, onboarding, check-in, team-building sessions, and the collaboration monitor. Furthermore, the first phase acts as an activity to develop empathic behavior through the stimulating effect of the actual collaborative process. Overall, investment from the project start is essential and requires a proactive attitude.

Hypothesis 2

Returning to hypothesis 2. Client-contractor collaboration is based on a relationship. A relationship between the organizations and between the team members of those organizations. Important for collaboration in the first phase of the two-phase model is an understanding in order to perform. Based on the research findings, it seems that the competence of empathy can facilitate the development of understanding on both team member and organizational levels. On the team member level, empathy helps to understand individual behavior, and the impact of decisions, allowing others to flourish, support, and relationship building. Creating a more profound connection, eventually leading to a relationship in which team members consider each other's interests and needs during decision-making and in one's behavior. On the organizational level, empathy increases motivation and the ability to support through understanding. Both organizations can learn from each other. Include this understanding into one's behavior and consideration during decision-making. Also, empathy can contribute to the collaborative process via the most essential factors of collaboration: affective trust, communication, cohesion, and mutual support. The need for understanding and empathy seems most important in unfamiliar project phases by either the client or the contractor. Furthermore, it is important to include the developed understanding in one's behavior and decision-making to utilize the added value.

The proposed direction of influence, from empathy toward client-contractor collaboration, seems incomplete according to the data. It suggests that the relationship between empathy and collaboration facilitates in both directions. So, empathy not only influences client-contractor collaboration, but the data also suggests that empathy, in turn, is affected by the collaboration itself based on the factors of collaboration affective trust and communication and facilitated by collaborating in the first phase.

Finally, for empathy to positively contribute to client-contractor collaboration, there are preconditions that should be considered. On the one hand, the factors influencing empathic behavior must be considered to facilitate a setting or environment fostering empathic behavior. On the other hand, empathic behavior must entail all three components of empathy, i.e., the cognitive, affective, and behavioral components.

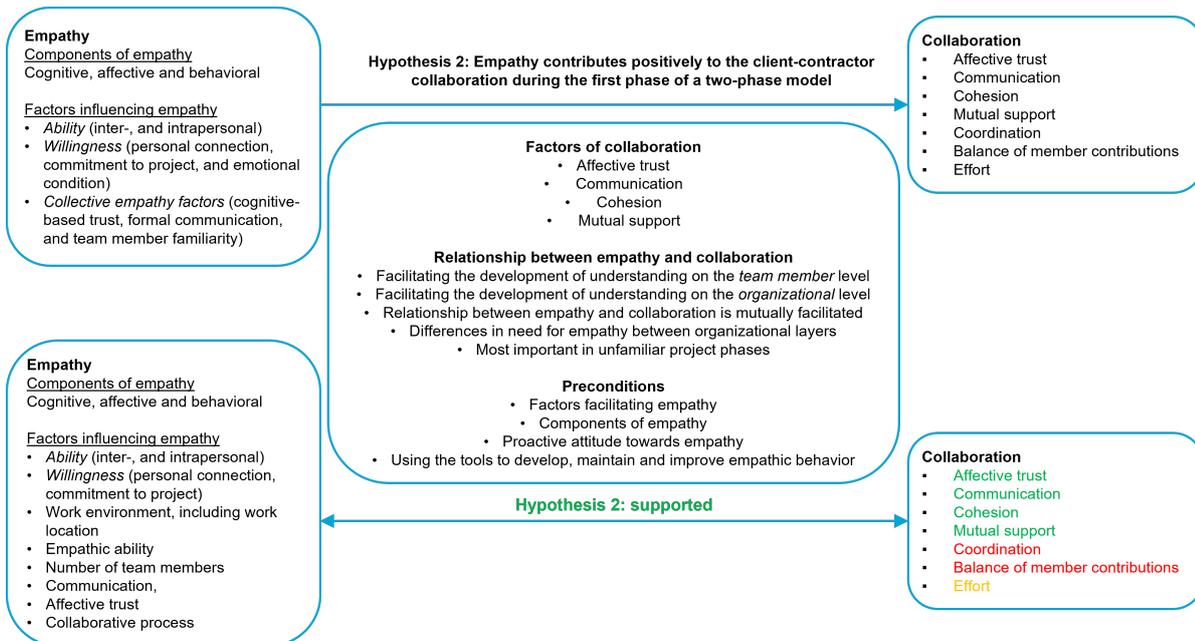


Figure 5.2: Test of hypothesis 2.

As stated above and presented in Figure 5.2, hypothesis 2 is supported: empathy contributes positively to client-contractor collaboration during the first phase of a two-phase model.

Hypothesis 3

To test hypothesis 3, the results of the preceding chapter and this chapter are used to test whether hypothesis 3 is supported or not supported. It involves the relationship where client-contractor collaboration positively contributes to the project performance (hypothesis 1) and the relationship where the competence of empathy positively contributes to client-contractor collaboration (hypothesis 2). It cannot entirely be stated one-to-one that despite hypotheses 1 and 2 being supported that hypothesis 3 is thereby also supported.

For the competence of empathy to contribute positively to the project performance of the first phase of the two-phase model, there has to be a relationship between the outcome of empathy on the client-contractor collaboration and the outcome of client-contractor collaboration on the project performance of the first phase. The understanding facilitated through empathic behavior and the proposed outcome should contribute positively to the actual or perceived performance of the criteria quality, time, and cost during the first phase.

For empathy to contribute to the performance of the first phase, it is important to develop understanding facilitated by empathic behavior on the team member and the organizational levels. Along with developing the understanding, there should be a focus on the essential factors of collaboration: affective trust, cohesion, and communication because of the suggested positive influence. This must start

at the beginning of the first phase. The outcomes of the developed understanding on both levels, as addressed in the test of hypothesis 2, can influence the collaborative process. More specifically, the effect on the process is twofold.

1. Related to the criterion quality. The design process is directly affected by understanding based on empathy through actually considering and carrying out each other's interests. Resulting in an improved quality of the design. Additionally, however more indirectly, empathy influences the development of affective trust and cohesion; therefore, it fosters the trust and the collaborative feeling needed for the shift of non-contractual liability from the contractor to the client, resulting in shared responsibility for the design. Allowing both organizations to be involved in decision-making based on equality and delivering their expertise.
2. Related to the criteria of time and cost. The focus on the process rather than the end product allows an improved perception of these criteria through information sharing. It enables empathic behavior and develops a mutual understanding of why the end product developed as it did. Furthermore, the improved feelings of trust and cohesion allow flexibility in the boundary conditions of the criteria and allow them to optimize throughout the process.

The preconditions from the preceding two hypotheses also apply to this relationship: 1) understanding the other organization's interests, cultures, and work processes. 2) The effect of threats to the collaboration should be minimized for collaboration to contribute to the performance. 3) The indicated activities should be used to develop the collaboration and, after that, at least maintain the collaboration. 4) Factors influencing empathic behavior must be considered to facilitate a setting or environment fostering empathic behavior. 5) Empathic behavior must entail all three components of empathy, i.e., the cognitive, affective, and behavioral components. 6) Proactive behavior related to empathic behavior is required.

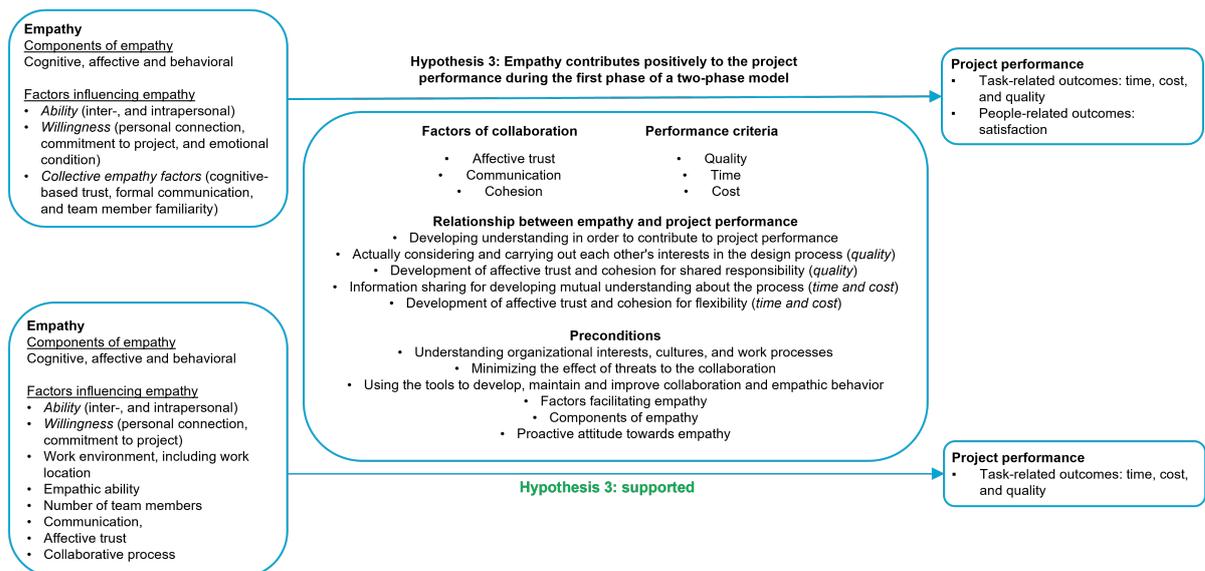


Figure 5.3: Test of hypothesis 3.

As stated above and presented in Figure 5.3, hypothesis 3 is supported: empathy contributes positively to the project performance of the first phase of a two-phase model.

The next chapter will use the support of hypothesis 3 to develop a framework that allows steering on empathy in the first phase of the two-phase model to improve the project performance based on the client-contractor collaboration.

6

Framework

The framework proposed in this chapter is based on the preceding parts of the research, specifically the literature review and the research findings. Section 6.1 outlines the underlying principles of the conceptual framework based on the research findings. They form the foundation of the framework. Furthermore, it presents the developed strategies, including activities and approaches on how to use the relationship between empathy and client-contractor collaboration to affect performance during the first phase of the two-phase model. After that, Section 6.2 presents the expert evaluation, based on two sessions with two project managers and an external coach. The section will review the validity of the underlying principles and the effectiveness and applicability of the conceptual framework. The framework proposed at the end of this chapter presents when and how the competence of empathy should be used during the collaborative process to improve the project performance during the first phase of the two-phase model (Section 6.3). Furthermore, this chapter is used to answer subquestion 4 in Chapter 8.

The framework must be used to create awareness about how the collaborative process depends on an understanding facilitated by empathic behavior and activities to steer on empathy to improve collaboration. Also, it provides strategies on how to use this relationship to utilize the collaborative process to increase performance during the first phase of the two-phase model. The framework should be used collectively by the project managers of both the client and the contractor during the start of the project. The framework predominantly focuses on the tactical layer because of the day-to-day decision-making and the responsibility toward the strategic and operational layers and also because the tactical layer demands the highest need for empathic behavior. For this research, and based on the identification of interviewees, the different organizational layers are defined as follows. The strategic layer consists of the board of the client and the contractor organizations. The team members represent the tactical layer with one of the integrated project management roles. The discipline teams are referred to as the operational layer.

Empathy should not be an activity (read obligation) to implement to improve project performance, nor should it be used as an activity when deemed convenient or needed. Therefore, expressing empathic behavior should not be the goal of the framework; however, it should be fostered in the collaborative process to affect the performance of the first phase ultimately. It is about forming genuine and consistent understanding throughout the first phase. When used consistently, this behavior contributes to developing trust and, when used inconsistently, can harm trust.

6.1. Development of the conceptual framework

This section presents the input for the conceptual framework used for the first evaluation session. Subsection 6.1.1 present the established underlying principles based on the preceding parts of the research. Subsection 6.1.2 outlines the strategies of the conceptual framework. Finally, the layout is discussed in subsection 6.1.3. The conceptual framework is presented in Appendix F.

6.1.1. Underlying principles of the framework

The underlying principles of the framework are based on the interview results from Chapters 4 and Chapter 5. The underlying principles consist of the criteria that determine the project performance of the first phase, the factors of the collaborative process, the activities used for collaboration and empathy, the influence of empathy on the factors of the collaborative process, and finally, the factors that influence empathic behavior. If the interview results do not provide an answer or no sufficient answer, the results of the literature review (Chapter 2) are used to fill the gap. If the literature review and research findings contradict, the research findings are considered more applicable because they are specific to the first phase. However, these cases are validated during the evaluation with the experts and discussed in Chapter 7. This section discusses the actual input for the initial framework.

Criteria that determine project performance of the first phase

The three criteria used to develop the framework are time, cost, and quality. The remaining three, collaboration, safety, and stakeholder satisfaction, are not included. Appendix G, Table G.1 presents an overview of the criteria and the argumentation of why they are included or excluded in the framework.

Factors of collaboration

Based on the interview results, affective trust, communication, and cohesion are essential factors for the collaborative process. Coordination, mutual support, and balance of member contributions are considered important. Effort is considered the least important for collaboration. The framework elaborates on the factors of collaboration that are essential to the collaborative process and can be influenced by empathic behavior: affective trust, communication, and cohesion. The factors of coordination, mutual support, balance of member contributions and effort are not included in the framework because they are subordinate to the included factors and are not steered by empathy. However, these are still relevant for the collaborative process. Appendix G, Table G.2 presents an overview of the factors of collaboration and the argumentation of why they are included or excluded in the framework.

Activities used for collaboration and empathy

The activities used to develop, maintain and increase client-contractor collaboration depend on the moment in the first phase. The client-contractor collaboration requires investment from the project start. Activities to invest in the collaboration include Project Start-Up, team-building sessions, and work environment arrangements. Continuously throughout the project, collaboration should be developed and maintained. Activities are Project Follow-Up, onboarding, check-in, team-building sessions, and the collaboration monitor. The activities for client-contractor collaboration also apply to developing, maintaining, and increasing empathic behavior in the first phase. Appendix G, Table G.3 presents an overview of when the activities should be used and how they are used in the framework. External coaching is considered a catalyst for the other activities of collaboration and empathy and is therefore not listed as a activity.

The influence of empathy on the factors of collaboration

Some of the factors of collaboration presented earlier in this section can be influenced by empathic behavior. Through these factors, it is possible to affect the client-contractor collaboration. The factors that are influenced by empathy and included in the framework are affective trust, communication, and cohesion. The other factors are not included in the framework. Mutual support is also influenced by empathic behavior; however, due to an indirect influence of empathic behavior on this factor, it is not considered in the framework. Appendix G, Table G.4 presents an overview of the argumentation of why the factors are included or excluded in the framework.

The factors that influence empathic behavior

Just as empathic behavior can influence some factors of collaboration, some factors can influence empathic behavior. Depending on the factor, this can facilitate or inhibit the behavior. The factors considered in the framework to influence empathic behavior are the work environment, relationships between team members, communication, work location, willingness to behave empathic, and empathic ability. Appendix G, Table G.5 presents an overview of the factors and how they should be used to facilitate empathic behavior.

6.1.2. Strategies

Strategies to use the relationship between the competence of empathy and client-contractor collaboration can be developed to affect performance during the first phase of the two-phase model. The principles are the foundations of the strategies. Therefore, the strategies are based on the research findings. Throughout this subsection, each strategy is explained, as how the principles are used and the aims of the strategies.

Strategy 1 - Developing an understanding

The first strategy focuses on building understanding from the beginning of the first phase. Part II showed that this understanding was lacking at the start of Phase I. Building on this, it appears that this understanding must be built on both the team member and organizational levels. At the team member level, there is a need to understand other team members' interests, culture, issues, and behavior. Interviewees indicated that this could be achieved through activities such as team-building sessions and the design of the work environment. The goal of this strategy is to apply the developed understanding of one's behavior and to take it into account in decision-making, thus considerably taking other team members into account.

At an organizational level, there is, from the start, a lack of understanding of the other organization's interests, culture, and work processes. The importance of understanding increases with increasing unfamiliarity, also known as an increasing design challenge for the contractor. According to the interviewees, this understanding can be formed by organizing a Project Start-Up. This gained an understanding of the other organization contributes to increased motivation and ability to support. Furthermore, both organizations can learn from each other.

Based on Part II, the competence of empathy can contribute to the development of understanding by gaining insight into the why behind topics such as the effect of one's own decisions on team members, the causes of certain behaviors of team members, how to approach team members, why certain processes are important for the other organization, what someone from the other organization needs to perform their tasks, and what is personally and organizationally at stake. Interviewees indicated that understanding is fundamental at the tactical layer and between the counter partners of the client and the contractor.

By following this strategy, both on the team member level and on the organizational level, it is about creating an understanding at the beginning of the project to improve behavior, decision-making, and collaboration. Empathy is crucial for facilitating this understanding, and activities like team-building sessions and a Project Start-Up must be used.

Strategy 2 - Developing the fundamental basis from the start of the collaborative process

From the start and throughout the remainder of the first phase, there must be awareness of the factors that enable empathic behavior and the collaborative process. Within the factors, a distinction can be made between those facilitating empathic behavior and those essential for collaboration. The relevant factors for the collaborative process and for facilitating empathic behavior are described in the preceding subsection (6.1.1). The strategies cannot be implemented without considering these factors.

Strategy 3 - Shift to focus on the process instead of the product to improve the performance criterion quality

According to the data on the criteria that determine the project performance of the first phase, the criterion quality should have the focus rather than the criteria of time and cost during the first phase. This is, however, dependent on the constraints that may be imposed on the project due to their existence in a program of project or portfolio. The focus on the criterion is possible because of the omitted competition during the procurement phase and the design process facilitated by the collaborative process.

Focusing on the process leading to the product rather than the end product makes it possible to utilize the facilitated understanding based on empathic behavior. Allowing to have a design process in which both organizations sincerely consider each other's interests and actually carry them out. Improving the quality of the design and easing the design process. Furthermore, the product is implicitly satisfactory if it results from a satisfactory process. If the process is unsatisfactory, the client and the contractor know the causes. The mutual process will increase the ease of managing the adverse impacts and leading to mutually supported products, including a reduction in revisions of the products.

The performance of the criterion is further improved based on a process where the client and contractor have shared responsibility during an integrated design process that uses both organizations' expertise—partially shifting non-contractual liability from the contractor to the client. Facilitated through empathy due to its influence in developing affective trust and cohesion, fostering the needed trust and collaborative feeling to enable this shift.

Strategy 4 - Shift to focus on the process instead of the product to improve the perception of the performance criteria time and cost

The time and cost criteria are still relevant in determining the project performance of the first phase. However, the criteria are influenced by their perception rather than direct improvement, e.g., cost reductions of float in the project schedule.

The focus on the process rather than the end product allows an improved perception of these criteria through information sharing. It enables empathic behavior and develops a mutual understanding of why the end product developed as it did. Furthermore, the improved feelings of trust and cohesion allow for flexibility in the boundary conditions of the criteria. Additionally, allow design loops to iterative balance the performance criteria of time, cost, and quality.

Strategy 5 - Developing mutually supported products

Development of mutually supported products based on a smooth development process despite many potentially traditional points of conflict. Including a reduction in revising products. In order to develop these products, it is important to understand the interests of the other organization. These interests must be made explicit by both organizations. From there, the products need to be developed with an integrated design process with the active involvement of both organizations. Resulting in a reduction in revising the products. This is possible because the scope and price are not fixed in a contract.

Strategy 6 - Maintaining collaboration

The strategy is used to maintain a collaborative process in which products are developed based on mutual support and where both organizations act on obtained understanding and insights. Furthermore, the aim is to remain focused on the most essential factors of the collaborative process and the factors that ensure a setting in which empathic behavior prevails.

Maintaining collaboration is achieved by creating the opportunity to discuss differences in viewpoints that arise during the process. These may surface because developing a product in collaboration creates discussions that contain differences in interests between both parties. Activities to maintain the collaboration are the Project Follow-Up, including the collaboration monitor to monitor compliance with the project goals regarding collaboration, and check-in during meetings. An external coach should facilitate the Project Follow-Up.

The tactical layer has the responsibility to keep the focus on maintaining the most essential factors of the collaborative process. Trust should remain a topic of discussion, even if it is not present; this will inevitably happen. Team changes are harmful to trust. Communication must remain open and transparent, incl. a focus on the communication style to facilitate empathic behavior. For cohesion, remaining focused on the team aspect is important. Team changes are harmful to the cohesion of the team. The same responsibility applies to remaining focused on facilitating the environment in which empathic behavior prevails.

Strategy 7 - Proactively improve collaboration

Next to maintaining the collaboration, there should be a proactive attitude toward improving the collaborative process. Because affective trust and cohesion need to develop throughout the first phase, it is important to use activities to improve the collaboration proactively.

Improvement can be achieved by organizing team-building sessions and connecting with team members to develop a more profound understanding professionally and personally through exercises. An external coach should facilitate these sessions.

Strategy 8 - Minimizing impact of team changes

Team changes are one of the causes of a decreased focus on the collaborative process. They also impact the established level of affective trust and cohesion. To minimize the impact of team changes on the collaborative process, it is proposed to have an onboarding process. Resulting in aligned team

members with the context of the two-phase model, project, and project team, incl. relational aspects. The focus should remain on utilizing the activity by designating responsibility and enforcement. Especially the selection of the tactical layer should include a focus on empathic behavior. An activity to achieve this is the onboarding process.

Strategy 9 - Reestablishing focus on collaboration

In line with strategy 8, strategy 9 focuses on two other causes of a decreased focus on the collaborative process: external influences on the project and team members (either client or contractor) that show traditional behavior. The goal is to reestablish the focus on the collaborative process.

This is possible if both organizations are willing and have an open attitude toward adopting a new way of working by learning from the other organization. Therefore, not sticking open to traditional working methods. This applies to both familiar and unfamiliar organizations. Furthermore, communicating about external factors influencing the project should act as a coping mechanism to result in frustrations and impacting decisions.

6.1.3. The layout of the framework

The layout of the framework is two-dimensional. According to the data, it is important to focus on developing collaboration and empathy from the start of the first phase. After that, it is about maintaining and improving throughout the remainder of the phase. During the remainder of the first phase, the process results in the end products. Therefore, the framework makes differentiates between these two stages: Start of Phase I and Throughout Phase I. The research data suggested for each stage the intended outcome. These outcomes are presented in the framework under *Vision* and resemble the question that should be asked: what do we want to achieve? It is, however, first important to be aware of the starting point to *Prepare* for achieving the goal of that stage. Awareness develops by asking the question: where do we stand? The answer to this question may reflect answers related to a more traditional PDM. When the starting point and intended outcome are established, *Plan* can be used to answer the question: how will we get there?

6.2. Expert evaluation

The conceptual framework is validated with the use of two expert sessions. The first session is used to validate the underlying principles of the framework (proposed in Subsection 6.1.1) and the strategies of the framework based on effectiveness and applicability (proposed in Subsection 6.1.2). During the first session, the attendees were two project managers from a two-phase project from the portfolio of the graduation company. One project manager represented the contractor and one project manager the client. The framework is revised based on the validation. A second validation session is used to validate the revised framework based on effectiveness and applicability. During the second session, the attendee was an external, independent expert who coached the project of the two project managers.

This section first discusses the preparation (6.2.1) and results (6.2.2) of the first evaluation and, after that, the preparation (6.2.3) and results (6.2.4) of the second evaluation.

6.2.1. Preparing the first expert evaluation

The premise was to organize the expert evaluation session with the project managers and the independent expert. However, due to organizational difficulties, the sessions were organized separately. Therefore, the first expert evaluation session was held with two project managers from a project from the portfolio of the graduation company (Table 6.1). One project manager represented the contractor and one project manager the client. The experts were first selected based on their role in a project procured through a two-phase model from the portfolio of the graduation company and, secondly, due to their role in the project. The framework should be used collectively by project managers from both the client and contractor, and therefore the evaluation required this specific role.

The session aimed to validate the correctness of the underlying principles and the effectiveness and applicability of the conceptual framework. The evaluated framework is presented in Appendix F. Next, the procedures that are used to validate both aims are outlined. The session took place via a Teams call. The audio was recorded to increase the reliability of the transcript used for the analysis. The results of the session are presented in the following subsection (6.2.2).

Table 6.1: Overview of experts during the first evaluation session.

Expert	ID	Client/contractor	Role
1	E1	Contractor	Project manager
2	E2	Client	Project manager

Procedure to validate the correctness of the underlying principles

The correctness of the following underlying principles is validated: the criteria that determine the project performance of the first phase, the factors of the collaborative process, the activities used for collaboration and empathy, the influence of empathy on the factors of the collaborative process, and finally, the factors that influence empathic behavior. The validation is performed by presenting the principles to the experts and retrieving whether they recognize and endorse the principles.

Procedure to validate the effectiveness and applicability of the conceptual framework

The validation of the effectiveness and the applicability of the conceptual framework is performed by presenting the nine strategies to the experts. The strategies were presented one at a time. For effectiveness, the experts were asked if they could indicate whether the strategy was able to achieve their goal. Regarding the applicability, the experts were asked if they could indicate whether the plan-level (indicated in red in the conceptual framework) can be used in practice.

6.2.2. Results of the first expert evaluation

This subsection presents the results of the first expert evaluation. First, the correctness of the underlying principles is validated, and after that the effectiveness and applicability of the conceptual framework.

Principle: criteria that determine project performance of the first phase

The criterion that both professionals noticed missing is the goal of the two-phase model, namely risk management. However, both E1 and E2 link risk management to the criteria of time and money (E1) and quality (E2). E1 describes managing risks as "if risks occur, it affects your time and cost. Managing time and money also means managing risks. And then the question is, how do you take this into account?" Additionally, this applies to criteria such as safety, "you are already managing that [in Phase I]. You can also categorize this under quality" (E1). Furthermore, the semantic discussion also touched on whether collaboration is the goal or the means for project performance. E2's comment, "for me, if we score well on those GROTIK components, but the atmosphere is lousy, it has no value to me at all. That falls under the soft side" is in line with the comment of Interviewee 16, where in CS4 collaboration was included as a qualitative criterion.

Based on the validation, it was decided not to explicitly include the proposed criterion of risk management as a criterion for the project performance of the first phase. The argument for this is that both experts indicated that this is focused on managing time, cost, and quality. However, it is recognized that managing these criteria should contribute to the main goal of the first phase, risk management. As for the criterion of collaboration, it was chosen to include it as a factor in the research influencing project performance.

Principle: factors of collaboration

Effort was indeed seen as a factor, especially with a link to trust, which can be implicitly assumed because both organizations are performing the project and are not lagging. The link to trust is made because it is strictly the most essential, and it facilitates the other factors. Expert 2 indicated the importance of trust in the following way: "Trust is essential to the others, so if you were to place them in hierarchy, trust would come in at number one. As a client you don't want to be disadvantaged and as a contractor you don't want all the risks shoved onto your plate. If you know from each other that this is true and it really is, then the rest goes easier. Then there is no hidden agenda behind it. Then communication and cohesion, for example, also go easier" (E2).

Based on the experts' comments, there are no changes in which factors are most essential for collaboration. Therefore, there are no changes in which factors are included in the framework.

Principle: activities used for collaboration and empathy

All activities are recognized as activities for improving collaboration and are also applied in the relevant project. The moments when the activities are applied are also recognized. Below are some other notions that have been addressed:

- Setting up the work environment is emphasized as an important activity. In addition to applying the Project Follow-Up on request, it is indicated that it is executed at least per phase.
- The importance of having the onboarding process working during the beginning of the first phase is emphasized because it otherwise brings discomfort.
- The check-in must be included as a fixed point in the agenda of a meeting to emphasize its importance.
- The collaboration monitor should be applied when team members use the setting to add value.

E1 indicates that the separation between the Project Start-Up and the team building sessions is not seen as strictly formal and informal, "there has also been personal attention during the Project Start-Up" (E1). Furthermore, during the PSU, attention has been paid to the project-specific background and there has not been much attention paid to the organizations. E2 indicated that "more attention should be paid to this, precisely the backgrounds and cultures where we come from. Making this explicit could help" (E2).

E2 indicates that the use of weekly stand-ups to discuss ongoing issues has added value. E1 emphasizes this by stating that "the value of such a stand-up compared to the bi-weekly meetings with your discipline team/core team is that you align the whole team that is involved on a daily basis and that they also hear what is happening in the other teams with which they have no official lines and that increases the involvement in the project" (E1). E2 refers to this as a communication activity. Other communication activities include an internal newsletter that is shared when there are updates and a WhatsApp group.

Based on the validation, no activities are omitted or added to the framework. However, the weekly meeting activity is better emphasized as a activity that contributes to creating a setting where team members between disciplines can be more empathetic towards each other by increasing involvement. Despite both experts indicating that they did not pay attention to organizational aspects within the PSU in their project, they are optimistic about this aspect and will apply it themselves. It became clear that the PSU and team building sessions should be implemented on a project-specific basis, but the PSU is less formal than previously believed.

Principle: the influence of empathy on the factors of the collaborative process

The two experts agreed with the subdivision of factors. However, they emphasized the importance of indicating that it concerns the difference in the "degree of influence of empathy on the factors". They do not necessarily believe that empathy does not influence the coordination and balance of member contributions. Rather, the influence is considered to be of a lesser degree or subordinate.

Approaching the factors in this manner will not change the fundamental principles of the framework. They also pointed out that excluding mutual support due to the subordination of empathy's influence on trust, communication, and cohesion is a reasonable principle.

Principle: the factors that influence empathic behavior

To validate this principle, experts were asked to identify the factors influencing empathic behavior based on an overview that incorporates the factors identified in interviews and literature. This was done because there is a discrepancy between the factors identified by interviewees and those from the literature. E2 emphasized the significance of the factor 'willingness based on the commitment to the project (e.g., level of responsibility)' (Kouprie and Visser, 2009) within the Dutch construction sector, as indicated in the following statement: "We work in the Netherlands in a more informal manner and not as hierarchical in terms of addressing people, but we are hierarchical in terms of behavior and responsibilities. If you do not behave empathically as a core team member, you will get it back hard." (E2). E1 also emphasized the importance of the tactical layer, stating that "how the core team interacts with each other often determines the atmosphere within the team" (E1).

For the framework, the factor mentioned above can be incorporated into the existing factor 'work environment'. The experts indicate that incorporating this factor is appropriate within the work environment factor since it also describes the culture in which the team works. Next, the validation of the conceptual framework in terms of its effectiveness and applicability is presented.

The effectiveness and applicability of the conceptual framework

In general, the experts denoted that the structure and content of the conceptual framework are correct, "what is stated in the framework is correct, but I would advise going one step deeper" (E2) and "I find the division very powerful with prepare, vision, and plan" (E2). This suggests that the strategies were effective but not applicable due to their abstraction level being too high. Therefore, a more operationalized approach is needed to increase their applicability. E2 gave an example, "what do you need to do to get to know the other person better?" According to the experts, only presenting a team-building session is considered too abstract.

The following subsection will go over the preparation of the second expert evaluation that took place with the independent expert from the consulting company, including the changes that have been made based on the results of the first evaluation session.

6.2.3. Preparing the second expert evaluation

The preparation of the second evaluation session consists of modifications to the conceptual framework, the selection of the expert, and the setting up of the strategy for the evaluation session.

Modifications to the conceptual framework

The modifications are either based on the validation of the underlying principles or the validation of the effectiveness and applicability. The change made based on the validation of the underlying principles is related to the activities for collaboration and empathy. Regarding the Project Follow-Up, at least during the transition from one phase to the other, it is recommended to have this session. Furthermore, these could be applied on request. Also, the check-in activity must be included as a routine topic on the agenda of regular meetings. Finally, the weekly meeting activity must be used to increase involvement among the team members of different disciplines.

Changes related to the validation of the effectiveness and applicability mainly focus on improving the applicability. The most significant modification is the addition of guidelines that either provide further explanations or examples. To explain the guidelines, it is first important to address two other changes. 1) The factors enabling empathic behavior and the factors that are most essential to the collaborative process have been detached from the 'throughout Phase I' section. This also holds for maintaining and improving the collaboration and threats to the collaborative process. This change has been made because it turned out that focusing on these factors, activities, and threats is independent of the moment of the first phase. 2) The number of strategies has been reduced from nine (6.1.2) to four (6.3.2). Therefore, there will be more focus on the remaining strategies. Furthermore, it is deemed that focusing on factors, activities, and approaches is not a strategy; however, the focus enables the remaining strategies. Returning to the purpose of the guidelines. As indicated, they provide further explanations or examples of the remaining strategies and focus points (factors, activities, and approaches).

The second evaluation session

The updated conceptual framework is used for the second evaluation session and is presented in Appendix H. The session took place with an external, independent expert who coaches the project of the two project managers. Table 6.2 presents the expert. An external, independent expert has been used because many of the strategies and activities are to be facilitated by such an expert. Additionally, according to the data, two cases already used an external coach. The other two cases used a company coach or a designated team member. Therefore, an evaluation based on the expertise of such an expert was deemed essential.

The session took place via a Teams call. The audio was recorded to increase the reliability of the transcript used for the analysis. The results of the session are presented in the following subsection (6.2.4).

The evaluation concentrated on validating the effectiveness and applicability of the updated conceptual framework. No intended focus is directed to validating the underlying principles as they have been acknowledged without significant implications during the first evaluation session.

Table 6.2: Overview of the expert during the second evaluation session.

Expert	ID	Company	Role
3	E3	Independent external company	Collaboration coach

6.2.4. Results of the second expert evaluation

The subsection will first go over the validation applicability of the updated conceptual framework, followed by the validation of the effectiveness.

Applicability

The evaluation started by asking the expert about the initial impression of the framework. The expert indicated that the framework appears applicable and looks comprehensive and complete. In further detail, the explanation of his statement continued, "Yes, I have the idea that when it comes to my field of work, it describes very well what you can do with it and how to apply it. From my role, I could work with it, and I expect that someone who takes the time to read it carefully will also be able to apply it." (E3)

Subsequently, it was asked whether project managers of a project could apply this framework independently or only with the assistance of an external coach. The response indicated that, in principle, any project manager should be able to apply this framework. However, there are two pitfalls in independently applying such a product. First, "you are part of the system you are in yourself. So, it requires a high level of self-reflectiveness" (E3). Second, "performance and decision-making always seem to have more urgency than reflection (...) as the pressure increases, collaboration is the first thing to slide to the side. While the system should be the opposite, the higher the pressure, the more you should focus on it" (E3). Indicating the reason why external coaches are used as a control measure.

Effectiveness

Next, the effectiveness of the framework was examined. The expert indicated that essentially nothing is missing, and it can be effectively used within a project, "The way you present the framework, I have no doubt that it is comprehensive enough as a handbook and guideline for team formation, team development, and collaboration, to give them a proper place in your project. So, you have done a great job with it." (E3)

The expert was asked about areas for improvement within the framework. It was mentioned that an area to be examined from a content perspective is the missing threat to the collaboration process. This concerns the tendency to downplay problems in collaboration. It was indicated that experience shows that these small signals of problems should be magnified by stating, "I believe the most significant threat to teamwork is not acting on the early signals. Projects go wrong when conflicts are resolved when you no longer have time, space, or resources left." (E3)

In addition to this content-related comment, two contextual issues are addressed. The first point concerns the project manager who uses the framework. The expert indicates that for the effective use of the framework, it is essential that the project manager reflects on their empathic ability and identifies their strengths and weaknesses regarding this topic. The project manager must be aware of the role model and exemplary behavior that comes with the position. The expert states this should prevent the framework from being applied as a step-by-step plan. The following statement illustrates the importance of the project manager to the effectiveness of the framework. "This will have a significant impact on how you fill in and shape the entire framework in terms of content, form, and manner, and how much effect it will have. You can do all of this, but depending on the project manager, you will get a very different process and dynamics." (E3)

The second point concerns the outcome of the framework. "If collaboration is still going well in the first phase, how do we create conditions that will continue in the next phase? This is a crucial aspect for the first phase" (E3). To increase the effectiveness of the framework, the utilization should result in a product that describes how the goal of the framework can be carried forward to the second phase to avoid losing the added value. This should be a focal point to focus on during the application of the framework at the beginning of the first phase.

Lastly, it was validated whether the framework adequately addresses the components of empathy. The expert indicated that it is essential to focus on both components, particularly the affective component, based on the following statement, "You should understand each other's interests, but the most important thing is that you should always be in a position where you want to serve the interest of the other party. So, if you're struggling with your finances, stakeholders, planning, or content (...), regardless of who is contractually responsible and what type of contract you have, you should always be able to trust and feel 'I see that as my issue too' and 'you should create mutual interests'." (E3)

The next section will present the final framework based on the input from this evaluation session.

6.3. Final design of the framework

This section will present the final framework. The notions from the second evaluation session about the updated conceptual framework are processed (6.3.1). Subsection 6.3.2 will present the strategies included in the final framework together with the necessary focus on the most essential factors for the collaborative process, factors that enable empathic behavior to prevail, and threats to the collaborative process.

6.3.1. Modifications to the conceptual framework

The second evaluation adopts the proposed substantive notion about the threat entailing downsizing small issues to the collaborative process. This threat mentioned by the expert corresponds to a notion indicated by Interviewees 6 and 8 during the interviews about the possible downside of the extensive client-contractor collaboration. The two-phase model should not cause a setting where team members no longer speak out, and "the collaboration should not be glossed over; it should not just be one happy place" (I6,8). The second contextual notion about the importance of extending the established collaboration into the second phase is indicated by Interviewees 3, 4, and 15 during the interviews. The two contextual notions are not directly included in the framework. Still, they are included in the context in which the framework must be used. However, because there is only limited data available, it is recommended to conduct further research into these notions.

6.3.2. Strategies

Strategies to use the relationship between the competence of empathy and client-contractor collaboration can be developed to affect performance during the first phase of the two-phase model. The principles are the foundations of the strategies. Therefore, the strategies are based on the research findings. Throughout this subsection, each strategy is explained, as how the principles are used and the aim of the strategies.

From the start and throughout the remainder of the first phase, there must be awareness of the factors that enable empathic behavior and the collaborative process. Within the factors, a distinction can be made between those facilitating empathic behavior and those essential for collaboration. The strategies cannot be implemented without considering these factors.

Finally, to ensure the process, there must be a focus on maintaining and improving the client-contractor collaboration. This is possible through the prescribed activities in the framework. Additionally, to prevent and minimize the impact of harm on the collaborative process, the threats to the collaboration must be considered throughout the first phase.

Strategy 1 - Develop an understanding

The first strategy focuses on building understanding from the beginning of the first phase. Part II showed that this understanding was lacking at the start of Phase I. Building on this, it appears that this understanding must be built on both the team member and organizational levels. At the team member level, there is a need to understand other team members' interests, culture, issues, and behavior. Interviewees indicated that this could be achieved through activities such as team-building sessions and the design of the work environment. The goal of this strategy is to apply the developed understanding of one's behavior and to take it into account in decision-making, thus considerably taking other team members into account.

At an organizational level, there is, from the start, a lack of understanding of the other organization's interests, culture, and work processes. The importance of understanding increases with increasing unfamiliarity, also known as an increasing design challenge for the contractor. According to the interviewees, this understanding can be formed by organizing a Project Start-Up. This gained an understanding of the other organization contributes to increased motivation and ability to support. Furthermore, both organizations can learn from each other.

Based on Part II, the competence of empathy can contribute to the development of understanding by gaining insight into the why behind topics such as the effect of one's own decisions on team members, the causes of certain behaviors of team members, how to approach team members, why certain processes are important for the other organization, what someone from the other organization needs to perform their tasks, and what is personally and organizationally at stake. Interviewees indicated that understanding is especially important at the tactical layer and between the counter partners of the client and the contractor.

By following this strategy, both on the team member level and on the organizational level, it is about creating an understanding at the beginning of the project to improve behavior, decision-making, and collaboration. Empathy is crucial for facilitating this understanding, and activities like team-building sessions and a Project Start-Up must be used.

Strategy 2 - Focus on the process leading to the end product

The strategy is to implement a focus on the process leading to the end product instead of a focus on the end product. The outcome of this shift is twofold: 1) achieving improvement of the performance criterion quality and 2) facilitating an improved perception of the criteria of time and cost.

The first outcome, improving the performance criterion quality, is possible by focusing on the process where the end product is implicitly satisfactory if it results from a satisfactory process. If the process is unsatisfactory, the client and the contractor know the causes. The mutual process will increase the ease of managing the adverse impacts and leading to mutually supported products, including a reduction in revisions of the products. The second outcome, facilitating an improved perception of the criteria of time and cost, leads from the first outcome. Because both organizations know the process leading to the product. The plan to arrive at the outcomes is to.

- Understand and consider each other's interests: Both organizations should communicate their expectations and goals and understand each other's interests to achieve a common goal.
- Actively involve both organizations in the design process: Both organizations should be actively involved in the design process to ensure that the product meets the requirements and expectations of both parties.
- Make design choices collectively based on a decision-making process based on collective responsibility: Decisions should be made collaboratively based on collective responsibility to ensure that all interests are considered.
- Use integral design studios: Integral design studios should be utilized to facilitate a collaborative design process. The studios should provide a space where both organizations can work together to develop the product, share ideas, and provide feedback on design choices.

By following this strategy, both organizations can work together to achieve a common goal, resulting in a satisfactory process that improves the performance criterion quality and facilitates an improved perception of the criteria of time and cost.

Strategy 3 - Focus on shared responsibility

The strategy aims to achieve a shift towards shared responsibility between the client and contractor in the design process, where both organizations contribute to the development of products by including their expertise and partially shifting non-contractual liability from the contractor to the client. Facilitated through empathy due to its influence in developing affective trust and cohesion, fostering the needed trust and collaborative feeling to enable this shift. The result of the strategy is an increased performance of the performance criterion quality through a design that is integral to the interests of both organizations. This could be achieved through the following procedure.

- Establish a culture of shared responsibility between the contractor and client.
- Deviate from the strict acceptance procedure of the client and instead focus on collaboration and collective decision-making. This will allow for more input from both organizations and a design based on both parties' interests.
- Utilize the expertise of both organizations by involving both organizations in the design process.
- Make design choices collectively based on a decision-making process emphasizing collective responsibility. This will help ensure that all parties are invested and that decisions are made in the best interests of both organizations.
- Use integral design studios that promote collaboration and facilitate collective decision-making. This will help to ensure that the project is completed on time, on budget, and to the satisfaction of all stakeholders.

By implementing this strategy, the project can achieve improvement the performance criterion quality, shifting non-contractual liability from the contractor to the client, and creating an integrated design based on the interests of both organizations.

Strategy 4 - Allowing flexibility in criteria

This strategy aims to allow flexibility in the boundary conditions of the criteria of time and cost, allow design loops to iterative balance the performance criteria of time, cost, and quality, and allow optimizations by utilizing the expertise of the other. The result is an improved perception of the criteria time and cost. Empathy contributes by improving feelings of trust and cohesion needed for the attitude toward flexibility. To achieve these aims, the following must be considered.

- Allow for scope freedom: Utilizing the expertise of the other organization to optimize the criteria of time and cost. This may already start in preliminary dialogue sessions.
- Proactive information sharing: Provide the other organization with information. It enables empathic behavior and develops a mutual understanding of why the end product developed as it did.
- Use design loops: Allow uncertainty in the boundary conditions to iterative reduce. Important is a focus on the process and trust in the other organization. The outcome is a balance between time, cost, and quality.

The strategy aims to improve project outcomes by facilitating an improved perception of the criteria of time and cost through the vision where a degree of uncertainty in the boundary conditions of the criteria is accepted, and optimizations by involving the other organization's expertise are embraced.

6.3.3. Applying the framework

Applying all strategies throughout the first phase, considering all proposed factors, maintaining and improving the collaboration, and minimizing all threats will generate the most significant outcome, i.e., increased performance in the first phase. However, it is optional to apply the framework in its entirety to improve performance. Figure 6.1 presents a simplified overview of the framework. For the factors enabling empathic behavior and the collaborative process, the threats to the collaborative process, the strategies, and maintaining and improving the collaboration is indicated if and when they should be applied.

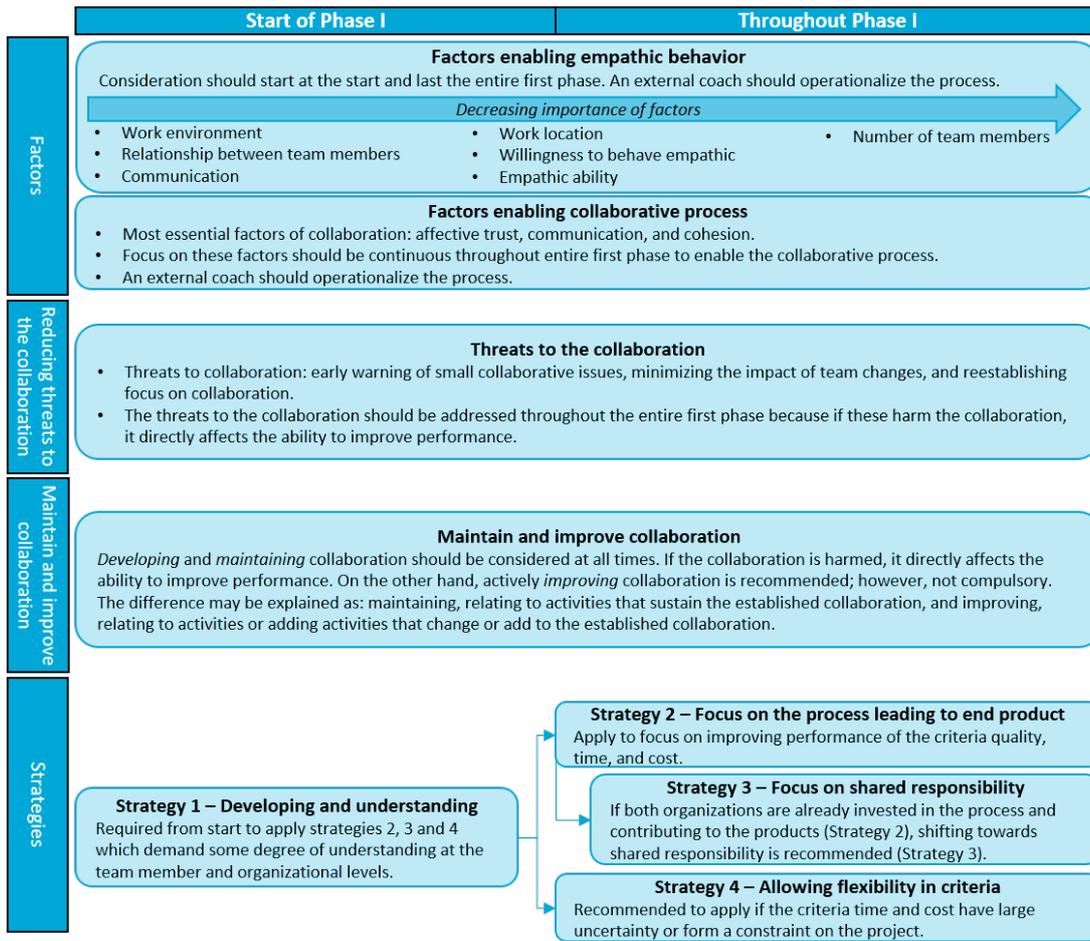


Figure 6.1: Simplified framework overview.

6.4. Conclusion of the framework

Two project managers have validated the initial framework from a two-phase project from the portfolio of the graduation company. One project manager represented the contractor, and one project manager the client. Furthermore, the framework has been validated by an external, independent expert who coaches the project of the two project managers. The validation went over the effectiveness and applicability of the framework. The outcomes of the validation are processed into the final framework. The answer to subquestion 4 is provided below based on the final framework.

It appears that empathy can influence the project performance of the first phase of a two-phase model through client-contractor collaboration. The influence of the competence of empathy should be utilized from the start of the first phase. In this part of the first phase, the focus should be on developing understanding at both the team member and organizational levels facilitated by empathy to improve client-contractor collaboration. From the start of the first phase to the end of the first phase, products are developed. During this process, the focus is on the process that leads to these products, sharing responsibility and allowing for a degree of flexibility in the criteria that determine the performance of the first phase. Within this focus, it is possible to use the developed understanding to increase the performance of the quality criterion and improve the perspective on the time and cost criteria.

During the start of the first phase, emphasis should be placed on creating an environment in which empathic behavior can surface by focusing on factors that can facilitate this. This results in facilitating empathic behavior to create understanding. Furthermore, there should be a focus on building affective trust, cohesion, and communication. This is both an aim and a means to improve collaboration, as em-

pathy can influence these factors, and affective trust and communication factors can facilitate empathic behavior. Throughout the rest of the first phase, it is important to maintain this focus on both aspects. Maintaining and improving the developed level of collaboration and empathy is essential, which can be achieved by applying activities. Activities also serve as coping measures for threats during the first phase.

The following pages present a framework that enables steering empathy to influence the project performance of the first phase of a two-phase model through client-contractor collaboration. The framework is meant to be used collectively by the client and contractor project managers. Two important notions are first for the project managers to reflect on their empathic abilities and consider how empathic behavior must be used to understand, not just use this framework as a mandatory activity. Secondly, while using the framework, there should be consideration about how to extend the outcome of the framework into the second phase.

	Start of Phase I – Invest and develop a collaborative process	Throughout Phase I – Product development based on the collaborative process
Prepare Where do we stand?	<ul style="list-style-type: none"> • Team member level: limited understanding of team members' interests, culture, issues, and behavior. • Organizational level: limited understanding of other organizations' interests, culture, and work processes. The importance of understanding increases with increasing unfamiliarity. • No focus on the fundamental basis of the collaborative process and the factors that influence empathy 	<ul style="list-style-type: none"> • Focus on the end product instead of the process leading to the end product: not able to improve the performance criterion quality and facilitate an improved perception of the criteria of time and cost. • No focus on shared responsibility: not able to improve the performance criterion quality. • Not allowing flexibility in the criteria: not able to facilitate an improved perception of the criteria of time and cost
Vision What do we want to achieve?	<p>1) Developing an understanding</p> <ul style="list-style-type: none"> • Team member level: an understanding of the other team members' interests, culture, issues, and behavior through empathic behavior. Include this understanding into one's own behavior and into consideration during decision-making. Improved ability to support, let others flourish, and build relationships based on a deeper connection improves the collaborative feeling. • Organizational level: developing an understanding of other organizations' interests, culture, and work processes through empathic behavior. Increasing the motivation and ability to support through understanding the other organization. Both organizations can learn from each other. Include this understanding into one's own behavior and into consideration during decision-making. • Focus on the fundamental basis for the collaborative process: trust, communication, and cohesion. • Focus on the factors influencing empathic behavior: work environment, including work location, communication, empathic ability, relationships between team members, willingness to behave empathic, and the number of team members. 	<p>2) Focus on the process leading to the end product</p> <ul style="list-style-type: none"> • Improving the performance criterion quality. The end product is implicitly satisfactory if it results from a satisfactory process. If the process is not satisfactory, then the causes are known, and these are manageable due to the mutual process. Developed products are mutually supported, including a reduction in revisions. • Facilitating an improved perception of the criteria of time and cost. The perception is improved because both organizations know and understand the process leading to the product. <p>3) Focus on shared responsibility</p> <p>4) Allowing flexibility in criteria</p> <p>Facilitating an improved perception of the criteria of time and cost. Accepting a degree of uncertainty in the boundary conditions of the criteria is essential for the perception. Allowing optimizations by involving the other organization's expertise.</p>
Plan How will we get there?	<p>1) Developing an understanding</p> <p>Level: team member Activity: team building session¹ Goal: understanding interests, culture, issues, and behavior through sharing and retrieving underlying motivations and feelings, i.e., the why. Result: include this understanding into one's own behavior and consideration during decision-making. Points of attention: important on the tactical level, especially between client and contractor counter partners. Facilitated through external coaching. Include the development of trust and cohesion and consider the communication style. Facilitate a non-working environment during the session (informal).</p> <p>Level: organizational Activity: Project Start-Up² Goal: improving understanding and creating awareness of the other organization, their cultures, working methods, core values, project goals and objectives, and interests through sharing and retrieving underlying motivations, i.e., the why. Result: increasing the motivation and ability to support the other organization. Include this understanding into one's own behavior and consideration during decision-making. Points of attention: important on the tactical level. Facilitated through external coaching.</p>	<p>2) Focus on the process leading to the end product</p> <ul style="list-style-type: none"> • Understand and actually consider and carry out each other's interests. • Both organizations should be actively involved in the design process. • Make design choices collectively through a decision-making process based on collective responsibility. • Use integral design studios to facilitate the process. <p>3) Focus on shared responsibility</p> <ul style="list-style-type: none"> • Deviate from the strict acceptance procedure of the client. • Use the expertise of both organizations. • Make design choices collectively through a decision-making process based on collective responsibility. • Use integral design studios to facilitate the process. <p>4) Allowing flexibility in criteria</p> <ul style="list-style-type: none"> • Allow for scope freedom. • Allow the other organization their expertise for optimization. • Allow design loops to iteratively balance the performance criteria of time, cost, and quality.
Factors enabling empathic behavior and the collaborative process	<ul style="list-style-type: none"> • Working environment, including work location³: create an environment that fosters openness, ability to ask questions, and reveal vulnerability. Influences the extent of empathic behavior in team members • Communication⁴: communication is an aim and means. An aim by awareness of the communication style from the start on team member level and selective communication throughout the organizational layers. A means to facilitate empathic behavior through the communication style and the actual communication taking place in the team. Empathy improves information sharing among members. • Empathic ability⁵: influences the extent to which team members can behave empathic based on personal experiences. The importance increases with unfamiliarity in project phase or delivery model. • Trust⁶: establishing trust from the project's start is considered most essential for the collaborative process. It must be present at all organizational layers. It must remain a topic of discussion, even if not present. Empathic behavior facilitates understanding of each other's motivations and circumstances. 	<ul style="list-style-type: none"> • Relationships between team members⁷: some connection between team members is necessary to behave empathic. Establishing trust is a prerequisite. This connection is especially important on the tactical layer. • Willingness to behave empathic⁸: willingness to engage in empathic behavior on the team member level depends on two aspects: 1) one must be willing to express empathic behavior and position oneself vulnerably. 2) Receiving empathic behavior stimulates exhibiting the same behavior. At the organizational level, it is about the willingness to deviate from strictly following contractual provisions and allow for empathy in the process. • The number of team members⁹: the effect of group size should be considered for the effectiveness and outcome of the empathic behavior. • Cohesion¹⁰: important to invest and work on creating cohesion from the start of the project to increase the sense of collaboration. It must be maintained throughout the project by keeping the focus on the team aspect.
Maintain and improve the collaboration	<ul style="list-style-type: none"> • Activity: Project Follow-Up + collaboration monitor¹¹ Goal: measure compliance with the objectives, incl. collaboration goals set during the PSU. Result: improved compliance with the objectives through steering. Resolving issues in the process. Improved collaboration and ability to behave empathic, Points of attention: facilitated by an external coach. Recurring periodically. 	<ul style="list-style-type: none"> • Activity: check-in during meetings¹² Goal: understanding day-to-day issues and circumstances. Result: include this understanding into one's own behavior and consideration during decision-making. Points of attention: start with focus on members. Include in agenda. • Activity: Team (building) sessions¹³ Goal: maintain and improve the collaboration. Result: a maintained and improved collaborative process through active steering. Points of attention: facilitated by an external coach.
Reducing threats to the collaboration	<ul style="list-style-type: none"> • Early warning of small collaborative issues¹⁴ Goal: address the small collaborative issues. Result: having the conversation about the issues at the correct moment before there is no time, money, etc., to resolve the issue. Points of attention: the work environment must allow and accept openness. • Minimizing the impact of team changes through onboarding activity¹⁵ Goal: minimizing the impact on the established level of trust and cohesion. Result: aligned team members with the context of the two-phase model, project, and project team, incl. behavioral aspects. Points of attention: focus must remain on utilizing the activity by designating responsibility and enforcement. Especially the selection of the tactical layer should include a focus on empathic behavior. 	<ul style="list-style-type: none"> • Reestablishing focus on collaboration¹⁶ Goal: reestablish focus on the collaborative process during traditional behavior and external influences. Result: focus on the collaborative process and, therefore, a smoother performing first phase. Points of attention: communication at both organizations throughout the entire first phase is essential to reestablish the focus on collaboration.

#	Topic	Practical use during the collaborative process	Points of attention
1	Team building session	<ul style="list-style-type: none"> The session is considered an informal activity. Getting to know each other in a non-working (external) environment while performing varying activities/exercises. Many different formats are possible for this session. Getting to know the person behind the team member. Important on the tactical layer, especially between client and contractor counter partners. <p><u>External coach</u>: keeps the focus on the collaborative process and should determine the actual content of the session.</p>	<ul style="list-style-type: none"> Focus must remain on the informal setting. Focus on the development of trust and cohesion. Create awareness on communication Physical interaction
2	Project Start-Up	<ul style="list-style-type: none"> The Project Start-Up is considered a formal and informal activity. The formal aspect of the activity deals with the project-specific background and project objectives. Informality deals with explaining the organization's backgrounds, such as cultures, work processes, and interests. <p><u>External coach</u>: keeps the focus on the collaborative process and should determine the actual content of the session.</p>	<ul style="list-style-type: none"> Essential at the tactical layer Understanding is developed through physical interaction between organizations.
3	Work environment, including work location	<p><u>Establishing and maintaining this environment should be based on the following approach and activities:</u></p> <ul style="list-style-type: none"> Proactively share to allow the other to understand one's interests and explain why certain aspects are important for one's roles in the project or due to organizational interests or circumstances. Collaboration monitor¹¹ to periodically evaluate the established work environment. Weekly starts¹³ to discuss the day-to-day practicalities in the work environment. 	<ul style="list-style-type: none"> The tactical layer is responsible for determining the actual work environment and must radiate this toward the operational layer.
4	Communication	<p><u>Communication must be used in the following manners to facilitate empathic behavior related:</u></p> <p>1) Communication style should be low-threshold, open, transparent, and objective. Eliminating personal accusations and being aware of someone's character (e.g., sensitive to words or reacting emotionally) using conscious words. <u>Approach</u>: awareness of the communication style should always be present.</p> <p>2) Proactive information sharing</p> <ul style="list-style-type: none"> At least include formal and informal information and feelings (entail issues and the impact and why you do certain things the way you do them); therefore keeping information to yourself must be avoided. Furthermore, talking about empathy can create the feeling that someone is being heard, resulting in building trust. <u>Approach</u>: engage during regular work practices; group size should be small. Information sharing is important to keep team members informed throughout all organizational layers. This task is especially important for the tactical layer. <u>Activity</u>: weekly starts¹¹, monthly updates¹¹, or WhatsApp groups¹¹. Finally, the formalization of communication influences empathic behavior. Starting meetings in an informal manner creates room for empathic behavior. <u>Activity</u>: check-in during regular meetings¹². Informal communication related to one's personal life is an important facilitator. 	<ul style="list-style-type: none"> Throughout the first phase, communication must remain open and transparent, incl. a focus on the communication style to facilitate empathic behavior.
5	Empathic ability	<p><u>Increasing the team members' ability to behave empathic is possible in the following manners:</u></p> <ul style="list-style-type: none"> Increasing an understanding of the other individual and organization's culture, interests, goals and work processes. <u>Activity</u>: team sessions¹³, by discussing and practicing real-world scenarios to increase someone's experience. Select team members with experience related to the two-phase or relation-based project delivery models. <u>Activity</u>: onboarding of team members¹⁴ Someone's ability will increase naturally over time by performing the first phase. 	<ul style="list-style-type: none"> Selection of team members is especially important at the tactical layer.
6	Trust	<ul style="list-style-type: none"> Trust must be built at all layers of the organization. Building trust must start from the beginning of the phase through activities such as team-building sessions¹ and Project Start-Up². Must be maintained throughout the first phase through activities such as team (building) sessions and onboarding¹⁴. <p><u>External coach</u>: must determine the actual operationalization.</p>	<ul style="list-style-type: none"> Trust is fragile and takes time to develop; however, it can disappear quickly. Consistency in showing empathic behavior is important for creating and developing trust.
7	Relationships between team members	<p><u>Practically this relationship should be achieved through the following:</u></p> <ul style="list-style-type: none"> Team (building) sessions¹³ should be used to build a relationship when there is no former experience or to improve the existing relationship between team members. Informal communication relating to topics to facilitate the connection, such as domestic, financial, or health-related achievements and problems. 	<ul style="list-style-type: none"> This connection is especially important on the tactical layer.
8	Willingness to behave empathic	<p><u>Increasing willingness is based on the following activity:</u></p> <ul style="list-style-type: none"> Team (building) sessions¹³ to build on the relationship between team members because this seems important to behave empathic. Increasing the level of trust and familiarity will make it easier to be vulnerable. 	<ul style="list-style-type: none"> The willingness of the strategic layer is less relevant because, at this layer, the stakes of the mother organization weigh heavier. Therefore, less empathic behavior is expressed and needed.

9	Number of team members	<p><u>Practically one should consider the following regarding the number of team members:</u></p> <ul style="list-style-type: none"> • The tactical layer can and should focus on a relatively large group because this layer manages the project team. • The operational layer should engage with a relatively smaller group due to their role in the project. 	<ul style="list-style-type: none"> • The effectiveness and outcome of empathic behavior generally increase with decreasing group size.
10	Cohesion	<ul style="list-style-type: none"> • Investment is necessary from the start of the project and must be maintained throughout the first phase. • Activities such as team (building) sessions¹³ are used to develop and maintain the collaborative feeling. 	<ul style="list-style-type: none"> • The emphasis must be on working as one team toward one common goal.
11	Project Follow-Up, incl. collaboration monitor	<ul style="list-style-type: none"> • The PFU monitors whether the project still complies with the objectives set during the PSU, including the goals regarding collaboration, specifically the core values. • It offers the possibility to talk about the established collaborative process based on the results of the monitor. <p><u>External coach:</u> facilitates applying, processing, and discussing the collaboration monitor.</p>	<ul style="list-style-type: none"> • The tactical layer monitors compliance with the project objectives. • The collaboration is monitored at both the tactical and operational layers.
12	Check-in during meetings	<ul style="list-style-type: none"> • First, focus on the team members, e.g., how everyone is feeling and whether there are any issues, and second on the actual content of the meeting. 	<ul style="list-style-type: none"> • Include this check-in on the agenda of the meeting to prevent negligence.
13	Team (building) sessions	<p><u>The activity can have many different formats:</u></p> <ul style="list-style-type: none"> • Team sessions at an external location (hei sessie): the content of the session could be to take each other through situations or challenges that someone faces in his or her role. The person describes whether and how that leads to problems and/or which dilemma you find yourself in. The other participants think along and hear the kind of challenges someone faces from his or her role and gain understanding. Work-related scenarios are also used to practice. This activity should at least be used at the tactical layer during the first phase. When this scenario occurs during the actual project, through experience and practice in a safe setting, one is less likely to fall back into traditional behavior. Experience allows to empathize more easily and choose a different response. <p><u>Examples:</u> campfire sessions, having dinner, or active activities.</p> <p><u>External coach:</u> keeps the focus on the collaborative process and should determine the actual content of the session.</p> <ul style="list-style-type: none"> • Collaboration sessions: on request, discussing what a certain situation is doing to someone or what someone is struggling with. Or indicate what is bothering someone. <p><u>External coach:</u> could have periodic sessions with the (counter partners of) the tactical layer to monitor the relation.</p> <ul style="list-style-type: none"> • Weekly: discuss one core value through interactive activities with the entire team each week. A communication activity to align both the tactical and operational layers with what is going on in other teams with which they do not have direct lines. This increases the involvement in the project and creates understanding for each other. • (Monthly) update: communication activity to share information among both the tactical and operational layers to catch up with the progress of the project. This increases involvement in the project among team members. • WhatsApp groups: narrow-oriented communication activity to share and inform about day-to-day updates. • Having a drink after work: creating a more profound understanding of the person behind the team member. 	<p>Team session (hei sessie)</p> <ul style="list-style-type: none"> • Coach each other after the session on traditional behavior. • Understand that each team member has different empathic abilities. • Focus on the empathic ability of tactical layer because they have a role in the project where interests meet, alignments are needed, and trade-offs must be made. • Focus on maintaining and improving trust and cohesion. <p>Collaboration session</p> <ul style="list-style-type: none"> • Important to have the session in small groups or between two people to increase the effectiveness and outcome. <p>Communication activities</p> <ul style="list-style-type: none"> • Maintain involvement in the project to ensure cohesion. • Being informed facilitates empathy.
14	Early warning of small collaborative issues	<ul style="list-style-type: none"> • Discuss small collaborative issues when they arise through activities such as weekly meetings¹³ or collaboration sessions¹³ <p><u>External coach:</u> could initially facilitate the process if team members do not feel comfortable or have trouble with identifying.</p>	<ul style="list-style-type: none"> • Resources are initially available to resolve the issue. These resources could be time, money, or team members. Ultimately, these resources do not suffice if the issues increase
15	Onboarding of new team members	<ul style="list-style-type: none"> • Align new team members by sharing <u>why and how a two-phase model</u> is applied in this project, the <u>project-specific information</u> (the project context, what is expected from the new team member, and what the team has already accomplished), and <u>behavioral aspects of the project team</u> (e.g., communication styles). • The strategic layer should be involved in the process to prevent the layer from imposing team members that do not fit. The layer should understand the importance of the onboarding process and the project team's needs. The tactical layer is responsible for establishing the understanding. 	<ul style="list-style-type: none"> • Focus must remain on utilizing the activity by designating responsibility and enforcement. • Especially the selection of the tactical layer should include a focus on empathic behavior.
16	Reestablishing focus on collaboration	<ul style="list-style-type: none"> • Both organizations should be willing and open to adapting this way of working by learning from the other party and not sticking to traditional working methods. The cause applies to both the familiar and unfamiliar project phases. • Communication about external factors influencing the project should act as a coping mechanism to resulting frustrations and impactful decisions 	<ul style="list-style-type: none"> • Communication at both organizations throughout the first phase is essential to reestablish the focus on collaboration.

7

Discussion

This chapter will review the interpretation of the research findings by comparing them to the existing literature (7.1). After that, the validity of the research is discussed (7.2), and finally, the limitations of the research are presented (7.3).

7.1. Interpretation of the research findings

This section provides a critical reflection and interpretation of the research findings in light of the research questions by comparing them to the existing literature. Starting with the relationship between client-contractor collaboration and project performance (7.1.1), followed by the relationship between empathy and client-contractor collaboration (7.1.2), and finally, the relationship between empathy and project performance (7.1.3).

7.1.1. Relationship between client-contractor collaboration and project performance

The literature that examines various procurement models, such as Early Contractor Involvement and mainly the two-phase model, shows that collaboration between the client and the contractor plays a role in achieving performance in the first phase (Bresnen and Marshall, 2000; Hoegl and Gemuenden, 2001; Patel et al., 2012; Suprpto, 2016). The research findings suggest that client-contractor collaboration can contribute to achieving project performance in the first phase of the two-phase model. This can be achieved by using collaboration as a factor in the first phase. The following discussion will review the data underlying these findings.

The data shows that the criteria of cost, time, and quality determine the performance of the first phase. A large proportion of the interviewees that indicated that cost and quality are important criteria represent CS4, and this is due to project-specific circumstances. As a result, these contributions are less reliable for determining the criteria for project performance. Nevertheless, the three criteria remain the most frequently cited for determining project performance even when neglected. Depending on the implementation of the criteria, they determine the performance of solely the first phase, or they can be used for both the first and second phases. An example related to the criterion quality would be as follows. In the first phase, the criterion can indicate

Because of the research model used, it was implied that collaboration would be considered a factor for project performance. The research data supports collaboration as a factor rather than a criterion by 10 out of the 16 interviewees. Apparent are the underrepresented interviewees from CS2. This might have two causes, first is related to the project characteristic 'form of collaboration' where CS2 is characterized by a coordinated collaboration compared to the other cases. Therefore, working with more clearly divided tasks and roles and the teams coordinate but remain separate. The second cause is associated with a reduced focus on collaboration in the process due to external factors hampering the project. Based on the results, the most contributing cause cannot be appointed.

The link Westerveld (2003) established between result areas (i.e., success criteria) and organizational areas (i.e., success factors) permits collaboration to be a factor in the Leadership and Team area. The findings indicate that collaboration as a factor contributes to achieving both task-related criteria,

namely cost, time, and quality, and people-related outcomes, such as the enjoyment of work (Hoegl and Gemuenden, 2001). The task-related outcomes relate to the Project results area and people-related outcomes to the Appreciation by project personnel area (Westerveld, 2003).

The data indicates affective trust, communication, and cohesion as the most essential factors of collaboration. Mutual support, coordination, and member contribution balance are important. Effort is shown to be less important for collaboration. The classification is based on interviewees' statements and is shown in Appendix D. The classification indicates the order of focus that project managers should have to improve the quality of teamwork. Comparing the results to the literature, it becomes clear that except for the factor cohesion, the other factors are in line with the results from Hoegl and Gemuenden (2001). Communication ranks as most important, followed by mutual support, balance of member contributions and coordination, effort, and cohesion. Affective trust (Suprpto, 2016) is not included in the author's research; however, based on the data, this is believed to be the most important factor for collaboration. Cohesion ranked lowest in the research of the author. However, the research does not provide any substantiation of the scores. Gully et al. (2012) indicates that the relationship between cohesion and project performance seems to increase with increasing task interdependence in terms of the necessity for coordination, communication, and collective performance monitoring (Gully et al., 2012). Related to the two project characteristics of the research, task interdependence increases with an increasing design assignment of the contractor and an integrated collaboration. Furthermore, interdependence also increases when the number of team members or disciplines increases. These aspects might explain the relatively high score on the factor cohesion in the first phase of the two-phase model compared to the research of Hoegl and Gemuenden (2001).

Collaboration was investigated based on the seven factors that encompass collaboration for this study (Hoegl and Gemuenden, 2001; Suprpto, 2016). Based on the literature, these factors can be used to evaluate the quality of the collaborative process. They relate to one of the two aspects of the success of the work according to Hoegl and Gemuenden (2001), namely, how well team members collaborate to achieve successful work. The second aspect of the success of work, and thus not investigated, is the quantity and correctness of the delivered work. Therefore, factors that contribute to achieving the quantity of work (e.g., what task strategy or activity is used) and what is required to achieve certain correctness (e.g., the quality of the task performed) (Hoegl and Gemuenden, 2001) have not been investigated in this research. The quantity of work might affect the efficiency of the process and is consequently related to finishing the project on time. The correctness of work might affect the overall quality of the project. However, these two types of factors are, among others, dependent on organizational standards and are therefore organization specific.

The literature distinguishes between two types of trust, cognitive and affective trust. The affective component is based on the feelings developed by the other person's degree of concern and interest in a team member, resulting in trust. This type of trust is based on emotions rather than the knowledge-driven cognitive component of trust that relies on confidence in competence and reliability (Johnson and Grayson, 2005). The data suggest that trust in the project is more related to the affective component rather than the cognitive component because understanding each other, including each other's interests, and getting to know the team members are essential for developing trust.

7.1.2. Relation between empathy and client-contractor collaboration

Based on the research findings, empathy facilitates the development of understanding at the team member and organizational levels. The literature on the competence of empathy addresses the components of competence, specifically, the cognitive, affective, and behavioral components. The cognitive component is involved in creating an understanding of feelings (Cuff et al., 2016). The affective component is involved in experiencing emotion (Cuff et al., 2016) and the feelings of the other (Chiu et al., 2011). The behavioral component displays an understanding of the perceived feelings (Chiu et al., 2011). This behavior may present itself in someone's attitude, as a skill ((non)verbal or listening), or as actionable behavior (Shapiro, 2002). Relating the components to the outcome of the competence in the collaborative process is feasible by linking the cognitive component to the understanding of each other's, e.g., interests, linking the affective component to the emotional reaction in the other person's interest and making it your own, resulting in sincere involvement, and the behavioral component to action-related behavior, e.g., actual consideration during decision-making. All three components are important for the team member and organizational levels. It may however be argued that the extent of sharing the affective component depends on the organizational layer. Self-other differentiation, or a

sense of agency, is important to prevent emotional contagion (Decety and Lamm, 2006). Hojat et al. (2002) proposes differences in expressing the affective side, and therefore emotion, during empathic behavior. From a practical point of view, expressing understanding may be more important at the strategic layer than expressing emotions because of the high stakes of the mother organization in the project.

Empathic behavior is, according to the data, influenced by factors, such as someone's willingness to behave empathic and overall ability to behave as such. The following points should be addressed when comparing the factors from the data, as discussed in Section 5.3, to what is established in the literature.

The factors related to someone's willingness (Kouprie and Visser, 2009) and ability (Kouprie and Visser, 2009; Decety and Lamm, 2006) match with the data. The factor of someone's willingness, especially personal connection, is important in the tactical and operational layers, and commitment to the project is more critical in the tactical layer. The data does not confirm the aspect of willingness related to the personal setting of the team member. Based on the data, practical factors such as communication and establishing an appropriate work environment, including work location, are added to facilitate empathic behavior.

The data suggests that empathy is especially effective and has the most significant outcome if exercised interpersonal, moreover, between two people or a small group. Exercising empathic behavior does, to a lesser extent, surface among the whole team because there is a need for a connection to behave empathically. Interestingly, Akgün et al. (2015) introduced collective empathy, indicating the collective empathic state of team members within the team. This type of empathy is dependent on cognitive-based trust, formal communication, and team member familiarity (Akgün et al., 2015). Data can substantiate the factor of formal communication by allowing team members to be informed through activities. Examples are weekly and monthly meetings and newsletters that facilitate an environment to behave empathically. However, team member familiarity would not necessarily contribute to creating a collective empathic state within the team as Akgün et al. (2015) states, "when people know each other from previous projects, they are empathically attuned, emotionally responsive, authentically present, and open to change" (Akgün et al., 2015). Therefore this may relate to interpersonal relations between team members rather than among the entire team. Based on earlier discussion, affective trust seems more relevant than the cognitive-based counterpart.

7.1.3. Relation between empathy and project performance

The strategies proposed in the framework relate to developing an understanding on the team member and organizational levels, focusing on the process leading to the end product, focusing on shared responsibility, and allowing flexibility in criteria. The data suggest that the development of understanding on both the team member and organizational levels must include the obtained understanding into one's behavior during decision-making. This strategy asks for emphasis on the components of empathy. The cognitive component facilitates the ability to understand, e.g., interests (Leiberg and Anders, 2006), and the affective component facilitates the actual experiencing of the other person's feelings by adopting the other's interests (de Waal and Preston, 2017) and creates the appropriate action-based behavior (Shapiro, 2002). The underlying principles of the framework, as presented in Chapter 6, have been discussed under the internal validity in this chapter.

Many training techniques focus on increasing empathy awareness and skills to act as such (Chiu et al., 2011). The author indicates a distinction between two training methods: focus on behavioral change with or without considering the affective side of empathy. Furthermore, indicating that training in the cognitive component of empathy is not often studied (Chiu et al., 2011; Akgün et al., 2015). According to the authors, the behavioral component is about expressing an understanding of the other through, e.g., (non)verbal communication. The research data acknowledges the importance of, e.g., communicating about empathic behavior. However, it is assumed that the (non)verbal communication (interpersonal) follows from the internal empathic processes (intrapersonal). Therefore, focusing the training on the behavioral component may not be effective in increasing intrapersonal empathic abilities.

Based on the data, the team sessions (number 13 in the framework) focus on the intrapersonal empathic ability by improving the cognitive component by increasing someone's experiences, i.e., an improved ability to take the perspective of the other. Resulting in more ease in expressing empathic behavior and less likelihood of falling back into traditional behavior.

The two project characteristics form of collaboration and the contractors' design assignment, were used to indicate differences between the four cases. The aim was to use these differences to possibly propose different strategies on how to steer on empathy. Differences were found among the project characteristics in the factors of collaboration. Related to, e.g., the need to focus on a factor in order to carry out the first phase. However, the differences were found in the factors that are not included in the framework: coordination, balance of member contributions, mutual support, and effort. Based on the data, it was impossible to demonstrate a distinction among the project characteristics in the factors of communication, cohesion, and affective trust that are included in the framework. Therefore, the strategies in the framework should be applied in the same manner across the different combinations of formats based on the project characteristics, which is a limitation of the research.

The applicability of this research is limited to countries that can apply a similar relationship-based project delivery model. These will mainly be Western countries where Early Contractor Involvement is also applied, such as Australia, the UK, the USA, and Scandinavian countries (Rahmani et al., 2013).

Within the scope of this study, the focus has been on the emotional intelligence-related competence of empathy, which contributes to attentive behavior. This behavior appears relevant in relationship building between parties (Clarke, 2010). However, according to the data, other competencies might also be relevant during the first phase of the two-phase model. Interviewees identified adaptability, communication skills, creativity, and having a helicopter view as valuable competencies/qualities. Adaptability is related to the ability to go along with developments (I7,15), being flexible to incorporate wishes and ideas into design choices (I6,14), and dealing with a changing project team (I10). Communication skills are important because they influence the collaboration process and the relationship with the other party (I15). Creativity is important for incorporating wishes and ideas into the design (I6). Having a helicopter view allows for the ability to put things in perspective and see the complete picture (I15).

Finally, three experts have validated the framework's underlying principles and its effectiveness and applicability. Based on this evaluation, the framework is determined to be effective in steering on empathy to improve the project performance of the first phase of the two-phase model through client-contractor collaboration and applicable by project managers at the start of the first phase. However, the framework has not been tested in practice, and therefore the actual effectiveness and applicability have not been validated. Furthermore, according to the second expert evaluation, the implementation of the framework depends on the project manager's reflective capabilities of its empathic ability and capabilities to reflect on the actual importance of the framework. This poses a limitation to the framework as there may be limited project managers who can do this by themselves. Therefore, an addendum to this framework may be necessary to support project managers in this process.

7.2. Validity of the research

The validity of the research is discussed in terms of the literature review (7.2.1) and the research design (7.2.2). The discussion on the research design revisits the criteria that determine the quality of the research design (Yin, 2018) that have been introduced in Chapter 1

7.2.1. Literature review

The literature review addressed the variables of the research, namely, empathy, the two-phase model, collaboration, and project performance. The review aimed to create an understanding of the topics to design the research.

The literature review incorporates scientific, peer-reviewed, and grey, non-peer-reviewed literature. The resulting theoretical framework includes grey literature, and therefore the authenticity may be limited. However, the use of grey literature is partial to the section specifically on the two-phase model since there is limited scientific literature. The literature that is used consists of master theses found in the university repository and guest lectures provided through courses at the Technical University of Delft. This literature is utilized to gain valuable insights into the structure and the utilization of the two-phase model and, therefore, is deemed valid.

The theoretical framework prompted the research design by selecting cases to obtain the data as

the research approach. The case study selection is based on the two project characteristics selected for this research: the form of collaboration and the contractor's design assignment (Miedema, 2022). With the aim of differentiating between different forms of the two-phase model. The literature review topic empathy influenced the interview protocol through the factors that affect empathic behavior. The topic of collaboration influenced the selection of the factors that determine the quality of teamwork. Finally, the topic of project performance influenced the protocol through the broad view of the possible criteria that determine the project performance of the first phase.

The scope of the literature review introduced strengths and weaknesses. The weakness in the review is the level of depth into topics. Therefore, components of the topics that could contribute to the research design might be missing. Alternatively, the strength of the review was the broad scope of the different topics. Understanding each topic was needed to steer the research design in order to answer the related subquestions and the main research question.

7.2.2. Research design

The research design consists of the quantitative approach consisting of four cases based on the two project characteristics and semi-structured interviews to obtain data on the cases. The data is analyzed using qualitative software to obtain results. The design is used to answer the explanatory nature of the main research question, namely 'how'.

The research approach is qualitative because the aim is to obtain an in-depth understanding of the relationships between the topics. Furthermore, the nature of the topics requires the investigation of the interviewees' thoughts, feelings, and experiences. Numerical data, and therefore a quantitative approach, would not be suitable. Cases are used because the research complies with the three conditions for selecting a research design proposed by Yin (2018). Furthermore, it determines whether the project characteristics yield a different answer to the main research question. The data collection method, semi-structured interviews, suits the investigation of the interviewees' thoughts, feelings, and experiences; the open central question; and the opportunity to ask follow-up questions to guide toward new areas of interest in the topics. Despite the method being time-consuming, obtaining comprehensive data based on different cases was deemed necessary. The analysis was performed using qualitative software (Atlas.ti 2023) to perform a content analysis based on the obtained understanding from the literature review.

Ethical considerations have been addressed during the research. Interviewees were informed and signed an informed consent document to record audio of the interviews. Data from the interviews has been stored according to the data management plan. The informed consent document, the risk assessment, the mitigation plan, and the data management plan were approved by the Human Research Ethics Commission (HREC) of the Technical University of Delft.

Four tests related to the quality of the research design should be considered while conducting the research: *construct validity*, *internal validity*, *external validity*, and *reliability* (Yin, 2018). Furthermore, the disadvantages of advantages of the described research design are indicated.

Construct validity

This test determines whether the research variables are correctly measured as intended throughout the research. The research included different measures to have a high construct validity. In Part I, different sources of literature have been used to determine the research variables. During Part II, the interview statements were adopted as research findings if multiple interviewees indicated them or when one statement was deemed more credible based on a comparison between divergent statements. An example of how credibility can be obtained is whether the interviewee is knowledgeable regarding the topic. In such an instant, attention has been paid to the process's objectivity, rigor, and transparency. In Part III, the experts validated the underlying principles of the initial framework. The research design is believed to have measured the intended research variables using these three tactics. Appendix I presents an overview of the variables, including their intended and measured definitions. Based on the data, no outcomes are measured regarding the measurements of the two project characteristics and the people-related criteria.

Internal validity

Internal validity is twofold. First, it is determined whether the proposed causal relationship is valid. In other words, whether event x caused y or another, perhaps, unknown event z caused y . Secondly, a broader notion is about whether every inference the researcher makes is valid or if there is evidence that has been overlooked (Yin, 2018).

The first notion of the test is especially important for Part II. From conducting the interviews, it became apparent that not all interviewees were entirely familiar with empathy and how this competence relates to client-contractor collaboration. Furthermore, the interviewees sometimes interpreted the factors of collaboration differently from what they meant. This may lead to a lower internal validity. To preserve this validity, contradictory relationships were checked by looking at the answers of the other interviewees, especially interviewees from the same case. Furthermore, the researcher corrects the misinterpretations regarding the factors of collaboration while processing the results. The statements used to substantiate the proposed data are presented in Appendix B and Appendix C.

The second notion contains an inherent hazard to qualitative research, namely the interpretation of the data, including the interviewees' thoughts, feelings, and experiences. This may cause a lower internal validity, especially for the proposed framework. To control this validity, validation sessions with professionals are held. The validation was conducted in a session with three experts, focusing on validating the effectiveness and applicability of the framework. Two experts were part of a project of the graduation company, where one represented the contractor and the other the client. The third expert was from an independent agency. Due to the chosen approach in the validation, there was less focus on validating the analysis performed to arrive at the framework due to the time constraint of the research. In other words, the validation was more practically oriented than analytical. This had negative consequences on the internal validity of the framework. Nevertheless, an attempt was made to justify the internal validity by asking the experts to indicate whether they could recognize and endorse the underlying principles of the framework. The principles were deemed complete and correct according to the validation. Next, justifying the validity of the effectiveness by providing the opportunity to review all statements of the interviewees that have been used are provided in Appendix B and Appendix C. On the other hand, all proposed principles have been acknowledged by multiple interviewees; therefore, it is believed that the validity of the framework would only be harmed on a highly detailed level.

External validity

External validity refers to the extent to which the research findings are to be generalized outside the case study findings (Yin, 2018). The validity has been tested based on the expert validation (Section 6.2). The experts evaluated the proposed framework as presented throughout Chapter 6. The final framework is validated to be effective and applicable for cases outside of the researched cases for projects procured by a two-phase model. Therefore, external validity is present.

Additionally, in more detail, whether the research results are to be generalized for the differentiation based on the two project characteristics should be considered. The research design approach contains four cases representing different combinations of the two project characteristics based on theoretical replication. Based on the data, it is impossible to differentiate between the combinations of the two project characteristics among the included collaboration factors. As a result, not as intended based on the research objective, but the research findings are to be generalized for all combinations of the two project characteristics of the two-phase model.

Reliability

The reliability of the research is guaranteed by providing all procedures to reproduce the research in the report. Therefore, reproducing the research is believed to reflect the same general outcome.

- For details on the research methodology, see Chapter 3.
- For the interview protocol, see Appendix A.
- For the statements that determine the classification used to rank the factors of collaboration, see appendix D.
- For the interviewee statements related to the relationship between client-contractor collaboration and project performance, see Appendix B.
- For the interviewee statements related to the relationship empathy and client-contractor collaboration, see Appendix C.
- For the development of the final framework, see Chapter 6.

7.3. Limitations of the research

The limitations have been addressed throughout the discussion on the different parts of the research. However, to be transparent, the main limitations of this research are summarized below.

- **Scope of the literature review:** The literature review covered the research variables. However, this resulted in a rather broad scope. The limitation is that the literature study lacks in-depth insights into the research variables. There might be overlooked elements of the topics that could have contributed to the research design.
- **Limited data collection based on cases:** Due to the qualitative research approach the research data is detailed, however, limited. Therefore it is difficult to discover irrelevance in the research data.
- **Scope of the research:** Data indicates the importance of already investing in developing empathy and collaboration during the procurement phase. Similarly, according to the second evaluation session, specifying how to extend the developed focus on empathy and collaboration during the first phase into the second phase seems an important notion. As a result, the potential of both notions may have been missed due to the scope of the research.
- **Focus on one competence:** data indicates other competencies than empathy that may influence the project performance of the first phase. Indicated examples of competencies are adaptability, communication skills, creativity, and having a helicopter view.
- **Steering based on project characteristics:** Based on the data, it was not possible to demonstrate a distinction among the project characteristics in the factors of communication, cohesion, and affective trust that are included in the framework. Therefore, the framework should be applied in the same manner across the different combinations of formats based on the project characteristics.
- **Applicability of the framework:** The framework is applicable in countries and project delivery models with similar characteristics to the Netherlands and the two-phase model, respectively. Limiting the external validity of the research.
- **Testing the hypothesis based on qualitative data:** Because of the qualitative research data, it was not possible to accept or reject the hypotheses. As a result, the tests were prone to the subjectivity of the data.
- **Actual testing of the framework:** the effectiveness and applicability of the framework have not been tested on an actual project, only based on expert evaluation. Therefore, the final framework is only presumed to be effective and applicable in the first phase of the two-phase model.
- **Framework is dependent on project managers:** implementation of the framework depends on the project manager's reflective capabilities of its empathic ability and capabilities to reflect on the actual importance of the framework. There may be limited project managers who can do this by themselves. Facilitation of external coaches is therefore necessary.

7.4. Added value of the research

The research has both scientific and practical relevance. The added value is indicated based on the research objectives from Section 1.4. The main objective is to identify how the competence of empathy can improve project performance through client-contractor collaboration in the first phase of the two-phase model. The underlying objectives are to 1) determine how the client-contractor collaboration affects the criteria that determine the project performance of the first phase of the two-phase model. Furthermore, 2) determine how the competence of empathy affects client-contractor collaboration, including what factors facilitate empathic behavior and if empathy can contribute to mutual understanding through perspective-taking. Moreover, 3) determine the view of practitioners on empathy and what they want to achieve with such competence. Lastly, 4) establish a framework indicating when and how practitioners can steer on the competence of empathy to influence the criteria that determine the project performance of the first phase through client-contractor collaboration.

Scientific relevance

The research contributes scientifically by providing insights into the criteria used to determine the performance of the first phase of the two-phase model. Furthermore, it provides insights into how client-contractor collaboration can be utilized to improve actual and perceived performance.

The link that is proposed in the literature between the competence of empathy and client-contractor collaboration has been addressed. Based on the data, it seems that empathy contributes to collaboration based on the factors related to the quality of teamwork and affective trust. Furthermore, it seems to foster the development of understanding on both the team member and organizational levels.

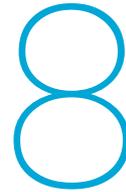
The factors found in the literature that would facilitate empathic have been studied. Of these factors, some have been confirmed, one has not been confirmed, and new factors are proposed. Interpersonal empathy rather than collective empathy is confirmed as an effective type of empathy.

This research confirms the contribution of the competence of empathy to developing mutual understanding through perspective-taking. However, as perspective-taking would imply the cognitive component of empathy it is essential to include the affective component of empathy to develop mutual understanding. Also, including the behavioral component seems important to display an understanding of the perceived feelings.

Practical relevance

The practical relevance of the research is related to the developed framework that project managers should use during the start of the first phase of the two-phase model. The framework has the following practical relevance:

- Creating awareness of the importance of considering competencies such as empathy to improve the project performance of the first phase of the two-phase model.
- Creating awareness of maintaining and improving client-contractor collaboration by providing activities throughout the first phase of the two-phase model.
- Creating awareness on how to prevent and minimize the impact of harm on the collaborative process by providing threats to the collaborative process throughout the first phase of the two-phase model.
- Providing a strategy on when and how to steer on empathy to facilitate the development of understanding in the collaborative process between the client and the contractor.
- Providing strategies on when and how to steer on empathy to improve the actual performance of the criterion quality.
- Providing strategies on when and how to steer on empathy to improve the perception of the performance criteria time and cost.
- Describing what factors must be considered to enable empathic behavior and the collaborative process and how they should be used.



Conclusions and recommendations

In this chapter, the conclusions of the thesis are presented, including the answers to the research questions. Section 8.1 provide answers to the subquestions based on the preceding chapters. Based on these answers, the section will end with an answer to the main research question. Section 8.2 present the recommendations for future research and for practice.

8.1. Answers to the research questions

The research aimed to investigate whether focusing on empathy competence through client-contractor collaboration could enhance project performance during the first phase of the two-phase model. This has been based on a research approach that included four cases procured through a two-phase model to facilitate the data collection. Each case can be characterized based on a combination of two characteristics: the form of collaboration and the design assignment of the contractor. In total, 16 semi-structured interviews have been conducted evenly distributed across the four cases. For each case, two interviewees represented the contractor, and two represented the client. All interviewees fulfilled a role in the project from one of the integrated project management roles. To reach the goal of the research, a main research question and subquestion were formulated. The remainder of this section will provide answers to the subquestions, followed by the answer to the main research question.

Subquestion 1: What are the components of the competence of empathy?

The competence of empathy entails the process of the empathizer stepping into and stepping out of the other person's world (Kouprrie and Visser, 2009). Important recurring elements in this process are understanding through perspective-taking, having an emotional response, remaining aware of self-other differentiation (Cuff et al., 2016), and sharing someone's emotions (Eklund and Meranius, 2021). Therefore, the definition of empathy used in this research is as follows: "Empathy is to understand, feel, and share what someone else feels, with self-other differentiation." (Eklund and Meranius, 2021)

Generally, to behave empathic, it is important to consider the two widely acknowledged components of empathy, namely, the cognitive component and the affective component. The cognitive component is someone's ability to put oneself in the shoes of another and perceive the world through their eyes and create understanding through perspective-taking (Kouprrie and Visser, 2009). The affective component involves perceiving and resonating with someone else's feelings to elicit an emotional response (Kouprrie and Visser, 2009). These two components are part of an intrapersonal process, meaning they take place internally within an individual. Additionally, a third component is related to the outward response of the intrapersonal process and may surface through attitude, skill, or actionable behavior, namely the behavioral component (Shapiro, 2002).

The understanding of the components of empathy becomes relevant in answer to subquestion 3.

Subquestion 2: How can client-contractor collaboration affect project performance during the first phase of the two-phase model?

Hypothesis 1 suggested a positive contribution of client-contractor collaboration on the project performance of the first phase of the two-phase model. The research findings suggest that client-contractor collaboration can affect project performance during the first phase of the two-phase model by facilitating the process as a factor rather than being a criterion determining project performance. Quality, time, and cost are the most relevant criteria determining the project performance of the first phase. Therefore, hypothesis 1 is supported.

Collaboration is used as a factor to affect the performance of the criterion quality by focusing on the process rather than the end product. The effect of this focus is twofold. Firstly, adopting an integrated design process enables the development of mutually supported products aligned with the interests of both organizations. Secondly, a shared understanding exists between the client and contractor of the reasons behind the end product's development. Additionally, by transitioning towards shared responsibility between the client and contractor, non-contractual liability is established on the client's side. This facilitates inclusive decision-making, fostering equality between both organizations.

The perception of time and cost criteria can be enhanced by shifting focus to the process instead of solely the end product. Understanding the causes leading to cost overruns or schedule delays promotes an easier resolution. Moreover, further improvements can be achieved by providing flexibility in the boundary conditions of the criteria and enabling optimization throughout the process.

Affective trust, communication, and cohesion are identified as essential factors for the quality of teamwork, and investment in collaboration should begin from the project start and continue throughout the first phase using various activities.

The answer to this subquestion serves the third hypothesis discussed after subquestion three is answered. This answer forms the connection between empathy competence and the performance of the first phase.

Subquestion 3: How can empathy affect client-contractor collaboration during the first phase of the two-phase model?

Hypothesis 2 relates to this subquestion, and according to this hypothesis, empathy contributes positively to the client-contractor collaboration in the first phase of the two-phase model. The findings suggest that empathy plays a crucial role in client-contractor collaboration during the first phase of the two-phase model. Empathy can facilitate the development of understanding at both the team member and organizational levels, leading to, e.g., improved relationships, increased motivation, and the ability to support each other. Empathy affects factors such as affective trust, communication, cohesion, and mutual support in the collaborative process. Factors that facilitate empathic behavior include the work environment, the relationship between team members, communication, work location, empathic ability, attitude towards empathy, behaving empathically towards other organizations, and the number of team members. Activities such as Project Start-Up, team-building sessions, onboarding, check-ins, and collaboration monitoring can be used to develop empathic behavior from the start of the project and maintain and improve it throughout its duration. Overall, a proactive attitude towards fostering empathy is crucial for successful client-contractor collaboration during the first phase of the two-phase model.

Additionally, the effect of empathy on client-contractor collaboration seems dependent on a mutual relationship between both variables, i.e., empathy on client-contractor collaboration and vice versa. The effect of collaboration towards empathy is based on the following three notions: 1) the factor of collaboration affective trust acts as a precondition for empathy; 2) the factor of collaboration communication facilitates empathic behavior; and 3) collaborating in the first phase facilitates the development of empathy among team members.

Related to the components of empathy, appropriate empathic behavior affecting client-contractor collaboration during the first phase seems to cover all three components. The cognitive component is used to develop an understanding of, e.g., the interests of the other organization through perspective-taking. The affective component facilitates the actual emotional reaction by experiencing the other person's feelings by adopting the other's interests. Resulting in sincere involvement. The behavioral component is action-based and may surface through someone's attitude, skills, or behavior, e.g., by

including the interests of the other organization during decision-making. Furthermore, it is important to address that, based on this research, there is no reason to assume that collective empathy (the collective empathic state of team members) contributes to the collaborative process. Rather, the process is affected by interpersonal empathy, consisting of empathic behavior between two individuals or a relatively small number of individuals.

Considering the aforementioned information, the second hypothesis is supported. Together with the answer to subquestion 2, it is possible to confirm hypothesis 3. This hypothesis proposes that empathy can positively contribute to the project performance of the first phase. According to the data, it appears that the performance criterion of quality is directly influenced by prioritizing the process over the end product and indirectly influenced by the transition towards shared responsibility. Similarly, the perceptions of the time and cost criteria are influenced by the same focus on the process and the introduction of flexibility in the boundary conditions.

Supporting hypothesis 3 allowed the development of the proposed framework during this research. This framework seems to allow steering on empathy in the first phase of the two-phase model to improve the project performance based on the client-contractor collaboration.

Subquestion 4: How can be steered on empathy to improve project performance through client-contractor collaboration?

Steering on empathy to improve project performance seems possible through the proposed framework by utilizing it from the start of the first phase of a two-phase model. The project managers of both the client and the contractor should collectively use the framework. They should reflect on their empathic abilities and recognize the significance of employing empathic behavior to develop understanding and enhance collaboration rather than treating this framework as an obligatory activity.

The strategies in the framework enable steering by 1) developing understanding at both the team member and organizational levels facilitated by empathy. Creating an environment that fosters empathic behavior through the factors that facilitate empathic behavior is essential. Furthermore, there should be a focus on at least the most essential factors of collaboration, and activities must be used to develop collaboration and empathic behavior. 2) There should be a focus on the process leading to the end product rather than a focus on the end product for empathy to affect the performance of the criteria quality, time, and cost. 3) There should be a shift to a shared responsibility between the client and contractor for empathy to affect the performance of the criterion quality. 4) There should be flexibility in the criteria for empathy to affect the performance of the criteria time and cost.

Furthermore, activities must be used throughout the entire first phase to maintain and improve collaboration and empathic behavior. Finally, the focus should be on preventing and otherwise minimizing the impact of threats to the collaborative process.

The answers to the four subquestions are used to answer the main research question of this research.

How to improve project performance by focusing on empathy through client-contractor collaboration in the first phase of the two-phase model?

In conclusion, the research can answer the main research question by suggesting that empathy plays a critical role in improving project performance through client-contractor collaboration in the first phase of the two-phase model. By utilizing empathy from the start of this phase, the client-contractor collaboration is facilitated by developing a deeper understanding of the perspectives of the team members and the organizations. From there, it is possible to improve the criteria that determine the project performance of the first phase: quality, time, and cost. Furthermore, there should be focus on the factors that enable empathic behavior and at least the most essential factors for the collaborative process from the start of the first phase. Additionally, focusing on empathy and collaboration throughout the first phase is crucial to ensure the advancement of the collaborative process fostered by empathic behavior. This approach can help to safeguard against any potential threats. The stated above can be achieved by a collective effort of the project managers of the client and contractor using the proposed framework that proposes strategies and essential factors for empathy and the collaborative process to improve the performance through the client-contractor collaboration in the first phase of the two-phase model.

The research has scientific and practical implications. The research contributes to the scientific understanding of performance criteria and client-contractor collaboration in construction projects procured through a two-phase model. Through providing insights into the criteria that determine performance and how client-contractor collaboration can be used to contribute to the criteria for project performance, which in turn affects actual and perceived performance. The research suggests that interpersonal empathy is most effective in improving client-contractor collaboration by facilitating understanding at both the team member and organizational levels. Factors that facilitate empathic behavior have been identified. The study also highlights the importance of the cognitive (perspective-taking), affective (emotional understanding), and behavioral (action-related) components of empathy for developing mutual understanding. Regarding the practical implications, the developed framework provides practical guidance and strategies for project managers to effectively steer on empathy during the first phase of the two-phase model through the collaborative process, ultimately leading to improved project performance.

However, it is essential to acknowledge that the research has limitations that should be considered when interpreting the conclusions. One limitation relates to the scope of the research. The research primarily focuses on the first phase of the two-phase model. However, focusing on empathy and client-contractor collaboration seems to be important during the procurement phase. Furthermore, including consideration about the second phase is indicated to be crucial. Secondly, rather than the competence of empathy, other competencies and qualities that might be important during the first phase have been addressed. Third, the framework may be only applicable in countries and project delivery models with similar characteristics to the Netherlands and the two-phase model, respectively. Fourth, steering project characteristics based on the scope of the framework is not possible based on the two proposed project characteristics (the form of collaboration and the contractor's design assignment). Extending the scope of the framework or considering other project characteristics could make this feasible. Fifth, the effectiveness and applicability of the framework have not been tested on an actual project, relying solely on expert validation. Finally, the framework depends on the project manager's ability to apply it.

8.2. Recommendations

Based on the limitations of the results, there are recommendations for future research and practice. By including these recommendations, new insights might be obtained regarding the limitations of this research or to extend the research findings.

8.2.1. Recommendations for future research

The recommendations for future research are listed below:

- The hypotheses of the research are tested quantitatively. Expanding the tests of the hypotheses by testing them in a quantitative manner is a topic for future research. Allowing for more precise and objective measurement of variables and relationships between variables. Eliminating the subjective interpretation of the research data.
- Additionally, future research can explore the application of the framework in practice to test its actual effectiveness and applicability. The framework should be tested in a two-phase model collectively by the project managers of both the client and the contractor. It is interesting to include projects with different combinations of the two project characteristics (the form of collaboration and the contractor's design assignment) to test the effectiveness and applicability of the framework.
- Expanding the scope of the framework by including more factors of collaboration may create the opportunity to steer differently based on the two considered project characteristics (the form of collaboration and the contractor's design assignment). The current scope of the framework consists of the factors: affective trust, communication, and cohesion. The factors that are currently not included in the scope are coordination, mutual support, balance of member contribution, and effort. Alternatively, considering other than the two already considered project characteristics may create the opportunity to steer differently based on the current scope of the framework. It is also recommended to extend the scope of the research by developing an addendum that supports project managers in the reflective capabilities of their empathic ability and capabilities to contemplate the actual importance of the framework.
- More research is needed on other competencies that could improve the first phase of the two-phase model. Examples of competencies are adaptability, communication skills, creativity, and

having a helicopter view. Adaptability is related to the ability to go along with developments, being flexible to incorporate wishes and ideas into design choices, and dealing with a changing project team. Communication skills are important because they influence the collaboration process and the relationship with the other party. Creativity is also important in incorporating wishes and ideas into the design process. Having a helicopter view allows for the ability to put things in perspective and see the complete picture.

- Research on this topic should be extended into the procurement phase. The research data suggests that this phase is essential as the client-contractor collaboration initiates here. The development of understanding, facilitated through the competence of empathy, may also start in this phase. The notion of customer-supplier collaboration in the procurement phase is among others researched by Steller (n.d.). The author suggests tenders focusing on postponing the awarding, such as the two-phase model, enable a mutual process development. The likeliness of a long-term collaboration where both organizations treat each other 'as equals' could increase. In such a collaboration, both organizations aim to support each other, utilize each other's expertise, and create synergy. Further, the procurement phase there seems to be need for organizations to improve their "soft skills' (open communication, dialogue, learning and understanding the interests of the other party)" (Steller, n.d.).

8.2.2. Recommendations for practice

The recommendations for practice based on this research indicate how the research findings can be used in practice. The research findings are to be applied in the construction sector of countries that can apply a similar relationship-based project delivery model. The research outcome, the framework, must be collectively applied by project managers of the client and contractor at the start of the first phase of the two-phase model to steer on the competence of empathy to improve the project performance through client-contractor collaboration. They should reflect on their empathic abilities and recognize the significance of employing empathic behavior to develop understanding and enhance collaboration rather than treating this framework as an obligatory activity. Using an external coach during the first and second phases is recommended to facilitate the process. An external coach allows project managers to be part of the team during team sessions. Furthermore, the external coach is not biased and can better analyze the collaborative process objectively. Also, the external coach has added value in focusing on the collaborative process instead of moving to the substantive matters of the products. Another recommendation is to select team members based on their suitability for functioning effectively in the first phase of the two-phase model. The onboarding process can serve as a valuable activity to facilitate this selection. A crucial criterion to consider during the selection process is whether team members possess the competence of empathy. This criterion holds particular significance for the management team. Also, while using the framework, there should be a consideration of how the focus on empathy and collaboration can be extended into the second phase. In other words, what conditions are needed to extend the focus? It is recommended collectively, the client and contractor develop a collaboration manifest that creates awareness of this notion.

Specific recommendations for the client and contractor are to develop an understanding of the other organization, its interests, culture, and work processes. This is important because of the unfamiliarity in the project phases. For the client, it is essential from the start of the first phase to explain the appropriate work processes to allow the contractor to learn and understand. However, the contractor needs to have an open attitude toward learning to increase the motivation and ability to support the client.

Finally, for the construction sector, it is recommended to consider competencies such as empathy in the first phase of the two-phase model. This notion should be included in the management approach by selecting at least the management team based on their empathic capabilities. Consideration should at least start from the beginning of the first phase and must be at least maintained throughout the entire phase. This is to improve the collaboration and, eventually, the performance of the first phase.

This research provides valuable insights into the role of empathy in improving project performance through client-contractor collaboration in the first phase of the two-phase model. The developed framework can serve as a foundation for future research and guide the construction sector on how to focus on the soft, i.e., human, side of project management.

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Interview protocol (Dutch and English)

Interview onderdeel	Onderwerp	Begin vraag	Subonderwerp
Introductie	Onderwerp	Het effect van competenties van teamleden op de project prestaties van de eerste fase van een twee fasen project.	
	Doel	Het begrijpen van de relaties tussen competenties, opdrachtgever-opdrachtnemer samenwerking en de project prestaties van de eerste fase van het twee fasen project.	
	Vertrouwelijkheid	Het project en de geïnterviewde blijven anoniem.	
	Verwerken resultaten	Het interview wordt uitgewerkt en geanalyseerd. De resultaten worden verwerkt in het onderzoeksrapport.	
	Duur	1 uur	
	Voorwaarden van het interview	De geïnterviewde stemt er mee in dat de gegeven antwoorden worden gebruikt voor onderzoeksdoeleinden. Verder stemt de geïnterviewde er mee in dat het interview wordt opgenomen om de betrouwbaarheid van het onderzoek te vergroten.	
	Introductie vragen geïnterviewde	Naam Huidige werkgever Huidige rol in het project Overige ervaringen (werkgevers, rollen, type projecten)	
Twee fasen model	Voortgang project	1. Kunt u mij vertellen in welke fase het project zich momenteel bevindt?	
	Doel toepassen twee-fasen model	2. Wat is het doel van het toepassen van een twee fasen contract voor dit project?	2.1 Doel opdrachtgever 2.2 Doel opdrachtnemer
Project prestaties	Algehele tevredenheid Fase I	3. Hoe is de eerste fase gegaan? Hoe was de algehele tevredenheid?	3.1 Algehele tevredenheid opdrachtgever 3.2 Algehele tevredenheid opdrachtnemer
	Criteria project prestaties	4. Wat zijn de belangrijkste criteria waarna gekeken wordt voor het succes van de eerste fase, met oog op het doel van het gebruik van de twee fasen aanpak en het de project karakteristieken?	4.1 In tegenstelling tot andere aanbestedingsvormen
Samenwerking	Verloop samenwerking Fase I	5. Hoe verliep de samenwerking in de eerste fase?	5.1 Veranderingen over tijd 5.2 Investerings in samenwerking
	Belang samenwerking Fase I	6. Ziet u belang in samenwerking gedurende de eerste fase?	6.1 Waarin uit dit belang zich 6.2 In tegenstelling tot andere aanbestedingsvormen 6.3 Belang in het behalen van benoemde criteria voor project prestaties
	Factoren samenwerking	7. Zijn, en hoe zijn, de volgende factoren voor de kwaliteit van samenwerking essentieel voor samenwerking in de eerste fase voor uw project? (i.e. factoren die bijdragen aan goede samenwerking?)	7.1 Verschuiving bij verandering van project karakteristieken
Empathie	Relatie tussen empathie en samenwerking	8. Kunt u mij vertellen over de relatie tussen empathie en samenwerking gedurende de eerste fase? (i.e. waarde van empathisch gedrag op samenwerking?)	
	Invloed empathie op samenwerking	9. Hoe beïnvloedt de uitkomst/resultaat (bijv. iemand beter begrijpen) van empathisch gedrag de samenwerking?	9.1 Voorbeeld 9.2 Invloed empathie op factoren vraag 7
		10. Zijn er op basis van uw ervaring verschillen in de behoefte en de mate waarin projectleden zich empathisch gedragen in vergelijking met traditionele aanbestedingsvormen?	
	Invloeden op empathie	11. Op basis van uw ervaring, wat kan empathisch gedrag stimuleren of ontmoedigen? (i.e. wat kan er voor zorgen dat iemand zich empathisch of juist niet empathisch gedraagt?)	11.1 Empathisch vermogen
11.2 Bereidwilligheid			
11.3 Relatie-gerelateerde aspecten			
11.4 Cultuur project team			
		11.5 Cultuur moederorganisatie	
		11.6 Overige project leden	

Empathie binnen projectteam	12. Is er bij de vorming van het projectteam rekening gehouden met competenties als empathie?	
	13. Hoe schat u het empathisch vermogen van het team in (hoog of laag)?	
Verschillen in organisaties	14. Ziet u verschil in de aanpak/houding van andere partijen in empathisch gedrag?	14.1 Opdrachtgever
		14.2 Opdrachtnemer

Interview part	Topic	Starting question	Subtopic
Introduction	Subject of interview	The effect of team member competencies on project performance of the first phase of a two-phase project	
	Goal	To understand the relationships between the competency of empathy, client-contractor collaboration and project performance of the first phase of the two-phase project	
	Confidentiality	The project and interviewees have complete confidentiality	
	Processing results	The interview will be transcribed and analyzed. The results are incorporated into the research report	
	Duration	1 hour	
	Conditions of the interview	The interviewee consents to the answers given being used for research purposes. Furthermore, the interviewee consents to the interview being recorded to increase the reliability of the study	
	Introduction questions for interviewee	Name Current employer Current role in the project Other experiences (employers, roles, types project delivery methods)	
Two-phase model	Project progress	1. Can you tell me what stage the project is currently in?	
	Goal of applying two-phase model	2. What is the purpose of applying a two-phase model for this project?	2.1 Goal client 2.2 Goal contractor
Project performance	Overall satisfaction Phase I	3. How did the first phase go? How was overall satisfaction?	3.1 Overall satisfaction client 3.2 Overall satisfaction contractor
	Criteria project performance	4. What are the criteria that determine the project performance of the first phase, considering the purpose of using the two-phase approach and the project characteristics?	4.1 In contrast to other forms of procurement
Collaboration	Process of collaboration Phase I	5. How was the collaboration in the first phase?	5.1 Changes in collaboration over time 5.2 Investments in collaboration
	Value of collaboration Phase I	6. Do you see value in collaboration during the first phase?	6.1 In what does this value manifest itself 6.2 In contrast to other forms of procurement 6.3 Belang in het behalen van benoemde criteria voor project prestaties
	Factors of collaboration	7. Are, and how are, the following factors for the quality of collaboration essential for collaboration in the first phase for your project? (i.e. factors that contribute to good collaboration?)	7.1 Shift when changing project characteristics
Empathy	Relation empathy and collaboration	8. Can you tell me about the relationship between empathy and collaboration during the first phase? (i.e. value of empathic behavior on collaboration?)	
	Influence empathy on collaboration	9. How does the outcome/result (e.g., understanding someone better) of empathic behavior affect collaboration?	9.1 Example 9.2 Influence empathy on factors question 7
		10. Based on your experience, are there differences in the need and degree to which project members behave empathetically compared to traditional project delivery methods?	
	Factors influencing empathy	11. Based on your experience, what can encourage or discourage empathetic behavior? (i.e. what can cause someone to behave empathically or not empathically?)	11.1 Empathic ability
			11.2 Willingness
11.3 Relation related aspects			
11.4 Culture project team 11.5 Culture mother organization 11.6 Other project members			
Empathy within project team	12. Were competencies such as empathy considered when forming the project team?		

		13. How do you rate the empathic ability of the team (high or low)?	
	Differences in empathy between organizations	14. Do you see any difference in the approach/attitude of other parties in empathetic behavior?	14.1 Client
			14.2 Contractor

B

Interviewee statements on the
relationship between collaboration
and project performance

Section: Criteria that determine project performance of the first phase		
Subsection: Criteria for determining the project performance		
Time		
ID	Quotation Content	reference
1:15	When you talk about planning, the whole tender that was one of the objectives/requirements that we were given to meet the schedule that was submitted and, where possible, to accelerate it.	68-69
2:79	Unless it turns out there's just a lack of confidence, the criteria that, for example, the flood protection program sets for the offer that's being made have not been met. Ultimately, that is what you are measured on, what does the plan look like, what should be subsidized, what cost price will be involved and do we all agree on that and does the contractor provide sufficient transparency in its pricing process? Yes actually, if you meet all those criteria there, then you continue.	64-65
3:78	Well, time, money, quality, so to speak, they're very important.	74 - 74
6:12	Look and basically what your construction team agreement should be and if you look at that it says that we will do the first bridge in September 2021.	76-80
7:26	It's really and and and and because well what I just said is within budget, we're not going to succeed, but 86 extra budget is also really an impossibility. So that's why, well actually, the other one is for reasoning, what can be done within budget? Time was extremely important when we started, because when the picture was, the bridges are really about to collapse. Now there is extra information Because we as a municipality have been fully monitoring all bridges, quay walls, etc. for a few years now, it seems that they will not literally collapse tomorrow, so the time factor has been slightly reduced again	86 - 86
8:14	In principle, the quality would probably be, in principle, the biggest goal to so a to be able to carry out a certain amount of work, so to speak, and thus to indeed get that corridor made. But we are actually also a bit overtaken by time, so at a certain point that you will also end up in cutbacks (...) you have to leave it because ultimately time and money and then mainly money are even more important if if there is no money then you can't do it.	92 - 94
9:15	In time for them to get through there again	72-72
11:12	Hey, and I'm going again, what are our objectives? This project is part of it program. And those objectives or project also serve a program. So say that time. That is certainly important to develop a program for the whole of the Netherlands. If you want to have safety in the Netherlands within 50 years. Then it can't be done in a year, can it?	67-67
12:7	Now, if you look at the criteria you just mentioned, Natural Money Is an important one. Scheduling is one important one, I think you have it in both cases, so we also have it as a partial 2-phase contract. Of course we have that too. These are criteria that also come from others. I mean, you can say what you want, but when it comes to this project, which is funded by the Dutch BV	121 - 121
14:15	And in this case Yes, it turned out in several cases that we were able to adjust that deadline, I say now, with the greatest of ease. And that is a completely new insight that we have gained and which has therefore led to a lot of peace in the organization.	114 - 116
cost		
ID	Quotation Content	reference
2:82	Of course there is money driven, but we were all convinced that if we put the process in a would organize it in a certain way, that if we filled in the right preconditions, that would be a result. Because I think so, that's why I might also emphasize you extra, there are still so many projects that put that emphasis on that money, on the end result, on the measurability of the end result, while then you might just be too late , because what if that does not suffice? Then how do you know?	73-77
3:78	Well, time, money, quality, so to speak, they're very important.	74 - 74
7:26	It's really and and and and because well what I just said is within budget, we're not going to succeed, but 86 extra budget is also really an impossibility. So that's why, well actually, the other one is for reasoning, what can be done within budget? And, that's 1. Time was extremely important when we started, because when the image was, the bridges are really about to collapse. Now there is extra information Because we as a municipality have been fully monitoring all bridges, quay walls, etc. for a few years now, it seems that they will not literally collapse tomorrow, so the time factor has been slightly reduced again	86 - 86

8:14	In principle, the quality would probably be, in principle, the biggest goal to so a to be able to carry out a certain amount of work, so to speak, and thus to indeed get that corridor made. But we are actually also a bit overtaken by time, so at a certain point that you will also end up in cutbacks (...) you have to leave it because ultimately time and money and then mainly money are even more important if there is no money then you can't do it.	92 - 94
9:13	Closing still within budget	72 - 72
9:14	how do you demonstrably demonstrate that you are maximally transparent about those budgets	72 - 72
11:6	But in the dialogue phase, we asked, can you construct the structures, according to our design, can you implementation within the budget and can you implement it OTC within that time and is it feasible? We asked that, so that was basically knock out criteria of isn't it possible? Yes, then you are unfortunately out, well they have responded positively to that.	36 - 36
12:7	Now, if you look at the criteria you just mentioned, Natural Money Is an important one. Scheduling is one important one, I think you have it in both cases, so we also have it as a partial 2-phase contract. Of course we have that too. These are criteria that also come from others. I mean, you can say what you want, but when it comes to this project, which is funded by the Dutch BV	121 - 121
13:3	Yes, one for Everyone for all parties participating parties to be able to set up a good and successful project, in which fair money for honest work is also an important criterion.	39 - 40
14:12	But just filling in conditions precedent, and that was 3 conditions precedent, one integral safety, two the successful implementation of the practical tests that we have gone through here and 3 the green cost item test. If we had filled in those 3 conditions precedent, we would move from phase one to phase two and we were actually allowed to build that bridge,	102 - 102
15:15	Yes, well, the one about the green cost item test was, of course, created specifically, because you're dealing with a phased assignment, aren't you? That you first award based on those collaboration competencies, in our case then and only at the end of phase one a price set with a plan that you can assess.	72 - 72
16:13	First phase Well, simply put, we have named 3 contractual criteria, formulated on the basis of which we have determined whether phase 1 contract has been completed properly from a legal point of view. And, those are the 3 conditions precedent and there and all 3 of them have been fulfilled and with that it has been successfully completed and we are also continuing together in phase 2. Hey those those 3 conditions precedent very briefly, We've requested some field trials to see technical content that the. Work can be done well In the whole crisis welding work. We have fully completed the safety process and in operation was a very important one. This was filled in very quickly and finally the cost item test with which the fair price was secured.	74-75

Quality

ID	Quotation Content	reference
3:78	Well, time, money, quality, so to speak, they're very important.	74 - 74
8:14	That would normally be the case, but that didn't go well in the end, yes, so in principle the quality would perhaps in principle be the biggest goal in the first instance, so to be able to perform a certain amount of work, so to speak and thus to indeed get that corridor Made. But we are actually also a bit overtaken by time, so at some point you will also end up in cutbacks And, that is now the problem that we have that we now have to deal with, so that we still have do not have a realization contract, so also have to shorten the scope again, so that you actually have what you initially had in mind Maybe yes, yes, still have to Let it go Because in the end time and money and then mainly Maybe money still are more important if there is no money yes then you can not do it.	92 - 94
10:15	Yeah, money is just quality and always planning, those are the 3 most important.	73 - 73
12:37	So me Maybe just in the But me, I'm of the empathic line. I've always said you can do better working together and If I have to give a little more, one time then the other time then it's good, because then the other time then I get a little more again and that give and take also in time and and Maybe also in money and in quality yes, If you solve that give and take with each other in a positive sense Together, you have a better result than if you do that by reacting red and and losing that empathy and just saying, listen up deal is deal this and well, that kind of. But I can imagine. I could imagine that at management level you sometimes need that attitude.	268 - 270

13:11	Oh yes yes yes. Yes I think. Yes, I do think that in a general sense there was what was purely feeling a bit softer about the criteria, because in a competition, in tendering, you just need very hard criteria also based on which you can determine, well this. Is the winner in a D&C. I've had that too, but only on the basis of quality aspects, right? So how well are you able to work with the Rijkswaterstaat team and with two plans in which we have written the approach for this work.	103 - 104
14:12	We had contractually agreed that this project had suspensory conditions. That actually means that after the transition from phase one to phase two, there would not be a new contract. But purely filling in suspensory conditions, and those were 3 suspensory conditions, an integral safety, two successfully carrying out the practical tests that we have gone through here and 3 the green cost item test, so that is to say, If we had filled in those 3 suspensory conditions, we moved from phase one to phase two and if we were to actually build that bridge,	102 - 102
15:13	Yes, just off the top of my head I think those 3 resolute conditions were called, but the contract manager knows that even better.	61 - 61
16:13	First phase well, we have. We have very, very, very simple. Quite simply, 3 contractual criteria have been identified, formulated on the basis of which we have determined whether phase 1 contract has been completed properly from a legal point of view. And, those are the 3 suspensive conditions included and there and all 3 of them have been fulfilled and with that it has been successfully completed and we are also continuing together in phase 2. There was an important provision that, in addition to those substantive criteria, we also have said: both parties knowingly say to each other, okay, on the basis of this we see no reason to stop the agreement and so we will continue and I Maybe that is the soft side, although it is also just a contract provision it says.	74-75
Collaboration		
ID	Quotation Content	reference
10:13	In the EMVI plan, we have, in that OTC part, huh? As it is called again, the two-phase part, is literally the question that you were assessed on. Towards cooperation; working together with the customer, but also with the environment and stakeholders.	62-63
11:14	We also work with business case of business cases. Or you call. That yes of is it useful or can you do a different solution or do not want to mention a Trade off measure. Continuously busy. We have a risk file, we said. We also think the cooperation is important. Are we doing the right things or are we just hobbies?	69-70
12:8	If you then say Van nou which is a less clear criterion, for example working together. I would think, yes, you know also in a contract where you have a 1 phase contract, huh? We made a DO and you go. Do the execution. Then I think, I think working together is just as important.	122 - 122
16:13	First phase well, we have. We have very, very, very simple. Quite simply, 3 contractual criteria have been identified, formulated on the basis of which we have determined whether phase 1 contract has been completed properly from a legal point of view. And, those are the 3 suspensive conditions included and there and all 3 of them have been fulfilled and with that it has been successfully completed and we are also continuing together in phase 2. There was an important provision that, in addition to those substantive criteria, we also have said: both parties knowingly say to each other, okay, on the basis of this we see no reason to stop the agreement and so we will continue and I Maybe that is the soft side, although it is also just a contract provision it says.	74-75
Stakeholder Satisfaction		
ID	Quotation Content	reference
1:13	Yes, added value for that for that environment is also something that we have been able to score well in my experience, and added value for the environment is in particular that one work corridor, say, with which you pass people by (with your work) and that it is finished.	55-55
4:12	Yes, anyway, when it comes to environmental management, we obviously have the satisfied environment, with By that I mean the environment People who live on the dike, People who have an interest in that, Who have to grant permits, just the same width, then that was really an important point for two phases And it is precisely there that I see the added value of this model .	64 - 64
Safety		
ID	Quotation Content	reference

13:10	Well, we have 3 conditions precedent in this project and those are actually the criteria based on which we could move on to phase two. One is the assurance of integral safety. The second is I always call it, But the load tastes so the actually the competence of the staff, which ultimately also makes the reinforcement reinforcement measures. On the bridge. And the last one is yes the contract price for phase two, so also the financial picture that we used the 3 criteria on the basis of which we could proceed to phase two.	89 - 89
14:12	We had contractually agreed that this project had suspensory conditions. That actually means that after the transition from phase one to phase two, there would not be a new contract. But purely filling in suspensory conditions, and those were 3 suspensory conditions, an integral safety, two successfully carrying out the practical tests that we have gone through here and 3 the green cost item test, so that is to say, If we had filled in those 3 suspensory conditions, we moved from phase one to phase two and if we were to actually build that bridge,	102 - 102
15:16	That's why we chose those conditions precedent that they had to do that, and I'm not really used to that.	73-73
16:13	Those 3 conditions precedent very briefly, We asked for some field trials to see technically substantively that the. Work can be done well In the whole crisis welding work. We have fully completed the safety process and in operation was a very important one.	74-75
Subsection: Views on the use of criteria between different project delivery methods		
Focus on the process instead of products		
ID	Quotation Content	reference
1:15	If you're talking about planning, the whole tender that was one of the objectives/requirements that we were given to at least meet the planning that was submitted and accelerate it where possible. And, we hadn't even been working for 3 months or 4 months, so to speak. Then it was, yes, we are not going to make it there, so in the end I think we even went back more than a year in planning. But based on the motivation behind it, it was just a bit of feasibility and the process time needed to arrive at the submission of the moment of the Water Act project plan, for example, and its dependencies within the consultation structures.	68-69
2:79	You actually have the objectives then as they were formulated in the questioning of which I asked you actually said, that should actually be a result of something underneath, so: we're getting that acceleration, we've got a low risk profile, we've got a plan that aligns with a potential satisfied environment that we can do it safely. Well, that's actually things that, that's your final destination. And we have continuously realized that the way to get there, the way you map out that road has to lead to that outcome.	64-65
2:80	Yes, other forms of contract obviously look very much at the product and that product that is being measured against those criteria. And then it's just a matter of ticking or ticking. In a two-phase contract Do you implicitly assume that if the process towards it is good and has gone well, that result will come and if that result is not completely satisfactory, then there are valid reasons for this, because you have walked the path together and you remember that tree trunk you all had to climb over. Yes, that puts you at the top a few days later, but we all know why. So now your question is, yes, but does a different view of things legitimize the achievement of that goal? And I actually think so	71-71
2:82	Interviewer Is the process driven by money? Interviewee Yes, but again, as a result. That's how I've always experienced it. Of course there is a focus on money, but we were all convinced that if we set up the process in a certain way, that if we filled in the right preconditions, that would be a result. Because I think so, that's why I might also emphasize you extra, there are still so many projects that put that emphasis on that money, on the end result, on the measurability of the end result, while then you might just be too late , because what if that does not suffice? Then how do you know?	73-77
3:78	Well, time, money, quality, so to speak, they're very important. Because that's where we were In the design team plan elaboration phase Of course also as a triangle at the front of the crossbar. That was constantly monitored. In the 4 design loops that we have gone through, these things have always been included. So at a certain point you had the plan, the things we were going to make, they got more and more refined and better in quality. We did that together because of all that knowledge together. And the price that ran in those design loops also carried to the final phase. And there, yes, then you have to have a good feeling about it together at some point	74 - 74

6:53	No, well, no, We've been at it for 2.5 years now, we're going Of course, don't change anymore, But I think If you're talking about capturing KIPs at the beginning, so not just a piece of culture or organization, but also working method.	362 - 362
7:28	That a contractor can put a little more into it if yes, we agreed on this in the beginning and That is always stick to the plan, because changing, that always costs money and the hassle we are in now That costs also money, but it is unsaleable as a client to say, yes, I will stick to that, because we have of course already agreed.	90 - 90
7:29	That's also what the market finds a bit difficult, because we started with the image: All bridges are about to collapse, Then the project objective was as soon as possible Renew all bridges for 100 years, while actually We still have to make a new project objective But it will not be 'as soon as possible', but then I think it will be more 'controlled or predictable' and not everything for 100 years, but it is allowed for 30 years and then not renew everything, but renew a part'. So then you see that actually all key words, The 5 key words from the first objective, are actually diametrically opposed to the key words of today. That a contractor can put a little more into it if yes, we agreed on this in the beginning and That is always stick to the plan, because changing, that always costs money and the hassle we are in now That also costs money, but is unsaleable as a client to say, yes, I'm sticking to that, because of course we've already agreed on that.	90 - 90
8:14	That would normally be the case, but that didn't go well in the end, yes, so in principle the quality would perhaps in principle be the biggest goal in the first instance, so to be able to perform a certain amount of work, so to speak and thus to indeed get that corridor Made. But we are actually also a bit overtaken by time, so at some point you will also end up in cutbacks And, that is now the problem that we have that we now have to deal with, so that we still have do not have a realization contract, so also have to shorten the scope again, so that you actually have what you initially had in mind Maybe yes, yes, still have to Let it go Because in the end time and money and then mainly Maybe money still are more important if there is no money yes then you can not do it.	92 - 94
9:16	Making it possible is done by the client and we (the contractor) make it. They need us to make it, wi 86 - 88 need them to make it possible. And, then you have to understand and understand each other very well. That the essence is that you keep finding each other, you can't do without each other. And if you want to make the right agreements about that collaboration and make the collaboration negotiable, yes that ultimately leads to good planning and staying within the budget. And if you deviate from the planning that you understand each other where you deviate from the planning and why you deviate from your budget, that you understand that.	
12:28	So I think that empathy for each other and understanding each other that whatever position you're in, that you see that among other things in that mutual support.	220, 220
13:12	At the same time, we knew, we have already communicated that In the dialogue from dude, for example your planning That is very, very ambitious and we wonder whether this is feasible if they look at it themselves, pfoe then it is really a tough one, well, is just a challenge. And in the yes In living together through that phase 1, that image is also simply confirmed, but you also understand it from both sides, insofar as there is still talk of it, but Why? So why it takes a little longer and why it costs more money? And then because there is more understanding for it, it feels like it is being judged softer.	105 - 109
14:15	Yes, If you look at rest in an organization, it is true that at the moment That you say that you, But the you have the opportunity to postpone the deadlines that have been set together with your client, don't you? Do you notice that this gives peace of mind in an organization ? The moment you say that you have to meet a certain deadline, yes, that will lead to stress in various places, especially for a contractor. Very often you also see that fines are imposed on deadlines, so that stress is not nothing, yes we have to meet deadlines that we have promised in advance. And in this case Yes, it turned out in several cases that we were able to adjust that date, I say now, with the greatest of ease. And that is a completely new insight that we have gained and which has therefore led to a lot of peace in the organization. But the downside of that is that you feel less pressure and in some cases you do, which you hear several times in the corridors, like yes but there is not that much pressure on this project so we don't have to worry too much to make. That is a bit of a disadvantage that you also create that people run a little less fast.	114 - 116
Shift toward shared responsibility or criteria		
ID	Quotation Content	reference

3:78	Well, time, money, quality, so to speak, they're very important. Because that's where we were In the design team plan elaboration phase Of course also as a triangle (consultancy, water board and combination) for the crossbar. That was constantly monitored. In the 4 design loops that we have gone through, these things have always been included. So at a certain point you had the plan, the things we were going to make, they got more and more refined and better in quality. We did that together because of all that knowledge together. And the price that ran in those design loops also carried to the final phase. And there, yes, then you have to have a good feeling about it together at some point	74 - 74
4:16	Yes, yes, I am, I am convinced of that. Because of this cooperation, the problem is also shared, so it is not the problem of the client who has to figure out something that causes the planning to overrun. No, it is a problem of the design team as we called it at the time and together you look at it, integrally, from okay, what is the problem and what are the ways to solve that problem. There is already profit number one, that you use each other's expertise in this and to be fair, a contractor is just a bit more thorough than a government agency regularly and by opening up that problem and sharing it with each other and talking about it, you simply cultivate understanding before that. So as a government we sometimes have to go a little bit faster and accept that Chinese is on the table and that you don't leave the house before the problem is solved and the contractor sometimes has to accept that it's okay, but there is still a whole decision-making procedure behind it , which opens that up with each other about making decisions together, because you really do that in an integral team yes you support that and you no longer have a discussion there about.	
8:19	Well, that's what you'd expect, but that's exactly the point I just made to you. Because in the beginning, as a client, we did not sit around the table much and now we still come up with all kinds of questions. What makes the contractor think, yes, now you come up with all those questions? But yes, If we (OG) don't do that now, we will soon be responsible for the design, you understand, so that also creates a bit of that urge from the client to do those checks anyway Because we will soon have the responsibility, so and we don't want surprises later on. And that does indeed affect the cooperation between client and contractor.	121 - 128
14:22	In addition, in phase 1 we even said goodbye to the approval process. So we have with each other, normally there is really an acceptance process in a UAVGC, isn't it? With regard to some documents, we decided in phase 1 of this project that we were no longer going to do that that it would suffice if there were signatures from both parties under specialists and the, say, the authorized representative. and that we would no longer have to go through an entire acceptance process.	157-158
16:27	Yeah, and that really spills over into that mutual support. Yes, so that is indeed about it for me. For example huh? A good example where questions often arise about design responsibility and making design choices. We have made a very clear delineation of who is responsible, which design choices, whereby we have the DO level as design responsibility and UO level lies with the client. But the design choices that are made jointly and where certain expertise within the client team is busy, it is simply used for design choices that servera ultimately makes. Interviewer But responsibility then lies with ON? Interviewee Yes, unless a question is asked very explicitly to the OG, well then, but that is really being discussed and it is really being looked at together. For me, that is also a sign of how the collaboration works formally and informally? Yes, formally you just need a number of contract legal agreements to keep it workable with each other in order to properly share responsibilities. But that doesn't mean that you can't just help each other to ultimately bear your responsibility. There are things I'm responsible for, but that doesn't mean I just have a lot of support from my counter partner now and then, without it diminishing my responsibility. Yes, I am still responsive to my counter partner, he just helps me, I can spar with my counter partner, He can take over certain things from me and vice versa, Without my contract changing legal responsibility	145-150
Flexibility of criteria throughout Phase I		
ID	Quotation Content	reference

3:78	In the 4 design loops that we've gone through, those things have always been included. So at a certain point you had the plan, the things we were going to make, they got more and more refined and better in quality. We did that together because of all that knowledge together. And the price that ran in those design loops also carried to the final phase. And there, yes, then you have to have a good feeling about it together at some point	74 - 74
6:12	That's what's in our build team agreement and we haven't set any criteria for when the first phase would be successful.	76-80
7:29	That can also change during the ride. And, That's also what the market finds a bit difficult, Because we then started with the image: All bridges are about to collapse, Then the project objective was as soon as possible Renew all bridges for 100 years, while actually We still have to make a new project objective But it will not be 'as soon as possible', but then it will be I think more 'controlled or predictable and not everything for 100 years, but it is allowed for 30 years and then not renew everything, but renew part'. So then you see that actually all key words, The 5 key words from the first objective, are actually diametrically opposed to the key words of today.	90 - 90
8:14	But we've actually kind of caught up with time as well, so at some point you're also going to end up in cutbacks. so we don't have a realization contract yet, so we also have to shorten the scope again, so that you actually have what you initially had in mind. money is even more important if there is no money yes then you can't do it either.	92 - 94
10:15	You also get a better chance with the customer to take a closer look at that. Really a detail to look at. Good examples are maintaining trees. Well, so you can look into your design. Oh, we're gonna maintain these trees, let's fan the anchors, then we can just leave the tree. In the DC you would flip it over and then it just goes straight ahead and that's it anchors straight and those are the important aspects that get more attention in the two phase contract.	73-73
14:15	Yes, If you look at rest in an organization, it is true that at the moment That you say that you, But the you have the opportunity to postpone the deadlines that have been set together with your client, don't you? Do you notice that this gives peace of mind in an organization ? The moment you say that you have to meet a certain deadline, yes, that will lead to stress in various places, especially for a contractor. Very often you also see that fines are imposed on deadlines, so that stress is not nothing, yes we have to meet deadlines that we have promised in advance. And in this case Yes, it turned out in several cases that we were able to adjust that date, I say now, with the greatest of ease. And that is a completely new insight that we have gained and which has therefore led to a lot of peace in the organization.	114 - 116

16:14	<p>Interviewee</p> <p>Yes and Success is therefore not in that sense what you receive as an assignment as a project and getting an assignment does not mean that you simply accept that assignment 100% and can fulfill it.</p> <p>The acceptance of such an assignment, that is part of okay, I accept that with certain preconditions with certain uncertainties about it yes in those preconditions uncertainties, they are very important in the end In the perception of how successful you are.</p> <p>Interviewer</p> <p>Up in such a first phase With, for example, a Design Construct project?</p> <p>Interviewee</p> <p>The advantage of phase one, I think, is that things may still be unclear and uncertain during phase 1, while you are already working on concretization together. While with a regular tender, if it is D&C or RAW or whatever, then you ask parties to make a design and a price, based on a guideline, and that guideline must be 100% certain and be 1 starting point. Only then can you compare different registrations with each other. Only that handhold is a false certainty, because you just know, don't you? Everyone knows that A that, that handhold you offer, that set of requirements or that set of starting points will probably not be entirely true, so there are always bandwidths and certainties, but you just have to assume a truth. And B, in addition, that truth can also entail all kinds of different changes during the course of the project. The false certainty that is given at the start of such a tender and on the basis of which the offer is made, carries a very large risk and that is that people will start to believe that it is really true. And if People start to believe that it's really true, and that January 1, 23, for example, was really true, And I don't have the chance to say like dude, but know that there's only a 20% chance or less than a 20% chance that we're going to get that. That January 1 and It's really true and then I have to take the message from guys, sorry, But it's really now 2024 with all the Uncertainties included, yes, at the time you said that in a regular project then it was "yes but it says January 1, 2023, right?", what are you doing to me... while it was now on we knew that these and these and these uncertainties there were these in this performance, they had this and this effect In the planning and everything all things considered, we still come out within that margin of uncertainty that we also had at the beginning, just not with the Less than 20% chance that we will get there on January 1, no we will come out sometime in 2024.</p> <p>And I think that is what makes the first phase different: it is that you can, can, and will state very explicitly that there is no absolute truth yet, but a bandwidth and that bandwidth you reduce together.</p>	81 - 87
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Section: Factors of Collaboration

Communication

ID	Quotation Content	reference
4:24	Well, communication should have been more important. I say that in particular Because you then had the core team and then the whole shell around it, with all the People who are advisors, who are working on plans, who are writing and you noticed that the decision that was made in the core team, that that was sometimes an issue that then caused unrest.	103 - 103
6:23	This is a two unit. Communication and trust, yes, because if you don't communicate enough, whether consciously or unconsciously, that can make people think you're withholding information and that creates distrust, right? So think, This is a two unit	166 - 166
7:51	Communication what I see there in a construction team and also very much touches on trust	143 - 143
8:24	No, they're also out there, so not that. Everybody's here, so that, because I think right now the project organization about 150 people. Or something, so that's quite a lot, isn't it, and then you're constantly switching gears like, are we now talking about which information is relevant to whether or not to communicate to which layer, so that sometimes makes it complicated and because we so now that we are currently in quite a tough time with those cutbacks and things like that, you notice that this is becoming increasingly important, because people want to know how things are going, but it is very difficult.	194 - 198
9:27	Communication is again important with coordination, how do you bring this (coordination) together (by communication)? How do you keep doing things together?	139 - 139
10:22	It's all about communication, That's still the hardest part of Van of a project team composition; do you understand what I say to you and vice versa? There is so much noise in between, there can be a lot of noise in between. Communication is one of the most important pillars for cooperation.	113 - 113
12:30	communication is very important? Because we really talk about it with each other. We also explain to each other Why it is, so talking about it with each other is important,	225 - 225

13:28	Did I mention communication? And one you hear what the other says. I think so too, sometimes you ask, do you really understand each other?	204 - 204
14:28	Yes, in communication I would put it at number two. Communication is the hardest thing in my opinion, because yes, it depends on so many factors. It has also turned out that it is just incredibly important how you say something. Yes, what is said, how it is received. It is very difficult though. In addition, trust is even more important, because at the moment that someone communicates something that doesn't go so well, say But that you say, but have confidence from it will all take a while to this. Lay down for a moment, But that comes across as wrong. If you have that confidence in each other. Then that is reasonable to deal with.	227 - 227
15:42	<p>I'm very much in favor of open and transparent Communication, so I don't really have a secret from you in that sense, not from Nobody. Not also inside. Project, not Because I am convinced that being Clear about Why I Do What I Do or Why I Think I Should Do What I Do will help you be empathetic to the extent necessary for a discussion we are having. The moment I hold the cards to the chest and would have a different agenda. Yes, then That then feels like throwing up fog or preventing it from ending optimally. So that's how we act In the technical team also between the contractor and Rijkswaterstaat, by the way, we don't hold a card to the chest, We put everything on the table and sometimes harsh words or harsh conclusions are thrown, and That is never meant personally But if something is shit, then we just say shit and then we don't say well Maybe we can also look at it in a different way that doesn't help and works visibly, then you need, so to speak, 3 meetings to get to the core to come. While you can of course do it in the 15 minutes, that does require That that safe atmosphere is that People feel they can put on the table what they want to put on the table.</p> <p>That they can put down a judgment or an observation, even if it is harsh and of course Everyone tries to express themselves with respect, but without personally attacking anyone. But if something is not right, it should be possible to say so and then others should not take offense, so that is a tricky one and that sometimes goes wrong. So I also often try to objectify signals that are There, but to be clear from the start. That's how the flags hang. Let's look for a solution together, but if it's not good, then it's not good and then it will be said. And yes, that is also a curve that you have to go through and I am convinced that if you achieve that, you will also facilitate empathy to the maximum.</p> <p>Because then yes, do you know what drives the other or why he does what he does.</p>	237 - 237
16:31	<p>Yes yes and then communication, yes, communication then. Yes, always important and perhaps even more important in the sense that you are much more concerned with each other's underlying interests and there you see that language matters a lot, so that was used for concepts. Do we understand the same thing? With the same understanding. Look I, so I don't know about this project, but from the front project of nijkerkerbrug that I often talked to my counter partner about. Well, that's an exciting topic. And it is used excitingly, he went into stress, his director went into stress and and was suddenly thrilled. Yes, but wait a minute. While by that I meant of exciting, that is, of It is, It is something that we don't know the outcome of yet. Certain bandwidth around it and we don't know exactly where It's going to come out but well that it's pretty under control 12 for him the perception was exciting of well, We really have no idea what It's about and so forth while say the same for the same situation I meant, they used the word challenge in their culture. We have a challenge. And, we should try to stay in there. And just that you know that from each other that If I use the word exciting, that his studies went upside down. From stress and I knew that in that context it will be a while. Well We do have a challenge here on the project because this and this and vice versa that he knew how he could use the pretensioning in our in.e organization Faceless driving. So communication is very important in that and I think even more important than regular projects where that communication often runs along the lines of the contract provisions.</p>	167-168
coordination		
ID	Quotation Content	reference
1:24	(Coordination) Whether an individual of work awareness about dependent in front of work. Yes, that is also very important. And here too there is also awareness about dependencies and things like that. Here is also very, very important, that integrality. The integral aspect of your team is there. And I also think that it came out quite well.	135 - 135
2:94	On the collaboration, that would have led to even more coordination, even more understanding of each other what we're doing, I would have led to even more efficiency.	124 - 124

2:102	No, except then in terms of that coordination, who this what, and when can I start from somewhere? that those differences will be expressed again.	140-140
3:92	Coordination, alignment. So what I said is that you are aware of what you are doing together, what you have to do and what influence that has on someone else and that you know that someone else is sometimes waiting for your product to so that's why I rate it high.	132 - 132
4:25	And coordination was important, but not so much a focus of the whole stage approach. You do otherwise for those you have working on a particular topic.	104 - 104
5:32	Of course coordination that's always important but if I look at this specifically then say well that's here extra importance, less important that every project you have to have coordination, so I would score a bit lower in this case, not saying it's not important, but it's not If you compare this first compare a construction team with another project.	162 - 162
6:29	We've got those here. We shouted really loudly at the beginning that we thought that was important, but we never really nailed it down. And I still think you should do that first when you start your team. Interviewer And then it's about dividing the roles within you. Interviewee Recorded that when people do not fit into the team, they are also said goodbye. Just, yes, yes, especially roles past,	173 - 177
7:47	Or how should I put it? Look, with Trust I really see in a construction team this is more important than with a two phase this is more important, while coordination Yes, It Still is, otherwise you give them all a 5 Yes It is still very important, etcetera. I can also write a whole epistle, but then I say, yes, this is a bit more 'as usual'. That needs to be coordinated, but we haven't arranged anything for that.	137 - 141
8:25	Yes Because we work with many different disciplines, that is also relevant. If you're talking about for example planning. Alignment If someone is waiting for someone else to finish, then you have to coordinate well	199-199
9:26	And coordination just the axis, when I look at the pyramid, that's another tool, the role coordination, that you can facilitate team cohesion, balance contribution and also cooperation	139 - 139
9:30	I have 15 or 20 disciplines here, then that is very important, you have to bring focus, you can only bring focus to your team if everyone knows what to do and that is only possible if you trust each other and do the right things.	178 - 178
10:44	Yes, we do To provoke that, call it luring we do it once In the 6 weeks we are really just with your feet on the table. A nice snack and then just literally ask how someone is put together at that moment. How are you feeling? Which activities do you not have to do? But that will come naturally if he runs into something like that, he or she? Does that contribute a lot to also pull the exhaust valve loose again, but before blowing off the steam, doesn't it? So at a certain point you see in other people that it increases a lot and the emotion is getting higher and higher than in such a conversation, that can just be completely pronounced again because in the delusion of the day, you don't always have time for that and we notice with a large team if you just do that once in a while. And sometimes it doesn't have to take that long is that it really contributes to someone staying comfortable again, or or Maybe not overworked yes, should it say that someone just notices that they are not being heard ?	230 - 230
11:29	Coordination yes that it works or it doesn't work that basically as far as I'm concerned that happens naturally, because if you can't go any further, then you're going to look for something that I can, so that's how it would be. Should succeed and .	126 - 126
14:27	What do I think coordination? Yes, I think that is less important for the cooperation. So I would put that below	223 - 223

15:32	<p>Yes, coordination. Yes, that's an important one. I see here as an example that through that involvement in the cooperation and everyone's personal interpretation of it, we have the pitfall of getting Everyone involved in too many things, so by being clear about the division of tasks, the division of roles and also organizing consultations in such a way that not everyone is watching, but only those who really pass. And that's something we well, I think about 3/4 years ago we introduced. Until that moment we sometimes had to deal with talking too long with too many People about certain decisions. Well, the more People you involve the Longer it takes. Yes that that became unworkable Because the progress of the work stagnated and so I said that, but no, We are going to approach that differently. If a subject pops up, we check who these are, there are 3 or 4 at most. They're going to pull that thing. They share their conclusions every week or every month or depending on the timeline of that process With a wider circle Well, they then provide their input and adjust it And then we work towards the next iteration, But we don't start from day one working out this plan with the entire team, because then it won't work, so we had to intervene, say as a core team to do that. So that If you then say that communication and trust well then about that I would. Set to 5 yes.</p> <p>Interviewer</p> <p>And that coordination. Was that because you hadn't clearly defined your roles beforehand, your duties, responsibilities, and your roles hadn't been clearly defined. Or was that? Because it actually became too Yes, I say so cozy such a ...</p> <p>Interviewee</p> <p>I think we have indicated very clearly to the contractor in his P&P which officials There are, what roles, tasks and responsibilities are involved. But it is, and it cannot be otherwise, always on a general level. Integral safety falls under Pietje. The concrete topics I just talked about were hey, something has to be done with the scaffolding. A scaffolding touches Yes, costs money, so it touches a contract. It has to do with the progress of the work, so it is determined by the planning, so Project management plays a role when technical matters are involved and safety is an issue. Well, then you have a specific expert in that field and his associated manager that he falls under. Yes, If you're not careful and we hadn't thought of that in advance when such a topic pops up, do we put the managers together with 3 or 4 and or do we put those experts together or all 8 or 10 or 1 of those and 1 of those and 1 of those And is that? It is then up to that level that kind of tables that are not worked out in such a P&P and they also differ whether you are talking about the scaffolding or, so to speak. How do you set up your building site? It is also not possible to think of all that in advance, but what we have neglected is the moment those things pop up and yes, we actually left it to the Progressiveness proactivity of People in teams whether they joined in. And now yes, We have an advantage and a disadvantage that we have quite a lot of proactive People So too many People joined that. And yes, then it became unworkable to take steps quickly. So that's how we adjusted that.</p>	147 - 152
16:29	<p>And yes, what made it even more complex is that we are here with two organizations, so we have at Coordination is difficult, because you are what I just said that will support each other and and jewel very clear continue to distinguish between who is who is doing what and who is of what? and where that is fairly easy to delineate in a regular D&C contract, but just being able to stick to all kinds of contract provisions and requirements that are contained in it, we are, and that is also part of the pilot character of the project, looking for that and that means sometimes you have to make choices about things that have never been made. About who is, what and what kind of choices do you actually make and who will determine that? And you need structures for that in a project team, but also simply need management instrument</p>	152 - 152

16:30	<p>Well, the separate responsibility anyway and the question is yes at some point becomes a task performed by a person Part of whether that person can perform well there, is knowledge and skills, but also the context in which they work. Sometimes that is, for example, an organization that is just very hey, If we don't as a project. Having to coordinate with an administrative environment Then it is simply useful if there is a client behind your name, then it is easier to talk to an alderman than if it happens from the contractor's point of view. yes Those are those coordination things that you just say Van dude, We have administrative consultations, someone from the client simply has to be present. That's coordination to me, but it's also in, isn't it? The coordination of, for example, those design choices that you. Yes, who is best able to substantiate and make that choice? That is more fluid in such a two-phase approach than in a regular approach. In a regular approach, it is simply the contractor who makes the design choices, period. And the coordination is in it, But that is the question from me, so isn't it, is it due to the two-phase approach, or is it because you are just shifting into how the responsibilities are and how the division of tasks is, Because you are just doing something new, it is also possible with the next one that you that you are going to work with a contract or with a win, say one..... If you choose a different context, you will always have to start looking again from where is your interface now and who is who, who stands for what at the crossbar and that requires coordination, so my feeling now says a bit of I think it is more down to the pilot character now, of we are doing something new and we have to check again from okay, who is where and who is doing what, then that it is very much dependent on two phases.</p>	157-159
Balance of member contributions		
ID	Quotation Content	reference
1:27	<p>(Balanced contribution) Yeah, this one turned out really well too, I think. I dare too. Drop here, with especially that dominance, I do indeed hit. That was also quite a learning process during the tender phase. That we are good with a tender phase is actually only technology People together and yes I am already a bit of an exception. Because I also have a little more eye for the emotional development of such a team. And we learned very strongly there, and were able to continue that well, that at a certain point in that start-up phase we regularly sounded the alarm and had consultations and then everyone suddenly flies back to their loft and then: hey ho : how did the meeting go? Everyone go off. And also during the consultation. Which certainly impressed us when we were still in that tender phase, you very often see that the People where your technology prefers nothing more than to talk about that technology and in as much depth as possible. So it happened that people had prepared a presentation and we didn't even get the opportunity to, say, present the presentation and the layers were already 3 4 people over it. They already fell over that and interrupted someone who had prepared his presentation and at some point you see someone like why am I actually presenting? I'm exaggerating a bit now, there were those moments, I could time it reasonably well, so then it was like everyone in his 'pen', he prepared something, he first presents that presentation and then we go to that other discuss. So we were able to extend that very well towards the first phase of the two phases.</p>	138 - 138
1:28	<p>interviewer That was important to get everyone to speak? Interviewee Yes, because there are some precisely those People who, as a rule, because yes, well, I used to be one of them myself, I was not so quick to open my mouth either, but precisely those People who have quite a lot of knowledge who every time get that slap on the head from Because someone else wants to tell his story, they have something like well late, but I'm done with it.</p>	139 - 142
2:97	<p>Yes, you always have to look for the balance there, and when we selected ourselves for this tender, we on our side tried very hard to pay attention to that. Extensive application procedures have been completed to see which People fit best in this tender, so that we can properly connect with the client when accepting the work. for the whole</p>	132 - 132
	<p>responsible. Of course I was allowed to direct, but everyone had their input. What is just very important to me is that they did not become islands, so to speak, so the different IPMs roll, because we are there together, we have to do this job together and also look over each other's fences and that is what super important to me. That you don't drift away from each other like islands, so to speak, because you all have to deal with each other.</p>	67-67

3:93	with a case like that we were together with different disciplines, so everyone just had their voice, so that is practicality, a piece of the environment, a piece of compatibility, well all those things that were there, they were there, so to speak, and then they make a joint assessment of what are we going to do in this case? And then yes, then different variants were drawn up that could be yes, maybe 3 or 4 variants and then together we came to the conclusion of well, then we're going to do it like this. And then of course it may be that concessions have to be made in the field of a certain component. It is very difficult to say whether this was done in a balanced manner, but it was done in an honest and communicative manner. Yes, that balanced contribution, certainly important, but it is actually more important, I think, that you talk about it well with each other, why you do certain things, so I now tend to put it at 3 because you do it in good consultation .	133 - 134
4:28	Yeah and that balanced contribution from the team, I think that's the third one. That particularly appealed to approaching matters integrally, so outside of that team cohesion also really all parties who were working in the first phase in their expertise Let them attach equal importance to everything and then again on the basis of team cohesion and confidence in good cooperation.	107 - 107
6:24	Collaboration vs testing, and it's important that Everyone puts in some effort to arrive at a product and not just find something about something	167 - 167
6:25	I think this is a nice guard for dominance team members. And, it's actually a bit of 'too' is never good right, so too much dominance is not good, but neither is 'too' passive and then you get a bit sluggish. Condition of so so yeah, that's a little bit. It's good if people just tell it like it is for once. Because a construction team can also ensure that it is all covered with the cloak of love, while here too in a construction team you simply have to be able to address each other.	171 - 171
7:60	Also no different than usual	169 - 169
8:29	Yes, so it really has to do with disciplines, because I do think the works are a lot of people on this project and it shouldn't be the case that you have to form 200 opinions together, right? I do think that you have an IPM team that ultimately actually makes the choices. There are a few People who just have to make choices and therefore show dominance in order to choose a direction. It's not that it has to be a big happy story. I do think that all disciplines should always be involved in everything, but then I look more really from the IPM structure. And when I look at our project. We also have a core team and then we sit at the table with 12 people; I think that's too many people. Hey, so, so I don't know if that one belongs here too, but does it? I do think that you, so I think that all disciplines should be represented, but that in principle there should be a representative from one discipline that participates and an IPM team. Because IPM basically covers all disciplines, doesn't it? And that's the steering mechanism.	180-181
13:27	balanced contributions. Well, this is a nice one. Me, I like this one too In the sense of yes, sometimes in a phase of a project you need a little more of one thing and the other is a little more in the background, right? Actually, yes, you just see the Execution Team technical team. Yes, that cauliflower is moving towards phase two, because that's just the focus on that, while in phase one there is also more focus on Maybe. There is more focus on project management and contract management and price, so that also touches on a balanced contribution.	243 - 243
15:31	Balanced contribution sharing knowledge. I see that as that collective or as an example of that joint development from DO to UO also yes, we are technically involved in that as a team of experts. And there well, In the first conversations it quickly became clear what everyone's expertise or strengths were and in that way we actually witnessed the realization of those designs, calculations and associated plans. And there are, well, literally passages that the client has written down. These have ended up in a work plan of the contractor. And then that was also a shared and supported plan, so that it was actually agreed very quickly by pressing the button for Everyone.	146 - 146
16:28	Balanced contribution to me are two are two aspects that are important of on the one hand do you want to which organization is decisive? and in addition just within the team indeed of individuals how do you deal with that? what disciplines, eh? Sometimes it is just important that some disciplines are in the lead, sometimes it is good to weigh up different aspects or until you come to a choice before you decide. I don't think that's very different from regular projects and I think it's very important that you pay attention to it, but I don't think it's much different with other projects. Maybe it's even easier with a two-stage approach. , because it gets explicit faster.	151 - 151
Mutual support		

ID	Quotation Content	reference
1:31	And it also ties in a bit with the fact that you are also saying something from my experience And what relates to another discipline then I wasn't hit back like hey go into your own cage (read discipline), you're from environmental management, aren't you? Do you know that? So, if that's what you mean by that kind of mutual support, that went well. I'll just put this one here for a while at 4	153 - 153
2:98	, was this always present and because of that, after those dips in that development chart, from that coordination, we encountered those bottlenecks, it didn't work, it didn't work, was it difficult, was it always that we started from that well, mindset and the need to help each other that we could always take that curve steeper.	133 - 133
3:95	Mutual support, yes, that fence that you have to look over that I was just talking about. I don't think it's the most important thing, but it's very important. Everyone has to stand in front of their own toko, but yes, you have to do it together, say you also look over the fence so someone can't pull it off, then someone else should be able to jump in once in a while.	135 - 135
4:31	Look, if I ask you the question of you should be responsible for coming up with a solution for. And then I'm going to ask dude, where is it now? Didn't we agree? Then you get another accountability culture, while many of my good ideas in that first phase were perhaps the most worthless ideas in retrospect. But If I hadn't shared my idea, we would never have come up with a better idea, then the others would never have been able to respond to it. So wanting to do that together, because you know that if you help each other, you will also benefit from it and that your own project will benefit from it, yes, I think that will disappear completely	140-141
7:59	also very connected, also to communication and trust about that and also to the Team cohesion, that we all see together What we're doing and what's the bigger, what's the bigger story. Of course, it also partly affects the team's effort	168 - 168
8:26	Yeah, I think of this more as that culture. This is one that I think we will be working with within the project struggling. Not that help is not being offered, so to speak, But that every now and then you might see some misunderstanding towards each other, But that's also because of the situation we're in so I assume that's not, that won't be something that standard within a construction team project.	201 - 202
11:27	And of course mutual support plays into that, but that has to grow and I think that's one independence.	124 - 124
12:19	Because If you support each other then you also understand each other, because then you know. So understanding each other also means you have some sense of how the team is put together, what the stakes are, so I think you have a lot of those other things in there as well	176 - 176
13:24	understand mutual support, but I would rate it a little less, say mutual support. Yes, that one is also very that one, is also important. I can imagine what you chose here In the In the In the organization of the project structure that there is an IPM model of the client and an IPM model of the contractor that form those counterparts, I could imagine If you choose for a setting where you're on a construction team, right? So with 1 IPM team from different OG and ON. And that other things are important. So 1 roll holder for every IPM roll from either ON or OG.	205 - 206

15:30	<p>What we do, But that is also actually possible without having to push it. Is that technical managers There are yes two one technical because yes different realization manager and me. We are closing each other's holes, so if one says Van hey, I'm sitting up a bit, I just manage to do those actions. Jeroen do you want to do that? Yes, that that, we just do that and we take that extra step vice versa, that also works that way, so I think that is related to effort, but it also depends on mutual support, so between the contractor and the consultants from the client, but also from the contractor to the client and vice versa. I don't really want to rely on that. It's there and it's good, so I didn't have to focus on that.</p> <p>Interviewer And, That was right from the start. Interviewee Yes, from the moment it was necessary, it was bad. I just said the contractor's technical people are down. That was, among other things, Because there was too much on his plate, but also that well, I think Insufficient was shared, so he dropped out at some point. Then the two others who are sitting there now, yes, and they said at some point of dude. We're not pulling it now. Can you help me? Because yes. So, well, it requires that communication, huh? Openness and honesty and transparency. And dare to ask the question for help, yes, and if it is asked, then it will come, so well, you could also have said, would have done half a year earlier. Wasn't that first person? Yes, that, That was a piece of transparency What was not there at the time, so that it remained underexposed and that the main question was not asked and the offer of help was not made.</p> <p>Interviewer And that mindset that you close each other's holes, that was necessary here or? Interviewee Yes, that was always the approach, but yes, it also requires knowledge of where are the gaps or what does he run into and also clear communication about this from I run into this, help me or I, I understand not how to do this, can you shed some light on that? So that yes. Well, it didn't need a steering wheel.</p>	135-145
16:27	<p>Yeah, and that really spills over into that mutual support. Yes, so that is indeed about it for me. For example huh? A good example where questions often arise about design responsibility and making design choices. We have made a very clear demarcation of who is responsible, which design choices, whereby we have the DO level as design responsibility, and UO level, lies with the contractor. But the design choices that are made jointly and where certain expertise within the client team is busy, it is simply used for design choices that are ultimately made by the contractor.</p>	145-150
Effort		
ID	Quotation Content	reference
1:32	Fairly distributed effort is, I think, a bit hard to measure because everybody has their periods.	154 - 154
2:100	<p>Well, the team comes first, it was, but what you really noticed was that there were differences in terms of effort. Especially about, because that's actually what I call it already, everyone thought that they did everything they could to make the best of it to get everything out of it. Only the amount of effort that something requires, that also has to do with how you are used to doing it. So the working method of People on the client side in a first phase versus People who are used to doing something from the implementation point of view, there is simply a difference. How do you arrange something, how do you do something, how do you separate main issues from side issues, What do you prioritize, and If you find something important, you arrange it today. But that's just a way of working based on what you experience outside.</p>	136 - 136
2:101	So here's what you find out. That, here you can find something about the effort of the team, but that is colored by your own glasses.	136 - 136
3:89	Fairly distributed effort within teams is that if you do it together, I think that's a little less exciting. I find that less important, because we do this together and look over the fences, so to speak, it is not necessary for someone to sit and watch like ho, I should actually do more.	129 - 129
3:103	You see, and then you have a good conversation about it with each other, and then you can still choose from the left or from the right but yes, say that blood group, but also let it mix with In the In the whole then you can benefit from each other again and you achieve synergy. if People	163 - 163
6:27	, provide no input and a little and if one thinks that one should do more than the other not good for cooperation either	172 - 172

7:57	We have to do all of these 1,000 to do's. And when those are all checked off, then we have construction team completed and then we can start building outside. We mainly work here in the IPM clusters, so then it is often obvious in which cluster the activities are located and I have never actually heard that Jantje and Pietje say about the 1, yes, you have to do that and you have to do that. so you should do. I don't quite see that...	159 - 159
10:24	Well, and then you have the effort. Yes, effort team uniform awareness about evenly distributed effort within the team. We are very busy with and prioritizing a common goal. We made a joint risk file. We have a goal that we successfully complete the final project. Well, then you have to make an effort together, then we need both the client and the contractor just as much. You can't put someone first there either. We build it Maybe, but it has nothing to do with it. That's just a small, also a small part of the whole Work so I would say those 3, okay I'd say those very quickly, those are by far the most important.	115 - 115
12:17	so that's about you each other you understand that the contractor's effort in this case now now that we in the UO trajectory, that it is bigger than us, but that we also have to make a certain effort there to ensure that as a joint team, eh, so contractor can move forward with the water board, right? You can't always put the ball in the other's court. So You must understand each other Yes, how do you say You must know? Well, that's okay, but the team comes first. I think that's a difficult one, so if you see the first bullet I think that's important. That is also working together.	159 - 159
15:29	Yeah, I think the team's effort hasn't necessarily required attention. The team members like me experience my immediate circle are mainly the techies of the contractor's rule of law there Yes I don't doubt for a moment commitment or That they are willing to go the extra mile, that's just in the nature of the People or those People in any case. So I didn't have to put any specific bets on and I think the contractor, the contractor's technical manager, neither did that. What I said, we come up with an approach and we implement it, don't we, and periodically we keep our finger on the pulse and think, hey, that approach still works, uhm No, that's not going well at this point, so we need to take a step back and do things differently. Yes, that means that a draftsman, so to speak, who first set up 20 drawings in this way, has now all worked for nothing and has to do it in a different way. Yes, he / she is from there, that's not very convenient, it costs me time, but there was no discussion whether he was going to do that and whether he felt like it. He understood very well from hey, we have such an innovative approach or innovative process, you will have to deal with this in whatever form, so. That, it didn't need a push to take that step and say, well, I'll handle it fine, so That was an example of that for me. Here is someone with your heart for the project, so to speak, and he is not. Need driver from me or from someone else to turn that on. Works to do. What we do do, but that is also actually possible without having to push it. Is that technical managers There are yes two one technical because yes different realization manager and me. We are closing each other's holes, so if one says Van hey, I'm sitting up a bit, I just manage to do those actions. 'Interviewee' do you want to do that? Yes, that that, we just do that and we take that extra step vice versa, that also works that way, so I think that is related to effort, but it is also related to mutual support, so mutually between the contractor and the client consultants, but also from the contractor to the client and vice versa. I don't really want to rely on that. It's there and it's good, so I didn't have to focus on that.	133 - 135
16:32	How is it in the end in reality where we have to think it up at the front, but how is it also arranged in practice. And then the question is always, okay, is that appropriate or do we have something to deal with in that? In the sense of dude, We had chosen now as a starting point, didn't we? For phase two, the client's team must be available for so many hours. Well on a certain discipline there is For example not, that has an effect on how much effort is needed From servera. Yes that That is, say a normal conversation. We have laid the foundations for that and when that happens, we can deal with it together. I think it is very important because you know the basic principles of each other so well that with a two-phase approach you can and must discuss the discussion in detail much faster here, instead of, says Van ja, I received a prize for you just arrange for it and just say what you need from me and I'll see if I can fill in or not.	143 - 144
Cohesion		
ID	Quotation Content	reference

1:34	(Team cohesion) Yes, if your involvement, responsibility, team spirit if it is not present at the right level within such a team, then that cooperation is not going to succeed either. It's just a very important one that we've worked hard to get right from the start, especially when you get it right, then you have to try to keep it right, so you have to regularly you have to put the dipstick in there again.	171 - 171
2:104	At some point there's been a section in that first phase where there was so much to do, but there was also so much specialist knowledge required that basically the whole team doubled, so to speak. That puts pressure on the collaboration because it is then difficult to keep communication in order, it is difficult to coordinate it, you are looking for that balanced contribution, but you simply do not have enough time to coordinate it. That support is lacking Because People don't know about each other, so you actually end up in a kind of undermining of all those principles.	149 - 149
7:53	team cohesion I see that here is also partly in line with communication that you are all working towards the same goal have eyes where you what you work for. That is also the reason for the onboarding of Everyone that Everyone also understands, even if you have been appointed to design a specific part, but that you understand the entire context. And that you also want to guarantee with those drinks that onboarding that monthly construction team Update of what we all have 1 goal and all contribute to it.	155 - 156
7:78	team cohesion, because you want to avoid drifting apart in certain situations and sometimes it helps if someone from the contractor says to his colleague. I say it, sometimes it works the other way around. Then we choose Well, I do the talking, because then it really comes across If the client thinks this, so yes, we sometimes optionally participate in switching who does that.	202 - 202
11:24	Well Team cohesion, so to speak. are we standing here again for the same assignment? Do we do the same and can we save together in such a way that we can help each other? Are we 1 team?	115 - 115
15:33	team cohesion. Those mutual relationships between the team members, they are very important in all Unexpected situations you encounter, so it is important, but that is between the client and contractor, but also between me as a technical manager and the contract manager of the client, for example. That I'm aware of that. That contract manager has certain things that he has to arrange and it makes little sense for me to stick to my things Without being able to make concessions or compromises. And yes, that is very important, because then you understand each other and you can as a team.	179 - 179
16:26	To see ourselves as a team is a precondition for really fundamental cooperation. The most beautiful moments you have as a team in a two-phase approach and the moments when you no longer even realize that you are actually sitting at the table with different parties, but that you are just sitting at the table with a team.	135 - 135
affective trust		
ID	Quotation Content	reference
2:109	That also allowed us to make a lot of choices quickly, because we just had a confidence that we were making the right ones.	158 - 158
2:110	confidence was very high here. I think it is a result of the cooperation that trust throughout high, but it played a very important role	158 - 158
5:29	Yes, of course they are all important. I think When I look at our construction team I put trust at 1, because if you don't have trust in each other, then I think the rest will also be difficult, so it is very important that you have trust in each other. there is also a lot of mistrust towards, in our case the contractor, because they think of the contractor who only wants to earn money, they are a bunch of scammers if I chafe. There are just real people who think about this based on their experience from the municipality. So that well, that you first really, yes, as it says here, create a foundation of trust. Before you can start working on the rest.	150-150
5:30	Yeah, so bet a lot on that at the start. Also by, for example, empathizing a person Selecting. Also on the municipality side People who can move around In the contractor and yes, just to have an open conversation about what are each other's interests? If you get to know each other as people, you will eventually gain more confidence in the professional.	154 - 155

7:42	The basis is always trust, which I really see as crucial and that that must also be safeguarded at the higher levels. Because the organizations use their yes best resources here, there are just a lot of very good people walking around here who, from the partners, also very much like to be deployed on other projects, so everyone must have confidence in the construction team that functions here And That is also behind the choices that are made on the higher hand, In terms of who do we put here In the construction team? And that we, I just mentioned several times, insight into each other's world that I also very often here and I don't call that on the beer box downstairs, but just against the top two here from the contractor, well spoke to the alderman yesterday and Dit and dit plays etcetera. Because we don't surprise each other Yes and really just trust optimally and also discuss what We have in advance with directors, which also includes both contractor and municipality. Yes, that we prepare thoroughly and that we don't let to surprise.	131-132
7:43	Because of course it just has to be In the whole day-to-day goings-on In the various working groups, but then it will be a bit more practical. So a little more from above. Yes, that you really try to operate from the 3 clients in a kind of quiet cheese bell jar and that they also have confidence in the people who are active here and that they also understand that choices are made every now and then	136 - 136
7:86	and that also creates some dissatisfaction with the staff here the staff wants to leave or the contractor leaves and then before you know it you're in a negative spiral so it's also very important that they deal with that a bit mentioned the beginning to also have a higher level at the management level that can secure it with each other in terms of Empathy, trust, communication, what are we in, and that they really understand each other of yes, If I were Elian personally, I would have done this in the morning, But it's just not a direct route as an 'elian civil servant' from here to here, so you always have to deal with that route.	244 - 244
10:23	Well, and if you don't have confidence, then you also have trouble communicating. Then you don't believe what I say. Yes, exactly the same. And That is also with finishing more works. VTWs yes. If you have confidence that I genuinely need a VTW Because it is simply not within the scope contractually, only then will you believe me, don't you?	114 - 114
14:25	What you what you can expect from the other person that. He too, just say a fulfillment of what they say eh, so so yes, they sometimes say, it comes on foot And goes on horseback and, That's also my idea. That is actually true and it costs a lot. A lot of time to make sure that you have confidence in each other and that you know what you have in common. That is also expensive for a long time, maybe it will even take a few years, even I can't say that myself. Yes, it does take some time before you do that. Developed together Have and It is also going very quickly The other way. That this project has also experienced that, but the influence of one of a new team member, say yes, can put the matter under considerable tension within a week. Surely that is the moment when I thought yes, geez, yes, now it will go within a week it will just go from a situation in which you work together perfectly well to an escalating situation. And so you see that the That 1 single change of a team member can be quite essential In the further development of the team.	197-198
Section: Relationship between collaboration and project performance		
procurement process		
ID	Quotation Content	reference
1:14	very typical that Everyone at the end of that tender phase had the concern of how are we doing philosophy what we now have with each other, with what we have been working together for two years now to get it to that level, how are we going to safeguard that in that implementation phase? The fact that you then exchange ideas with each other, that Everyone who shares that care actually says quite a lot about how that is mutually experienced. It shouldn't be, because you now have the cooperation with each other, stripe, and We have the UAV-GC contract again: client contractor. We all took care of that. That should not result in us having that dividing wall	60-61

1:27	Yeah, I think balanced contribution worked out really well too. I dare too. Putting down here, especially that dominance, is indeed what I'm talking about. That was also quite a learning process during the tender phase. That we are good with a tender phase is actually only technology People together and yes I am already a bit of an exception. Because I also have a little more eye for the emotional development of such a team. And we learned very strongly there, and were able to continue that well, that at a certain point in that start-up phase we regularly sounded the alarm and had consultations and then everyone suddenly flies back to their loft and then: hey ho : how did the meeting go? Everyone go off. And also during the consultation. Which certainly impressed us when we were still in that tender phase, you very often see that the People where your technology prefers nothing more than to talk about that technology and in as much depth as possible. So it happened that people had prepared a presentation and we didn't even get the opportunity to, say, present the presentation and the layers were already 3 4 people over it. They already fell over that and interrupted someone who had prepared his presentation and at some point you see someone like why am I actually presenting? I'm exaggerating a bit now, there were those moments, I could time it reasonably well, so then it was like everyone in his 'pen', he prepared something, he first presents that presentation and then we go to that other discuss. So we were able to extend that very well towards the first phase of the two phases.	138 - 138
3:82	I dare say that the collaboration actually starts with the tender. You then go looking for your parties, you set up your process in a certain way	97 - 97
4:18	Yes, first of all, a lot of time has been put into the collaboration throughout the whole procurement process. I didn't have those conversations myself, but did teams look specifically at what teams can do, how does that collaboration work? Could that be a click and if there are striking things in it, how are you going to respond to that together?	88 - 88
5:9	We're not happy with how this turned out. Not necessarily to say that this is representative of all two phase contracts, then we also have several other two-phase contracts that are more satisfied, but we are not here because it takes much longer than the council had outlined beforehand. And how to put yourself also part of, huh so you well where I point to the municipality I also point to ourselves but no. Of course the client had sketched a certain picture during the tender of well, I think it was halfway through 2021 that we would start outside. Well, we are working on some things outside, but not with full scope as was the idea at the time. So it is very disappointing how long it takes and how difficult. It's about completing that design together and arriving at an implementation contract, so until that second phase comes.	30 - 30
6:53	No, well, no, We've been at it for 2.5 years now, we're going Of course, don't change anymore, But I think If you're talking about capturing KIPs at the beginning, so not just a piece of culture or organization, but also working method.	362 - 362
7:34	At the start of the construction team, a very intensive process was already started about how we establish that collaboration,	98 - 98
how we	improve it 13:14 I think it was very important here that we already In the tendering phase We have had moments in which we 'experienced' the Rijkswaterstaat team, so to speak. The team assessment has also been a nice experience, so that is still before award	116 - 116
13:43	But that's right. That's right. So I do think that if In the tenders In the acquisition tender phase if there is attention to investigate that as well, but is there a click and you can therefore work together for years Without annoying each other. Yes, that helps, so that's that. I think it is also part of a team assessment. The research on yes is, is it a match?	327 - 327
15:14	What we had here was selected during the tender for collaborative competencies.	54 - 54

16:15	<p>Maybe the single most important premise I've been in from the start in my team, hey, it client team, where you start Of course, we start with the client team and at a certain point the market parties join in and eventually the contractor has come out as if in the funnel.</p> <p>One of the first messages I gave to my team is, do you realize that everything we communicate to the market from now on, that already lays the foundation for the collaboration, because the ultimate collaboration partner that we're going to make this project with, who lives from this moment along, We don't know who it is yet, but everything we're going to do from now on already influences how that partner will look at Us. And, that already means to us before the market consultation and certainly with the start of the market concentration and how did you organize the market consultation that we were already very aware of what kind of cooperation partners are we? As a projection team of Rijkswaterstaat, what do we expect from our contractor and what kind of tone of voice, what kind of openness and transparency, what kind of culture do we ultimately want to create together?</p> <p>And I am very much in favor of that: how you approach others has a lot of influence on how they will approach you and so you will have to show behavior in that which is an example for how you want to work.</p>	92 - 99
Collaboration as a factor for other criteria		
ID	Quotation Content	reference
1:11	Also important for my colleagues, right? Because yes, you work together and the stakeholder manager of the client to me just a colleague. So despite the fact that the water board works for a while and I work at GBM, that is also one of the positive effects of that collaboration. In the preliminary phase, isn't it? That you, therefore, both the stakeholder manager of the contractor and myself have simply flown through in that output.	47-48
1:18	Yeah, I've never actually seen a D&C, say, where that collaboration turned out like this <u>underline</u>	102 - 102
2:87	Then if the goal isn't clear enough and there's too much focus on the process, then the individual differences in expectations just become discussions and you have to have those discussions. We have always had those and how you get out of them determines how you pick up the line again.	93 - 93
2:110	confidence was very high here. I think it is a result of the cooperation that trust throughout <u>high, but it played a very important role</u>	158 - 158
3:80	Yes. So yes, in that sense you actually have a whole package. Of course yes that you want to do it right that you do want to do within the budget and what is needed for that you have good cooperation with each other. Yes, and that you trust each other and then it would be different, that's what it's going to be like, isn't it? And then that intention of all parties is really super important that you do indeed have people on the other side of the table who also want the best for the project and who want to provide all the transparency needed to say trust in each other. but to build	83 - 83
4:15	Yeah, look, you made the choice to deploy two phases very quickly in this case. So yes, from one preferred alternative, which was actually Yes so global with a lot of big question marks in it, we said well, we are going to give substance to that together with the contractor in phase 1. So you are entering a very long lead time and yes, especially the part of yes, trust and the part is cooperation, I think that has been central.	72 - 72
5:44	I think so, look, I haven't measured it, so I don't know how empathically strong this team is, but kind of by feel. I think, yes, there was a contract manager from the municipality, but he also had a background with a contractor, so I could put them in our shoes very well and yes, that was very pleasant for us to work with, because he just understood what was for us was important. Yes, that is really different now because you have to explain a lot of things 10 times, which in itself is understandable that the person does not know that, but that is tiring. While yes, so the other one could put himself in the position of contractor better, so we could go through certain steps much faster, the cooperation was better and the goal was reached faster.	212 - 212

9:19	<p>Of course we also had some trouble with the COVID In the beginning. We did have a project startup physically together and then the COVID period came again. Anyway, we just really shot at society in its entirety in studios. I work in studios to simply find each other, client and contractor, where you mobilize all knowledge to get the most out of the design. We just did that at Corona distance in a very large hall together in a van der Valk.</p> <p>In order to work together in this way, to cooperate integrally in everyone's interest, the environment manager sees this, implementation sees that, cables and pipelines see that, that every shareholder or stakeholder (discipline) is appointed in it and you can see that that has paid off and that you really have a well-worn design.</p>	103 - 104
11:14	<p>We also work with business case of business cases. Or you call. That yes of is it useful or can you do a different solution or do not want to mention a Trade off measure. Continuously busy. We have a risk file, we said. We also think the cooperation is important. Are we doing the right things or are we just hobbies? So if I have a hobby of, I like everything to innovate and I'm doing that. But it contributes to our control to stay within time and money to achieve our quality. Just say, well, we have also made a difference by saying Let's sit down together; what are your risks? What are my risks? Who can best manage it? So allocating it to who can best manage it, says nothing about who takes on the time consequence or the money consequence. But who can control it best, so to speak.</p> <p>We (OG) must make it possible for work to be made. Well, an example: if that great crested newt is not gone, you cannot start. Another thing is that I (OG) can't dig a lot, so I have that control right with the contractor Because To be put in the planning earlier. And so we shared that kind of thing with each other in terms of collaboration. Well, that worked like a tirelier.</p>	69-70
11:16	<p>If I really see that as a success factor. We must be able to understand each other, say we want to be able to collaborate. And, that doesn't go through a booklet as far as I'm concerned, in this booklet it says at rule 12 that I have to do this. Now I do that, then my work is done. Then I look outside, yes, it is upside down.</p>	79-79
13:19	<p>Only if the relationship is bad, yes, then that automatically has an impact on progress, fun, also on the money for the cost, yes.</p>	175-175
14:16	<p>Collaboration is a very development process after all. Of course you put all new People together, regardless of which party they are, right? If we have to put together a new project for the contractor and that is always a challenge. You have to get to know each other first before you start trusting each other and before you work together</p>	122 - 122
16:20	<p>The belief that we all have is that filling that condition precedent is only too do at times when cooperation is in order.</p>	105 - 105
16:24	<p>Looks yes yes yes yes yes well problems but just purely after after after work, but also to take advantage of opportunities each other, also to be more predictable, also to enjoy your work and it has a lot of different results if the cooperation is good and they are certainly also on the hard elements, aren't they? So on time on money, but certainly also on fun, predictability and success.</p>	118 with 18
Mutually supported products		
ID	Quotation Content	reference
1:10	<p>I think they're very pleased too. That is mainly due to the technical side that you bring in a lot of practical experience from that side, so that your design also greatly increases the feasibility of your design.</p>	47-47

2:81	<p>Yes, other forms of contract obviously look very much at the product and that product that is being measured against those criteria. And then it's just a matter of ticking or ticking. In a two-phase contract Do you implicitly assume that if the process towards it is good and has gone well, that result will come and if that result is not completely satisfactory, then there are valid reasons for this, because you have walked the path together and you remember that tree trunk you all had to climb over.</p> <p>Yes, that puts you at the top a few days later, but we all know why. So now your question is, yes, but does a different view of things legitimize the achievement of that goal? And I actually think so. We have seen that when you did it in a different way (regular contract) and you therefore looked at those products much more and you were therefore not aware, or actually thought something about the process, you therefore approached it from the moment those products were the basis for the next phase you didn't understand each other in many areas there were all kinds of blind spots and there were all kinds of risk profiles in your project that you didn't know in which you actually already Maybe even from day one or otherwise just two weeks later directly at odds with each other and not immediately In the negative sense, there are a lot of projects that are also at odds, just go on in a constructive and collaborative way. You just don't want that hassle and noise, because it creates a very large bandwidth on the final cost picture on the customer side.</p>	71-71
3:78	<p>In the 4 design loops that we've gone through, those things have always been included. So at a certain point you had the plan, the things we were going to make, they got more and more refined and better in quality. We did that together because of all that knowledge together. And the price that ran in those design loops also carried to the final phase. And there, yes, then you have to have a good feeling about it together at some point</p>	74 - 74
4:31	<p>So wanting to do that together, because you know that if you help each other, you also benefit yourself and that your project will be better off, yes I think that will disappear completely</p>	140-141
8:16	<p>Look, in principle, of course, the idea is that you call in the expertise of the contractor. Only I see in two-phase contracts that you combine the expertise of both parties. And, I think that too little happened in the initial phase, which actually puts a bit of pressure on the collaboration now, Because now as a client you are going to be more involved in designing, so that questions arise again and the contractor has the feeling that yes, but would it have come up earlier? Just say, huh. So you can feel that tension now.</p>	106 - 106
9:19	<p>Of course we also had some trouble with the COVID In the beginning. We did have a project startup physically together and then the COVID period came again. Anyway, we just really shot at society in its entirety in studios. I work in studios to simply find each other, client and contractor, where you mobilize all knowledge to get the most out of the design. We just did that at Corona distance in a very large hall together in a van der Valk. In order to work together in this way, to cooperate integrally in everyone's interest, the environment manager sees this, implementation sees that, cables and pipelines see that, that every shareholder or stakeholder (discipline) is appointed in it and you can see that that has paid off and that you really have a well-worn design.</p>	103 - 104
10:15	<p>Yeah D&C is just money quality and always planning, those are the 3 most important in a D&C is That's just that Because it is in competition and with a two-phase contract you get more chance for the safety aspects, more chance for the environment; people who live on the dike want to experience as little nuisance as possible. Together with the customer, you get a better chance to take a closer look at this. Really a detail to look at. Good examples are maintaining trees. Well, so you can look into your design. Oh, we're gonna maintain these trees, let's fan the anchors, then we can just leave the tree. In the DC you would turn it over and then it just goes straight ahead and that's it anchors straight and those are the important aspects that get more attention in the two phase contract</p>	73-73
12:42	<p>I'm really going to see through that. I'm going to help you get better quality, but take me so early possibly along. That is a way of dealing with each other, so you must also be clear in the empathy that you have</p>	239 - 239
14:20	<p>yes, now we were sitting together at the table and direct decisions could be made about certain working methods, which means that the approval process has also been completed.</p>	152 - 152
Achieving performance through understanding		
ID	Quotation Content	reference

1:39	So that also creates that, also contributes to good cooperation. That when you feel well understood because of the other person you also want to go a step further for that, so to speak So that's normal. Yes, It's not a short answer, but there is a bit of how I think empathy is very important for a successful collaboration.	212 - 212
2:86	So you actually bring two blood types, you bring two cultures together, with the one who is used to always doing it this way, the other one who is not used to doing it that way, yes that influence is there , so you're in your 'that's how I always do it' thought and suddenly someone asks you yes, but why do you do it that way? Because this leads to an outcome that Maybe doesn't suit us Or that doesn't suit the project, You have to do it and it would be wise to do it another way	92 - 92
3:101	Yes, that empathy, it's super important. You come from different blood groups. Different nests and different cultures, so you definitely have to, and there were those project startups and the project follow-ups are also based on it, so to speak, to understand each other. Look there where the contractor is often given set frameworks and he says Yes within those lines, say I have to color, so okay, then we'll put the lines out of gas. Yes, and we as a client are much more in favor, especially in such a plan elaboration phase. Yes, that is simply possible for residents who can still put a stick in the spokes and the municipality and the province and yes, yes, it has to be completely different. So yes, we are actually on different playing fields and we (client) are a bit used to being creative in that plan elaboration phase, say and the contractor is more tight, so we had quite a period that had to get used to each other. Dan came from the contractor; come on, we have to go on and if we don't then we won't achieve our goal from within us; yes, we should give them a chance and we should also listen to them, right? You have to feel each other on that, so to speak, and empathize a bit with those different worlds. That is certainly important.	161 - 162
3:102	But the great thing I've seen is that we can actually help each other with that and that a contractor will have a better understanding of how that works with those residents and how things work administratively, for example, with a client that sometimes takes a lot of time . Well, there you also saw a movement towards our playing field, with ours benefiting a lot from the fact that they are a contractor much more driven to meet the schedule and to look for solutions and to yes, so keep going.	163 - 163
6:40	Well, I've been through that now, I understand, and that also helps a bit of collaboration and sometimes Can you also help the client with that?	228 - 228
7:70	If you have more insight into what the parties are dealing with, then you form a piece, then you understand each other more, you know where it comes from. Well then you also have trust towards each other, but I think that can really give that collaboration	196 - 196
a positive swoosh.	8:18 at least the importance of the cooperation where you also notice that there is a difference just to put it that way say and That really is that the client operates differently from the contractor and that there is a cultural difference. Whatever I said earlier. And that I have the idea, let's say that the contractor sometimes does not understand if there is indeed an external factor, so that there is suddenly a need to cut costs. Yes, we as a client must act accordingly. And there is sometimes a bit of misunderstanding from the contractor for my feeling, but we have to continue and, at least that's what I say myself, I've said that a few times, also to people from there and then also a bit of the disadvantage of a construction team or, of a two-phase contract. Because you don't have a realization agreement yet, it hasn't been fixed yet and then a city council is indeed possible or huh? Then something can suddenly come from the right, which means that we as a project are much more influenced and then have to adjust something.	113 - 113
9:16	Yeah, you just realize you really need each other. Hey, so I, I always tell him you have 2 things, it distinction between: enabling and making. Yes, for me there really is a difference in making it possible to make a project. The client makes it possible and we (the contractor) make it. They need us to make it, we need them to make it possible. And, then you have to understand and understand each other very well. That the essence is that you keep finding each other, you can't do without each other. And if you want to make the right agreements about that collaboration and make the collaboration negotiable, yes that ultimately leads to good planning and staying within the budget. And if you deviate from the planning that you understand each other where you deviate from the planning and why you deviate from your budget, that you understand that.	86-88

10:16	The important thing for a two-stage contract is to set it up properly that you understand each other's interests and snaps. And then we also got more and more in the eye. Yes, the environment is very important for the customer, so we have to do a lot with it. With such a two-phase contract you get more opportunity to talk about it and also to price it down. So I keep repeating that a little bit, but unfortunately it's just the way it is: you're a contractor. In the end you have to try to keep a two 3% left. Yes, choices are sometimes made and that doesn't mean that the environment always gets worse, but you have to turn something around.	79-80
14:36	I, I think then. I think that has to do with it. With to be empathetic you have to do a little understand, what is going on on the other side of the pie, then you must have been in that situation a bit, I think. To be able to be a bit empathetic, and that is especially when you start on such a project, which is then a pilot project, isn't it? . Is it sometimes difficult to be empathetic. That you don't always know what goes on in processes, activities, cultures of the other party. And yes Over time, yes, that changes, and you become more empathetic Because you gain more insight into what moves the other person. So that certainly increases in the course of such a phase 1. You get a little more insight into what we all have as a goal, a little insight into what is going on at other parties. Yes, that also gives you insights and that also makes you more empathetic, I think. I'll do that more based on tomorrow. Because that can be substantiated with examples.	259 - 260
15:17	You have to get to know each other. Well, for example, compared to a client team where you set up something new for a new project, you all come from the same organization, you all have the same interests.	83 - 83
15:19	Yeah, those are typical of those triggers that things get on edge and the important thing is that you don't get in each other's hair and fall back into Old behavior in distrust and those contractors are there Just to screw us over and the client is only trying to be difficult and it works to frustrate. Yes, you have to get around that and then you need to realize hey, we came up with that plan together in phase 1	84 - 84
The relationship compared between project delivery models		
ID	Quotation Content	reference
1:49	That collaboration has to pay off, financially. That was often one of the, despite the fact that I was Of course also just enough People you could just get along with, but in the back of my mind it always played like I have yet to see that settled there.	251 - 251
2:75	So our experience from other projects has been, choices are made in a process, in a phase actually, that have a huge impact on what we have to do outside by People who don't have to do it outside. So we want to be able to take control sooner, so that we can properly cover our interests in the implementation. And in that we very much saw the added value of those two-phase contracts for ourselves. There are just so many risks associated with your working method at the same time there is also a large part of your cost component tied to that and We all want to strive for a program that is as affordable as possible and we wanted to influence those choices and that was our goal	36 - 36
3:86	I think the effectiveness is less in another form of contract, because here you are already In the tendering, say you're working on that, huh, like dude, we're going huh, that mindset has to grow, it has to grow. This is how we are going to work together: in openness, trust and transparency. If you have done a different tender and People are involved in the competition in a different way, so to speak, then I think that those important things yield less. Because it's easier to keep closed doors or have a somewhat double agenda.	118 - 118
5:24	Yeah, look, Of course you also work together in a D&C Together because you want to realize that project. Just being I think the tasks, roles, powers have already been worked out much more clearly and then you just have a contract that simply contains clear frameworks and you have certain design freedom and then you are talking about the gray areas in the contract and you can discuss that with each other about it, you have to work it out together in the best way. But you also have to work together there, of course, but it is a different way of working together than in a construction team, where it is really together for the project product that you deliver as a construction team together really stands for this and you have less that financial incentive, so to speak which you of course in a D&C, where you accepted something for a fixed price, yes then you very much have the incentive for the contractor to realize that within that fixed price and under the best possible conditions.	112 - 112
5:25	You have more freedom in the construction team, I think for a real best for project because the scope has not yet been determined. So you can really jointly define the best scope for the project, without a fixed bag of money attached to it.	116 - 116

<p>6:17</p>	<p>The way of working together is different If you sign a UAV-GC contract, you immediately sign for a contradiction. You have the client there who has done a piece of preparatory work, who draws up a contract who bears the responsibility of the government and contractor and who continues with that and then it is only testing and remote. So basically you already create a contradiction there. That is solved by actually in all the works I have done there is also a project start. It looks at matching characters. How do you work together? So that that mode is also tried to shape there.</p> <p>If you look at the construction team here, you can get used to each other in a reasonably stimulus-free environment, right? You work together here Together with the aim of delivering a product with which you can continue and you first do that Together. Yes, so here too we have done a project start-up, but here you get much more opportunity to really get to know People and to know where someone's irritation zone is or how People work or yes you know you you teach someone a lot know better than you do in a UAV-GC contract.</p>	<p>138 - 139</p>
<p>16:22</p>	<p>Yes and the conviction we had when we started and how we certainly discussed that with each other at the beginning of phase 1 and laid the foundations. Really the realization that we approach it as a team and here we have to really get into it, because otherwise it just won't work. The method of tendering and the way in which we selected the party worked together with the attitude of both teams towards working together. That is almost impossible to capture in a contract.</p>	<p>105 - 105</p>



Interviewee statements on the
relationship between empathy and
collaboration

Section: Relationship between empathy and collaboration		
The relationship between empathy and collaboration		
ID	Quotation Content	reference
1:40	So as an outcome/result actually of the empathic behavior Then what contributes to cooperation for you is that you are willing to do more for each other? If I may sum it up like this? Interviewee Yes, you can sum it up like this	215 - 217
2:114	Need empathic behavior to Let People connect with each other, Because you still have to understand how someone is, what drives him or not, what actually stimulates or demotivates People And, that only works through you so much possible to move into that person by looking at where the needs lie	173 - 173
2:132	No, it matters everywhere. The question really is, do you recognize it as a very essential part of a good performing team? If you don't recognize it as an essential part or an important pillar, then you don't get started with it and then you are only concerned with the result and you never actually ask yourself how you will get to that result. Then you will show very unempathetic behavior, If you see that you are not going to achieve that goal at some point.	210 - 210
4:32	Yeah, what gets more, I think if you break up like that, start working a little more apart, then your coordination does get a lot bigger again. That you are going to send yes, I am really doing this again, like hey, I will get this from you and Why don't we have sister and if you are from something and I am from something else, then you will point this out to each other and now it was the common goal and working towards something so central that coordination that yes, that actually almost happens automatically.	145-145
7:68	Because then you really want to go a little deeper with each other and then you also give each other Things or what's bothering you, or you expose yourself a little	189-189
more	1:36 a little slower and you have more time to understand each other show or understand each other of these are the do's and don'ts, we understand each other, because we are really two different blood types.	170-170
16:39	If you were to describe empathy, also understand from each other what interests are behind it and what that means to someone does and Why someone thinks that's important and so on If you delve into that, I think it's much easier and much. Better Working Together	206 - 206
16:40	will demonstrably take this into account: I understand that need, I also understand what works and I can do it name and I have weighed in on this this way in how I act or what I decide.	204 - 204
Differences in cultures and ways of working		
ID	Quotation Content	reference
2:114	Need empathic behavior to Let People connect with each other, Because you still have to understand how someone is, what drives him or not, what actually stimulates or demotivates People And, that only works through you so much possible to move into that person by looking at where the needs lie	173 - 173
3:101	So yes, we're in different fields, actually, and we (the client) are in them got used to that creative phase, so to speak, and the contractor is tighter, so we had quite a period that had to get used to each other 3:102 But the great thing I've seen is that we can actually	162 - 162
help each other	in that and that a contractor will better understand how that works, with those residents and how things work administratively, for example, with such a client that it sometimes takes a lot of time. Well, there you also saw a movement towards our playing field, with ours benefiting a lot from the fact that they are a contractor much more driven to meet the schedule and to look for solutions and to yes, so keep going.	163 - 163
6:40	Well, I've been through that now, I understand, and that also helps a bit of collaboration and sometimes Can you also help the client with that?	228 - 228
8:37	think it's very, very important to understand each other well, because then you also understand Why certain things happen, so I think that mutual understanding is important, because based on that you can also understand Why someone acts as he acts	254 - 254
11:36	a little slower and you have more time to show each other understanding or understand each other of these are the do and don'ts, we understand each other, because we are really two different blood types.	170-170
12:26	Well, yes, that, you see that, you see that back, I think in understanding the other way.	204 - 205
14:37	Yeah, I think that's always good. Is to be empathetic. That certainly contributes to understanding and yes, acceptance of the other party.	263 - 264
15:34	understands why and how the other organization works the way it does and therefore where the employees of that regarding the organization what their cadre or their What they are used to doing, how they are brought up in projects that you understand that and of course you expect that the other way around and I am convinced that is a key to success	190 - 190

16:40	will demonstrably take this into account: I understand that need, I also understand what works and I can do it name and I have weighed in on this this way in how I act or what I decide.	204 - 204
Empathy based throughout the project organization		
ID	Quotation Content	reference
2:129	At the same time, there are colleagues who are very generalistic, very broad, common ground and dependencies have a lot of people in the shack and therefore are much busier with it, much more active with it, but who also take longer to connect with people because they simply have to divide that time very much.	196 - 196
4:49	<p>Interviewee</p> <p>Empathic level well, I think there was a difference between, you really had that that that management team and the shells around it. I think the management team worked very well together and also had a high level of empathy, because they often sat together.</p> <p>And the surrounding shells could have been better in my opinion, that that could have been highlighted a bit more, because it doesn't just mean that a two-phase contract doesn't just take place at management level, but certainly also on the entire shell around it . I think there the empathy towards each other was lower than In the management team and I will not be In the management team then, so I can't fully judge that.</p> <p>Interviewer</p> <p>Have they become empathetic because they spent more time together, or are they more, or should they be more empathetic from their position as management. Is it more important there?</p> <p>Interviewee</p> <p>No, I do not think so. I think they are empathetic Because they were there yes and then we get to a very deep level, because there I feel like a lonely knight in this battle I think Because I worked very emphatically in that shell around it and then felt you really do have a difference of, hey, hello, in you guys are very clearly working towards a certain goal and joint and thing. And everyone who works under that pretty much contributes to that, but you all have to keep the feeling together. To keep that whole Together feeling, that empathy in that shield around it is also very large, it should also be very large.</p>	251 - 257
4:50	That shell around it also sees each other less often. So I think there's a difference there.	258 - 258
7:81	<p>Yes, because I think in certain types of positions, for example indeed, say you're a modeler, then I think 5% of your work is different, you're doing a traditional contractor project, or you're here with the client.</p> <p>Well, 5% is different in terms of type of competencies. While yes If I look now in my round Maybe 50% different, so yes the more you sit at conference tables, the greater those other type of competencies must be than yes, people who are 95% productive at just producing products. Yes, then it is less, then it really is less applicable.</p>	221 - 221
9:39	Of course you do have different character forms in the team and are naturally more empathetic than the other. A constructor who can can be very binary, not empathetic or not expressive enough. Yes, those are things that can also be discussed with you.	214 - 214
10:45	<p>It's not for nothing that a modeler is a modeler and he likes it. That is those who want to be busy with People all day long, then you will eventually have made a choice. I prefer to work with People, all day long, but also a bit with technology, so I have a . Ideal role to tackle. But if I didn't have that with People, tasting people's feelings and but also understanding hey, someone is not feeling well, then I don't think you are a good leader. There are leaders who don't. That is also of course more always excesses. Yes, those differences are Those differences are present, but that also just comes to the place where you often end up. 3D modellers are just a different person than a director.</p> <p>Interviewer</p> <p>But does anyone really need that in such a two-phase?</p> <p>Interviewee</p> <p>It would be very useful for a two phase contract for even a 3d modeler that you have more empathy than a standard 3d modeler. For a D&C job? Yes, that's very strange, but that's how it works. You have to share more, you have to get the feeling from someone else. You need to pulse more. If what I am currently working out is correct, then actually read through the requirements of a contract through basic black and white. Well, that's whole. It's a whole different game you're playing.</p>	231 - 242

13:48	Yes yes yes. I think the longer you are involved in that project, the more it develops. At the same time, there is of course just a little more of the tough men's culture in the implementation structure and there is, of course, a little less of it. I'm just checking it out? Is it even less anywhere else? No. No, I feel it has to do with how long have you been involved in a project and do you understand why empathy is important and why it contributes and do you dare to go along with it yourself.	359-359
15:38	And that So it mainly plays I think with those IPM roles or the management roles so to speak Because you you are in a position that well, I can say the sum, but if there is also a financial interest, yes, then you will make those kinds of considerations and those are angles that you can use from different parent organizations differences. So I think that much more comes along or is discussed in that coordination between the IPM Role Holders than Between the advisors In the teams below.	208 - 208
15:39	Yeah what I do, But that's really kind of an explanation of why decisions are made or were made the way they were made that could be different because of this type of contract, this type of collaboration. Yes, that's part of missionary work, isn't it? Traditionally, as a client, we might now stand on our own lines. But we don't do that now, because yes, that piece of awareness of knowledge and also insight into the underlying arguments. Yes, that is not the case with the advisors who are also more distant, so that is our role as IPM role holders to explain that to the supporters. Why It goes the way it goes and to stand behind it as part of the IPM team.	217 - 217
8:39	Yeah basically well yeah that's a good one too. In principle, you would initially expect it at the highest level, eh, so at least in the core team, I'm just saying that where both the client and the contractor are involved, where decisions are also made. On the other hand, you notice that it is precisely because on the work floor and that sounds very strange, but I do indeed mean the actual executive team that it is least understood there, but that may also be a combination with that communication, so that they are not aware of everything why certain things happen that are happening now, so there is also a combination. You also have to talk to each other in order to indeed get that empathy.	259 - 259
11:44	So that base, I think for every human being it's important, but are you going to put it away against those project goals, don't come as strategic, tactical you can do wrong once and on the operational level say yes, improve the processes.	209 - 209
12:37	I'm always on that tour of It's better to have good relationships with each other than from a red thought. Hey, so If you know who you are, the colors of People are, but If you're in a red thought, so it just has to be now and the latter never really works. But on the other hand, I can imagine that at board level. That's where the interests are of course much more important, aren't they? When it comes to making money or getting too little money, there is something there, there is something there. Of course that is complicated and being empathetic with a little empathy, but in the meantime not getting enough money for a contractor. That's not that, That's not very convenient. So I Maybe In The But I, I'm of the empathic line. I've always said, it's better to work together and if I have to give a little more, one time then the other time then it's good, because then the other time then I get a little more and that give and take too in time and and Maybe also in money and in quality yes, If you solve that give and take with each other in a positive sense Together, you will have a better result than if you do that by reacting red and and and losing that empathy and just saying, listen up a deal is a deal this and well, that kind of thing. But I can imagine. I could imagine that at management level you sometimes need that attitude. Giving and taking and solving issues together will give you a better result than when you do that by reacting red. Then you lose empathy and just say, listen, a deal is a deal. I can imagine that you sometimes need that attitude at management level.	268 - 270
Developing empathy through collaboration		
ID	Quotation Content	reference
2:111	I'm by myself, I'm not a very empathetic person. I'm just a little bit on the edge then sympathy, and being aware of that, I've learned this, so for me I consider it a bit of a learned behavior, because I understand the importance of it but I know I struggle with it myself. That's why I look at it much more than other people, others who do it much more on their own They don't think about it much, or not at all, but they do see the effects of course, but I'm always very busy trying to understand, Because I know that otherwise I will fall short.	166 - 166
4:33	Yes, I think empathy is just the point where I grew enormously as a project employee by working in such cooperation	152 - 152

13:51	It's in, it's in the People and at the same time you also see it coming up more with People who are primarily estimate the authority of well, they may still find that difficult.	373 - 373
14:38	But for us, that mostly has to do with how we communicate with our subcontractors, right? So It is normally in a traditional contract, then say the subcontractors are the concern of the contractor. We hire parties who perform work for us and normally have a client Yes, it doesn't matter to you, does it? That's your party; that's your thing. You have to make it happen. But by, say, sharing problems you experience with regard to subcontractors with your counterpart, In my case the client's contract manager. You also create the client, say understanding On the other side of the table Why you act the way you act, so Yes at the moment that something goes wrong outside as a result of the actions of a subcontractor, then we as a contractor and often tend to to us and say yes, It's our problem, we have to solve it. Well, the client says yes, but why don't you share it then at least I also know about the problem, I can perhaps think about solutions. That was certainly an eye opener for me. If yes, why not? But that before you get there, before you share that Yes, you are a few months further, because that is not what I would say in the first instance, but would share it with a client.	283 - 283
15:37	Yes, I think we certainly have members as core team Those sessions periodically on the heath, so to speak, we take each other in Well, situations challenge you encounter from your role do you explain or describe or and how that leads to problems or what splits you get into as a result and the Other participants then think along and therefore hear the kind of challenge you have from your role and therefore understand it. Yes are also able to If it then we do, often with the wonderful scenarios, but If it then occurs In real life, then because of the repetition and that you have practiced it once in a safe setting, are you able to to recognize that and yes, suppose you have a tendency to respond traditionally, swallow that for a moment and, with the knowledge you have, bring up that empathy and choose a different response. And yes, one is better and faster and easier than the other, Of course, we are all People with different compositions, But I think that as a team we have grown well at that because we can do it from ourselves, but also rely on each other to speak at the moment that it then that you are observing by someone else, perhaps still has steps to make. So yes, that's how we help each other in that.	200 - 201
Section: Influence of empathy on the factors of collaboration		
Communication		
ID	Quotation Content	reference
2:118	Then he's done. These 3 in my opinion (communication, cohesion and trust)	179 - 179
4:38	And I think that communication, you naturally start to share information more easily.	181 - 181
7:73	communication anyway.	202 - 202
8:43	I think to have that empathy, you have to be aware of what's going on, so what the reasons are not out of an internal or	294 - 294
	is external you can see at a certain point someone is walking down the hallway happy or not happy at least, some people see that, don't say everyone sees that. And then you can literally just start asking things like what are you having? Or do I see something is going on? Then you start responding to someone else's feeling. Well, maybe eventually you'll get to a conversation where you get to hear her or his interests.	208 - 212
12:30	communication is very important, isn't it? Because we really talk about it with each other. We also explain to each other why it is so talking about it with each other is	225 - 225
important,	13:38 communication. Well, that's actually kind of a precondition for being empathetic at all can be.	291 - 291

14:38	<p>But for us, that mostly has to do with how we communicate with our subcontractors, right? So It is normally in a traditional contract, then say the subcontractors are the concern of the contractor. We hire parties who perform work for us and normally have a client Yes, it doesn't matter to you, does it? That's your party; that's your thing. You have to make it happen. But by, say, sharing problems you experience with regard to subcontractors with your counterpart, In my case the client's contract manager. You also create the client, say understanding On the other side of the table Why you act the way you act, so Yes at the moment that something goes wrong outside as a result of the actions of a subcontractor, then we as a contractor and often tend to to us and say yes, It's our problem, we have to solve it. Well, the client says yes, but why don't you share it then at least I also know about the problem, I can perhaps think about solutions. That was certainly an eye opener for me. If yes, why not? But that before you get there, before you share that Yes, you are a few months further, because that is not what I would say in the first instance, but would share it with a client.</p>	283 - 283
16:41	<p>One of the things that can be extremely disruptive in collaborative is communication where we always think to ourselves that we're expressing ourselves very clearly when we talk or when we write and can't imagine that others might read into something different or understand something else about it or hear something else and then do something else with it.</p> <p>I think at the moment you're at the level of empathy for what I just gave about the word 'exciting'. The ability to understand that If you use the word exciting, that it can have certain effects further down the chain and therefore you can make your communication much better. But the basis of that lies in the understanding and the will to understand Joh, what are, what is the effect of my words in If I pronounce it or If I write it down. And and at all the choice can be written down or do I do it in an app or do I do it in an email or do it In a phone call or do I do it face to face you deepen into it. Understanding the effect of your communication on a person, for example from another organization, makes communication easier. With that too, We have coordination, for example, a balanced contribution, for example.</p> <p>What is the reason why someone suddenly becomes very dominant in consultation? For example. Yes, that can just be dude You're annoying, don't act so dominant or gosh interesting I suddenly see a completely different role, tell me</p>	212 - 213
5:49	<p>Communication is always important that you also get the message across, that others understand it. But There is also a little less personal empathy.</p>	225 - 225
6:44	<p>To me, communication is information exchange. I write what you receive I say what you receive it. And that communication may contain a bit of empathy, but in the end it is about an exchange of information.</p>	254 - 254
coordination		
ID	Quotation Content	reference
1:43	<p>coordination is less. I think the balance is also less present. Mutual support then again. Interviewer And why would your coordination and balance be less with these two? Interviewee I think it's that you can approach that much more from the Yes, what do you call that? A bit of the sober view / the professional view, say But that you don't need that empathy to come to that.</p>	231 - 235
2:119	see coordination as a practical	179-179
thing. 4:40	<p>I don't think it has much effect on coordination. You have that in cooperation and that is always important. Yes, it remains that mutual support, the team, the willingness to do things for each other, but also for the common interest to think outside of your own work.</p>	186-186
5:50	<p>Yeah, coordination, I wouldn't exactly think that empathy is very important in that. As well if you are still aware about dependencies, well, yes, well, yes. In the end, of course, it always helps if you can put yourself in someone else's shoes, but I wouldn't link it to that as decisive.</p>	226 - 226
6:45	Coordination. Also	258 - 258
not. 7:76	coordination, not so much either	202 - 202

9:34	When your coordination is very binary like "I need this and this from you and then you go away." Then you don't get what you want and then people get into the armor. If I just say dominant, dude this and you're going to deliver all that now because otherwise... Then you don't see what something does to people.	210 - 210
11:38	The planning that's actually kind of a product, that's more the alignment of coordination and communication. Balanced contribution In the team, I think that's really a bit of the behavioral stuff, so to speak. So whether professionalism or behavioral things you can't think is the right word. As far as I'm concerned, that has less influence on that, so how you put yourself together as a person. Yes that me and empathy I don't think so, very much.	176 - 176
12:31	coordination of work. Yes, that's what it has to do with that, of course 16:29 Coordination	226 - 226
	is difficult, because you don't What I just said who will support each other and who will continue to make a very clear distinction with who is who is doing what and who is true of? and where that is fairly easy to delineate in a regular D&C contract, but just being able to stick to all kinds of contract provisions and requirements that are contained in it, we are, and that is also part of the pilot character of the project, looking for that and that means sometimes you have to make choices about things that have never been made. About who is, what and what kind of choices do you actually make and who will determine that? And you need structures for that in a project team, but also simply need management instruments.	152 - 152
Balance of member contributions		
ID	Quotation Content	reference
1:44	Balance I think the contribution is also a little less present. Mutual support, yes. Interviewer And why would your coordination and balance be less with these two? Interviewee I think it's that you can approach that much more from the Yes, what do you call that? A bit of the sober view / the professional view, say But that you don't need that empathy to come to that.	231 - 235
2:120	also see a balanced contribution as a substantive one	179 - 179
5:45	I think it would have a great effect on contribution balance, mutual support, team cohesion and trust, because, well, you can move and also understand where the other person is stronger, so you can accept that as well.	218 - 218
7:75	Balanced contribution	202 - 202
9:29	If I judge him that way, then I think everything is equally important at the beginning, based on trust. But that I think, I think that's all important, otherwise you won't	177 - 177
10:26	balanced	116 - 116
	contribution 11:38 planning. Look, say But that's actually a kind of product, That's more the alignment of coordination and communication. Balanced contribution In the team, I think that's really a bit of the behavioral stuff, so to speak. So whether professionalism or behavioral things you can't think is the right word. As far as I'm concerned, that has less influence on that, so how you put yourself together as a person. Yes that me and empathy I think not so, very much along.	176 - 176
12:32	fair distribution, effort and that balanced contribution that, as far as I'm concerned, that empathy is a little less emerge dominant	230 - 230
14:29	I would like those balanced contributions from team members. That that that? Yes, I would then. The second to last person to make?	234, 231
16:28	Balanced contribution to me are two are two aspects that are important of on the one hand do you want to which organization is decisive? and in addition just within the team indeed of individuals how do you deal with that? what disciplines, eh? Sometimes it is just important that some disciplines are in the lead, sometimes it is good to weigh up different aspects or until you come to a choice before you decide. I don't think that's very different from regular projects and I think it's very important that you pay attention to it, but I don't think it's much different with other projects. Maybe it's even easier with a two-stage approach. , because it gets explicit faster.	151 - 151
Mutual support		
ID	Quotation Content	reference
1:42	Mutual support then again 2:121 mutual	231 - 231
	support, yes I implicitly link that to team cohesion and trust 4:39 Well the mutual support is also becoming more, because if you ask me more than once, I'm also more likely to be tend to go like, oh well, I get it to start thinking along with someone.	179 - 179
5:45	I think it would have a great effect on a balanced contribution, because, well, you can move around and also understand where the other is stronger, so can accept that too.	185-185
		218 - 218

6:43	would say more in terms of team cohesion or bit of mutual support there. 250 - 250 7:71 mutual support, but then you can see, how can we help each other to get a step out of this 202 - 202	
9:35	Mutual support When you say thank you for your efforts, but we're going to do it anyway and it doesn't affect me. Then you won't make it either.	211 - 211
11:37	I think empathy is in the corner of cooperation, mutual support	177 - 177
13:24	I understand mutual support, but I would rate it a little less, say mutual support. Yes, that one is also very that one, is also important.	205 - 206
13:26	mutual support. Yes is fine. You still need to have a common goal.	238 - 242
16:27	Yeah, and that really spills over into that mutual support. Yes, so that is indeed about it for me about.	145-150
Effort		
ID	Quotation Content	reference
1:32	Fairly distributed effort is, I think, a bit hard to measure because everybody has their periods.	154 - 154
2:122	effort that's what i just said that more of a that's a bit of a subjective thing 5:51 I also skipped the effort of the team. Yes, I wouldn't immediately put empathy at the top, say Maar that is the driver to improve this.	179 - 179 227 - 227
7:74	I don't see much effort from the team.	202 - 202
8:45	Because this is more couple that one thinks that another puts in more effort or puts in less effort. Then that leads to that person Maybe shutting themselves off from a person, so That's actually more than the underlying reason than whether or not it actually has to do with empathy.	305 - 305
9:36	Effort from the team, yes you can say team comes first, but if you don't understand why one person can't work overtime or doesn't finish his work, then he doesn't get it, or someone has to be added, or someone is playing something else?	212 - 212
11:39	I think empathy is in the corner of the collaboration, so in his effort from the team and again some support	177 - 177
12:32	fair distribution, effort and that balanced contribution that, as far as I'm concerned, that empathy is a little less emerge dominant	230 - 230
13:39	team effort I think it also affects. Because it touches on the common goal and There are things that may threaten the common goal. And sometimes that requires a little more from one person than the other. And then it's nice to be apart. Knowing that that one person is just as busy with it	292 - 292
14:32	And that effort from the team, as far as I'm concerned, it could also be a little further down.	236 - 236
Cohesion		
ID	Quotation Content	reference
1:45	And, this one (team cohesion) is kind of in the same vein as the trust and the communication.	239 - 239
2:118	Then he's done. These 3 in my opinion (communication, cohesion and trust)	179 - 179
4:30	Yeah, I think that team cohesion. That will really go down. You are not a team then. I think that's just really important In such an approach that you know that you are all responsible, that you do it all together, and that everyone has an input, that you decide together. And I still think If you break up, no matter how minimal, If you make some kind of controlling battle or some kind of commanding battle, Someone whose voice goes a little heavier Then I think very quickly that really Together go for the same result. Then I think people go more for their own result, the one to whom they have to answer.	126 - 126
4:37	Yeah, this is a really sincere one. That really does something to your involvement and responsibility (team cohesion). I think if I would notice that if People are less empathetic, then you will get the behavior I just talked about again, then I will also shout and I will then start steering, yelling and pushing and pulling. Well then the team cohesion doesn't get any better and you also have People who say well I'm going to shut up late But. So you are all extra involved because of that.	180-180
6:43	would say more in terms of team cohesion or bit of mutual support there.	250-250

7:78	team cohesion, because you want to avoid drifting apart in certain situations and sometimes it helps if someone from the contractor says to his colleague. I say it, sometimes it works the other way around. Then we choose Well, I do the talking, because then it really comes across If the client thinks this, so yes, we sometimes optionally participate in switching who does that.	202 - 202
8:44	Team cohesion I think is also an important one in that.	295 - 295
9:37	If you look again at team cohesion, working together as one team, involvement, accountability and you have to know why one is doing this way, because then you understand each other	213 - 213
10:33	So team cohesion changes. That's a very natural question, don't ask it for nothing, but then you'll see the whole circle.	143 - 143
11:37	I think empathy is in the corner of cooperation, 13:40 yes team	177-177
team cohesion.	Yes I type what I like to see that also in this team one has more Empathy than the other And, that's totally okay. So It's not that Everyone who's on a team like that has to be totally empathetic Or that you have to have all of that equally, let's put it this way, yeah, yeah, then you don't get ahead, so you need different People, so the team cohesion yes it is good to have a number of People who are very empathetic it is also good to have a number of People who are less empathetic, because then it creates balance	293-293
16:43	cohesion	212 - 212
affective trust		
ID	Quotation Content	reference
1:41	Yes trust, You put a dot on number one here. Interviewer What then is the result of that? Interviewee Yes the trust, the yes blindly is another statement anyway, in any case You are much more inclined than you are. I gave up at one point that you both come together from different backgrounds. Understanding each other well, so those who have mutual empathy, if that is in order, then you also get that trust in order much faster. And that is reflected in the cooperation that you have with each other. Yes, so that you just have that confidence in each other.	223 - 227
2:118	Then he's done. These 3 in my opinion (communication, cohesion and trust)	179 - 179
4:36	Yes, again on that trust, because then you also dare to say things. You don't have to harm that, so you have to do the right things with it. You can be empathetic today and put someone in a noose tomorrow.	176 - 176
5:48	Yeah trust too	221 - 221
7:72	Trust anyway	202 - 202
9:38	And that's the same thing with confidence, you have to start working from the foundation, and if that foundation isn't there, you won't get there. Of course you have different character forms in the team and are naturally more empathetic than the other. A constructor who can can be very binary, not empathetic or not expressive enough. Yes, those are things that can also be discussed with you.	214 - 214
10:39	Trust, when I see your motivations, you know, feel better about each other. That starts with trust, otherwise it won't happen at all.	191 - 191
11:40	Yeah Team cohesion works that and trust that works Of course a little In hand. 12:29 so	177 - 177
they have faith in the fact that there's going to be a decision, but they also understand and that's that understanding for each other. Yes, that that decision is very difficult because of all kinds of arguments that they also know, isn't it? The striking one I also know.		221 - 221
16:42	Confidence	212 - 212
Section: Influencing empathic behaviour		
Subsection: Factors influencing empathic behavior		
Communication		
ID	Quotation Content	reference
1:47	Communication, I think about that again. Approach the other faster if they have a low threshold. If you trust in someone, it is also easier to approach someone.	236 - 236

5:54	Yes, I gave an example earlier: the structure of the meetings. Always start with a check-in. Yes it feels very soft and are not used to it, but in the end it ensures that you get to know each other better and understand each other better just as a person and that generates a bit of empathy there. So yes, something like implementing a tool in a project team 'start every meeting with a check in', how is everyone doing? Yes, that can improve that, so I think that's a positive example of how to generate empathy.	252 - 252
8:46	Yeah, communication anyway, I think. Because if you are not kept informed of what is going on. Then I think you also close it for that understanding, because you know nothing. Interviewer Is that involvement? Interviewee Yes, but it works both ways, doesn't it? Because You can also ask questions? Show understanding indeed, but that information must also be supplied from above	312 - 320
8:50	No I don't think so. But that may also be due to that, for example, that I am also aware of a lot, because I am in the core team, so to speak. I can imagine that Maybe If I made the designer or Just made the contracts I wouldn't be aware of everything that I Might be different in it. Interviewer Because what kind of project team culture would that be? Interviewee That if you are not aware of everything that you cannot create a complete picture. So that it is therefore more difficult to actually find something about it because you do not know everything.	345-349
8:52	So I think from a collaboration point of view that I should also facilitate it more, which is kind of funny that we are now also organizing a PFU for the entire team in February. And then in groups of 3 in order to collect from People by using a collaboration monitor, how they think things are going now. Because that is something that we try to facilitate that people can actually indicate that. Well, we should be doing that kind of thing more, but I also think that as a core team we should indeed have a PFU much more often. Only what you notice is that we are so busy with all that shit that is coming our way that we don't take enough time to talk about how is our collaboration going now? What needs to be improved? what else is possible? What's going well? to talk about it together. So that, because that leads to you getting more of that empathic ability	379-381
9:44	Nice if you just feel good about someone, have a good conversation with someone. You know someone is in the game I think it's very important.	283 - 283
9:45	Some People react incorrectly or already, then it also makes discussing again. Why are you reacting like this now? What happens now? With you makes very negotiable. In the afternoon I also had a conversation with two managers here at the table, what is happening here? That's a what are. What are the mutual interests? That just makes it negotiable.	286 - 287
13:36	Yeah, I guess it's okay anyway, But it's starting to share those interests, isn't it? And, we already started with that in those first weeks of the Van de after the award. Because that can also be explored together, right? Yes, That is, It is important to know from each other what exactly the question behind the question is. If you do that more often, you will also share it much more easily	284 - 285
13:38	Communication is actually kind of a precondition for being able to be empathetic at all.	291 - 291

15:42	I'm very much in favor of open and transparent Communication, so I don't really have a secret from you in that sense, not from Nobody. Not also inside. Project, not because I'm convinced that being clear about why I do what I do or why I think I should do what I do will help you be empathetic to the extent necessary for a discussion we are having. The moment I hold the cards to the chest and would have a different agenda. Yes, then That then feels like throwing up fog or preventing it from ending optimally. So that's how we act In the technical team also back and forth between contractor and client, by the way, we don't hold a card to the chest, We put everything on the table and sometimes hard words or hard conclusions are thrown and That is never meant personally But if something is shit, then we just say shit and then we don't say well Maybe we can also look at it in a different way that doesn't help and works visibly, then you need, so to speak, 3 meetings to get to the core to come. While you can of course do it in the 15 minutes, that does require That that safe atmosphere is that People feel they can put on the table what they want to put on the table. That they can put down a judgment or an observation, even if it is harsh and of course Everyone tries to express themselves with respect, but without personally attacking anyone. But if something is not right, it should be possible to say so and then others should not take offense, so that is a tricky one and that sometimes goes wrong. So I also often try to objectify signals that are There, but to be clear from the start. That's how the flags hang. Let's look for a solution together, but if it's not good, then it's not good and then it will be said. And yes, that is also a curve that you have to go through and I am convinced that if you achieve that, you will also facilitate empathy to the maximum. Because then yes, do you know what drives the other or why he does what he does.	237 - 237
15:43	One a little more than the other to what extent you are sensitive to things. That is also People's own and Everyone does their best to keep that constructive or to limit it to what is appropriate for the interaction you have. But it is also a fact that one is more sensitive than the other, so you also have to keep some accountability in your communication and in your openness to it.	242 - 242
15:44	The immediate counterpart is not being open and transparent and holding the card to the chest, but also reacting very emotionally and feeling attacked And taking everything personally. Yes, that doesn't help. Yes, regardless of the fact that it is not nice for the person who does that consciously or unconsciously, because they become emotional or they are touched, but also the person who sends the message with good intentions, but may have just chosen the wrong words. Next time he will also think of how I'm going to watch out before I communicate with Pietje or Jantje again, because they are rather those rather long toes In a manner of speaking. That also happens, but we try to help each other as much as possible. By yes, in other words, bringing the same message, objectively and without persons.	241 - 242
16:38	But what's maybe just as important and that's something that my couter partner and I do a lot too, is giving the other person the chance to know and understand that in the first place. So that doesn't mean Just But that I'm very hey rosalie, ask from dude how about it and so on. But also try to tell yourself that you understand that this is how it works in my organization. Or that it is for someone in that position. That this and this happens to the person or that he finds this and this important aspects, so that you are not Only reactive when my counter partner asks for it from dude, what do you actually think of that? No, But I realize for a moment, This is a decision that has to go through my director and my director is so and so and he thinks this and this is an important aspect. And he already experienced this last week, so. Just know if we have to present something or where we take that into account, so it's proactively working on empathy, not Just if, say being empathic yourself, But giving the other chance to be Empathic. I think we unexpectedly spend a lot of time together .	196 - 196
Empathetic ability		
ID	Quotation Content	reference
1:50	And look at the extent to which someone can show empathy or whether they have that quality. That is very bad personal	263 - 263
2:116	But you now know as one of the few that Not something I do naturally, it takes energy from me too, I can of a Whole Empathetic Day can be really completely empty in the end	173 - 173

2:130	Yeah, you know, I rather feel like it's basically just given from your profile (personal profile) whether you're actively involved in that or not, and whether you see it's important to do something about that. do, or not from your profile you end up in a certain place, I believe in that. I do not believe that someone with a very technical profile, for example, ends up in environmental management. So I actually leave that role a little bit in the consideration, Because as a person you come to a project in a certain situation or in a certain role And, it mainly depends on that: is it in you or not, are you aware of it? like it or not, do you do something with it Because you think it works or doesn't work, there are a lot of people who might do it unconsciously, but because of that have a lot of results, a lot of visible results. So yes, it depends on the person and not necessarily the role.	200 - 200
10:46	Interviewer And so that imposed from the project or is that actually from the person? Interviewee Always person. It is not for nothing that a modeler is a modeler and that he likes it.	236 - 238
12:40	That, I think so yes. I get what you give in my experience and If you keep a tight posture If I kept a very tight posture, I would get a tight posture back. I think that's just the case with you.	
15:43	One a little more than the other to what extent you are sensitive to things. There has to be, That is also People's own and Everyone does their best to keep that constructive, or to limit it to what is appropriate for the interaction you have. But it is also a fact that one is more sensitive than the other, so you also have to keep some accountability in your communication and in your openness to it.	242 - 242
16:46	I do think that in a next project I would like to deal with that in a different way. And I don't know exactly what it's like yet. It is a question though and I do see that it is indeed a disturbing one. A choice is whether a situation that has been disruptive, in part to team cohesion, mutual trust and I think in part that's the cause of that, so that you, yeah, you can't all be in a box that that is never going to work, so it's always a trade-off between different positives and negatives. We have done it differently here than what you do at regular work and you can see that it really has an effect; yes you see effect, so it's a variable you can play with. The objective we had for the project; improve the relationship/cooperation ON OG, we have actually achieved that goal and it has achieved an effect there with an unexpected side effect and for me as far as I am concerned a more negative side effect that you can do with that In the setting that we have now chosen that the collaboration between the disciplines have come under more pressure again	234 - 235

Relationships between team members

ID	Quotation Content	reference
1:53	Yes, that difference is mainly because you may be working more often with that colleague from your own company than with someone from the client.	271 - 276
4:43	Yes, but you do get to know each other and getting to know each other has to do with can I trust you yes or no and are you going to do that?	203 - 203
4:48	If you know each other, know what you have in common, and therefore have the confidence that I myself would make it easier for me to empathize with myself or accept the empathetic behavior of others if you would otherwise. I think that's important.	237 - 240
6:49	That makes it easier anyway, doesn't it? To be more empathetic If you know someone well, or someone you click with Anyway 7:69 So	306 - 306
I really	think through, Maybe empathy, trust, cooperation you know in that triangle. Yes. It is all based on Ultimate trust, because yes, Once it is damaged or abused. Yes, then nobody responds empathetically anymore and then the cooperation deteriorates, so I think it really is something that needs to be worked on very actively.	190 - 190
7:80	Yeah, it also has a very classic feel to it. Yes, trust comes on foot and goes on horseback. I really think it's one to one related to trust. And that you only behave or continue to behave empathetically if the trust remains and the trust is there, and that is not damaged. Because once that is the case, you start behaving less and less empathetically and then I start shouting those tile wisdoms like Everyone is entitled to their own problem of yes, don't bother me with it, but arrange it.	213 - 213

9:46	Yeah, then you just know you've got someone. I had years of working with someone who. Week based on. Of instruction, well you know That is. Fine I'm going together. You can also work with someone who has to coach, guide and give a different role to those and others, which also helps.	291 - 291
11:42	You always have a group of People that you don't get along with as well as the others, so with one you have a good click more than the other. Which can. Well, that can get in the way of empathy sometimes, yes.	192 - 192
13:42	I think yes, another one of those clicks between people, whether people can work well together. Yes, that has to do with similarities and differences, but if there are too many differences and too few similarities, then that is difficult in the collaboration and that affects it.	322 - 322
14:47	People you already know, you know if you're empathetic to it, and people you don't know, it's more difficult. So that could go both ways. With a person you already know. Yes, sometimes you know In that person empathetic behavior that must or must not 15:44 The	338 - 338
direct	counterpart is not being open and transparent and holding the card to the chest, but also Reacting very emotionally and feeling attacked And taking everything personally. Yes, that doesn't help. Yes, regardless of the fact that it is not nice for the person who does that consciously or unconsciously, because they become emotional or they are touched, but also the person who sends the message with good intentions, but may have just chosen the wrong words. Next time he will also think of how I'm going to watch out before I communicate with Pietje or Jantje again, because they are rather those rather long toes In a manner of speaking. That also happens, but we try to help each other as much as possible. By yes, in other words, bringing the same message, objectively and without persons.	241 - 242
2:123	geographic distance, then that's complicated	186 - 186
2:124	if we don't spend enough time together in a room or on the project, say, it hinders also	186 - 186
2:128,	for example, about problems, domestic atmosphere or financial or health technical and those are things that you only share with each other After you have spent a certain amount of time together.	190 - 190
8:52	So I think from a collaboration point of view that I should also facilitate it more, which is kind of funny that we are now also organizing a PFU for the entire team in February. And then in groups of 3 in order to collect from People by using a collaboration monitor, how they think things are going now. Because that is something that we try to facilitate that people can actually indicate that. Well, we should be doing that kind of thing more, but I also think that as a core team we should indeed have a PFU much more often. Only what you notice is that we are so busy with all that shit that is coming our way that we don't take enough time to talk about how is our collaboration going now? What needs to be improved? what else is possible? What's going well? to talk about it together. So that, because that leads to you getting more of that empathic ability	379-381
9:44	Nice if you just feel good about someone, have a good conversation with someone. You know someone In the match is I think it's very important.	283 - 283
14:44	Not seeing each other, not experiencing	333 - 333
Work location		
ID	Quotation Content	reference
2:123	geographic distance is, Then that's complicated	186 - 186
3:108	if you want to work together in an open and transparent work situation, don't all sit behind the doors. And we sat in the village together, just all together in an open space and no secrets. Yes and now in this shack, yes these are just put together with doors, it becomes a bit more difficult.	190 - 190
4:42	Yes yes, but also anyway, you see we are also in 1 cage. That's what we did in phase 1. Empathic behavior then continues as what's on this (on the score sheet), it's also about the dog that just had an injection and thinking, yes, nice and important for your work but it does give the team spirit that you can be, just colleagues it is no longer someone from the contractor who asks you politely how was your weekend? No, you are really genuinely involved with each other. So in that respect that empathy naturally becomes easy on a personal level because you also sit together, you work with each other, which I think also makes that empathy in your work a lot easier.	199-199
4:50	That shell around it also sees each other less often. So I think there's a difference there.	258 - 258
8:47	Sit together. So actually working together in a team.	324 - 324

10:40	<p>At some point, you can see one on one of team members, but I can't assume an internal or is external you can see at a certain point someone is walking down the hallway happy or not happy at least, some people see that, don't say everyone sees that. And then you can literally just start asking things like what are you having? Or do I see something is going on? Then you start responding to someone else's feeling. Well, maybe eventually you'll get to a conversation where you get to hear her or his interests.</p> <p>Interviewer And what is that that facilitates it? Interviewee Still see each other a lot in 1 room 1 location. Look online, don't you see that, is that much more difficult Of course you can see it Maybe, but you're already going. It's a bridge to say hey, how are you? I see something is going on and If you have a cup of coffee in the hallway or you are sitting together, you notice that someone is more emotional, yes then you can do that much easier within a smaller space? Yes, you can quickly experience and therefore also something faster.</p>	208 - 212
10:41	<p>I think it's very important that you have an outing with a project team like that a few times that you still more and more towards a personal relationship. And that shouldn't turn into friendship, that doesn't always work out. Sometimes it just becomes friendship. That is no different, but then you notice that personal contact and then not just for work contributes very much, because then you just know very quickly that someone is really comfortable in their own skin and that is what matters, right? Just that, that contributes to success for the whole team, so not if you are only involved in something as an individual, but also have to act as a team.</p>	216 - 216
13:41	<p>Then I see there yes. Yes I I. I think there is more empathy in this project compared to previous projects than in previous projects. And why? Well, because you work together more intensively and visit each other more often. Koen and I are in the same room, so it makes a difference, doesn't it? So you are just organized differently, so you know yes, you know each other much better and so you can understand the interests much better</p>	308 - 308
14:44	do not see each other, do not experience	333 - 333
14:45	Only teams	333 - 333
16:45	<p>You can see that The fact that we've bet on that, that it's having an effect, they understand each other, they've really started to get to know each other. They can complement each other, for example. I gave that my counter partner and I do to each other. And so the attention we've paid to that has had a real effect, had a positive effect. It has also had a downside by choosing to do so and, for example, by the setting that we now have an eye on. The project manager sit together the contract manager each technical manager sit together. But that cooperation within those rooms has gone very well and we have seen in phase one that between those disciplines, so actually, the distance of 1 wall in the shack can already disrupt how well you understand each other and even hey, everyone thinks very nice that we are all together in the shack, But the choice to sit in a cage per discipline also has an effect on the Well, among other things, doesn't it? the possibility to be empathetic between the different disciplines to understand each other better has partly taken away that.</p> <p>This is different from regular projects where you often see that the IPM role holders of the client are in a cage together and the IPM role holders of the contractor are together, so that you see very good interactions between disciplines and much less interactions. between client and contractor. So there is a downside to it.</p>	224 - 226
Work environment		
ID	Quotation Content	reference
1:39	<p>So that also creates that, also contributes to good cooperation. That when you feel well understood because of the other person you also want to go a step further for that, so to speak So that's normal. Yes, It's not a short answer, but there is a bit of how I think empathy is very important for a successful collaboration.</p>	212 - 212
5:55	<p>Maybe if you have very clear contract terms and say Well, this is the contract and we'll stick to that, yes then you'll kill it Maybe quickly, say I don't have to think any further or delve into each other, because writing the contract for what we need to do. Extreme form: if you have a RAW contract where everything is prescribed down to the letter, of course you don't need to have empathy, you could say, because we simply carry out what it says and if it deviates, we record that.</p>	253 - 253
8:38	You also have to talk to each other in order to actually get that empathy.	259 - 259

8:52	So I think from a collaboration point of view that I should also facilitate it more, which is kind of funny that we are now also organizing a PFU for the entire team in February. And then in groups of 3 in order to collect from People by using a collaboration monitor, how they think things are going now. Because that is something that we try to facilitate that people can actually indicate that. Well, we should be doing that kind of thing more, but I also think that as a core team we should indeed have a PFU much more often. Only what you notice is that we are so busy with all that shit that is coming our way that we don't take enough time to talk about how is our collaboration going now? What needs to be improved? what else is possible? What's going well? to talk about it together. So that, because that leads to you getting more of that empathic ability	379-381
9:43	If you're just having a big issue, I mean what you're dealing with, dude, I'm sitting here, you just have to be transparent about what's going on with you. What impact? You just have to discuss that openly with each other. That you show the interests there?	275-279
9:45	Some People react incorrectly or already, then it also makes discussing again. Why are you reacting like this now? What happens now? With you makes very negotiable. In the afternoon I also had a conversation with two managers here at the table, what is happening here? That's a what are. What are the mutual interests?	286 - 287
	That just makes it negotiable. 12:34	238 - 238
	at least do it yourself 13:36 Yeah, I think it's okay anyway, But it's starting with sharing those interests, right? And, 284 already started with that in those first weeks of the Van after the award. Because that can also be explored together, right? Yes, That is, It is important to know from each other what exactly the question behind the question is. If you do that more often, you will also share it much more easily	285 we
13:44	communication skills, But that's positive and in a negative sense. It helps.	331 - 331
14:42	being vulnerable	328 - 328
15:42	I'm very much in favor of open and transparent communication, so I don't really have a secret in that sense 237 - 237 from you, not from Nobody. Not also inside. Project, not because I'm convinced that being clear about why I do what I do or why I think I should do what I do will help you be empathetic to the extent necessary for a discussion we are having. The moment I hold the cards to the chest and would have a different agenda. Yes, then That then feels like throwing up fog or preventing it from ending optimally. So that's how we act In the technical team also back and forth between the contractor and the client, by the way, we don't hold a card to the chest, We put everything on the table and sometimes harsh words or harsh conclusions are used and that is never meant personally But if something is shit, then we just say the shit and then we don't say well Maybe we can also look at it in a different way that doesn't help and is slow, then you need, so to speak, 3 meetings to reach the come to core. While of course you can do In the 15 minutes, that does require That that safe atmosphere is that People feel they can put on the table what they want to put on the table. That they can put down a judgment or an observation, even if it is harsh and of course Everyone tries to express themselves with respect, but without personally attacking anyone. But if something is not right, it should be possible to say so and then others should not take offense, so that is a tricky one and that sometimes goes wrong. So I also often try to objectify signals that are There, but to be clear from the start. That's how the flags hang. Let's look for a solution together, but if it's not good, then it's not good and then it will be said. And yes, that is also a curve that you have to go through and I am convinced that if you achieve that, you will also facilitate empathy to the maximum. Because then yes, do you know what drives the other or why he does what he does.	237 from
16:44	Yeah, We're communication is the first one that comes to me shorter, certainly with confidence to do with. But then it has then it isn't, huh? And empathy can be something that happens within yourself as a person, so that you try really hard to understand someone without it. Who sees something about that? But the moment you actually discuss empathy, pronounce it and say Van dude I see this, and then that happens. Then someone feels heard in their deepest being and it builds enormously on confidence and the moment you make that visible In the team and that team. Also functioning so well, your cohesion also becomes much stronger.	216 - 217

16:49	And there's a lot of that again, because I said From the beginning of the beginning of the trust You can only give, can't you? Well empathy for my feeling. Also, I can only try to be empathetic and give others the opportunity to say that empathy But the and and if the person who does not pick up, I think influences a very large part of how You should be approached by someone, how you. It approaches.	263 - 263
Number of team members		
ID	Quotation Content	reference
3:113	Yes, I think it's been one of my main jobs to see how things are going, whether people understand each other and how people act and whether or not it fits within a group. I have also experienced that a person had a fight with that person while that person had the best intentions, but that just didn't go well. Yes, then you have to make decisions. And just that that story of yes I hear things behind the back, say yes, you have to. I was the chairman of the project management team. Yes, how are things going at that table? Do we listen to each other and do we understand each other and so yes, I certainly had a guiding story in that.	216 - 217
7:90	What I also see here is that you do this mainly with the immediate club right around you, so yes, I do it with fellow project managers yes also partly with directors, consult with the core team, But it is impossible to here To do with the whole construction team. I also don't think that adds much to things.	189-189
10:35	Within a larger group, which is why I also indicated later in a large group of 10 or 15 or 20 People do you see that that arises less and If you have smaller teams, you notice that, It's not just a joke and a joke and a talk or a private situation, but then you really notice what triggers something in someone If you have a choice for the project. So yes empathy, but also just the backpack that someone has acquired for years and what he takes with him is very important for that. To know and feel that and the best is yet for your counter partner.	168 - 168
Willingness to behave empathically		
ID	Quotation Content	reference
4:45	Yeah, you all need to get to know each other. I also had to get to know the people of my own team, so no, it didn't matter that much. I actually worked much more intensively with people from the client.	225 - 226
5:55	If you have very clear contract terms and conditions and say, well, this is the contract and we're going to stick to that, yes, then you might kill it quickly, then I don't have to think any further or delve into each other, because the contract write for what we need to do.	253 - 253
5:56	think it's easier for us (contractor) to empathize with someone from another contractor because of that are often the same type of people with the same background.	257 - 257
6:50	We're working on a project here, so everyone who works here is a colleague to me, so it doesn't matter how they come from the client or from the contractor.	314 - 314
8:49	don't think that should matter but that's my opinion 12:40 That, I think	331 - 338
so yes	I get what you give in my experience and if you keep a tight posture If I kept a very tight posture, then I would get a tight posture in return.	277 - 277
Subsection: Tools for empathy		
Team selection		
ID	Quotation Content	reference
3:116	Should you select for empathy for this approach? Interviewee I certainly think the same about project management.	227 - 230

5:60	<p>In the beginning there was a lot of number given and that was kind of loosened early last year. Well, we had devised tools and a process for this. The process was like well, if a vacancy then we put it out to all companies and we look for people who are suitable for a construction team, we had also formulated and written out a number of characteristic competencies and we had said, we will have at least two interviews with a delegation from both the municipality and the contractor to ensure that someone indeed fits the construction team.</p> <p>And we had someone in our project who was very upset about that, thought it was very important, who paid a lot of attention to it, so he also wrote out some documents about what is important. Then she asked people to really draw up a CV, to do a kind of job application for the construction team, so that was pretty tight.</p> <p>Well, the course of last year was loosened up a bit, on the one hand because it was very difficult to find people at all and you showed if you had someone and on the other hand because of all kinds of changes in, for example, the people who sent them. Yes the People who are very driver who left then yes it had a different prio. And the new People didn't think that was a big deal at the time.</p>	278 - 281
6:38	<p>If you're just looking for a balance of People in a team that support each other in that, I think it's right that you're looking for a balance of People that can support you in that. Not everyone is empathetic. Hey, so if you know that about each other and then you also come back to a bit of group formation and cohesion. If you also understand that of each other, you can also help the less empathetic People in this and not everyone has to. You can also just throw a blunt remark into the group, that's just what you want, that's what you want. Loosen something. So yes, on the one hand it helps to promote your cooperation on the other hand, yes, you don't just have to select People based on empathy.</p>	224 - 224
7:88	<p>Oh extremely extremely yes, because whatever I see, that's why the onboarding and especially on those key players, if from top management a number of things are not radiated or with the attitude of 'yes what are we doing now?' Then you just have to stop with such a way of working together, because then you can also think yes, that both parties say that internally, yes, definitely gone completely crazy.</p> <p>So it also remains something that you really have to be aware of every day, also actively working on it every day and acting and maintaining it, what else is it, otherwise it's gone.</p>	248 - 248
8:42	<p>That's where the work is ultimately done, so that's where People are also sitting Designing together, you see, so that's where People really sit together at the table to do things, so they have to be able to work together, otherwise it will become free annoying.</p>	283 - 283
9:51	<p>Yeah, it's for certain roles and someone who's constantly rioting, that's no use to you. If he does does not have the ability to be unable to perform his role or profession, then that is of no use to you. It comes down to competencies, does he fit into the team or not or maybe better for another project?</p>	346 - 346
10:48	<p>You have to be very careful when you put together a team that it is not from the top management that people are put in your team, who you think do not belong and therefore do not immediately deal with competences, in the sense that they are no added value for technique or added value for the modeling work or added value of anything. But he has to fit into the whole picture and the whole picture is just understanding empathy. Look, another team may well be that it doesn't think that's important at all and that they're all sitting behind the desk just pushing buttons. Yes, that is controlled from above that you get certain people and from be so strong of well, this person, super cool guy or sweet girl. That's all fine, but it doesn't suit my team.</p>	255 - 256
13:43	<p>But that's right. That's right. So I do think that if In the tenders In the acquisition tender phase if there is attention to investigate that as well, but is there a click and you can therefore work together for years Without annoying each other. Yes, that helps, so that's that. I think it is also part of a team assessment. The research on yes is, is it a match?</p>	327 - 327
14:54	<p>Of course you're dealing with a project that's going to take several years, right? And within those years so many things happen where you actually get personnel changes. People leave their jobs or choose something else they want to do or feel. They don't feel comfortable in their own skin and that leads to you being in a place that lasts for a longer period of time. What changes of People you have. To indicate just a few who are still present on the project, also during the tender. Are hooked up, those are Rosalie van Dijk, and that's me. The rest are all either already switched or hooked up. During a phase you can arrange this perfectly for the team. You can organize it as you wish, but you will see that yes gradually has a lot of influence on the composition of the project team.</p>	202 - 202
Building and sustaining empathetic behaviour		

ID	Quotation Content	reference
2:128,	for example, about problems, domestic atmosphere or financial or health technical and those are things that you only share with each other After you have spent a certain amount of time together.	190 - 190
5:18	separate team within the project called "contract and collaboration." that's still what it's called. He was really busy with that collaboration and used all kinds of tools to improve that collaboration and, above all, to reflect on it during every consultation. We started such consultations with a check in just for the soft side, what about you? How was your weekend? Yeah, just really that you were over the top of dude, we'll just go over the content? But that just started for half an hour, just with a round of how are you doing? And well in the end that did help to gain more understanding for the other or yes to cultivate more empathy, say okay that you could better understand what moves the other person, so those kinds of resources did help In the collaboration to learn each other better know and that was released at the beginning of last year with the changes. I won't say that their cooperation is very bad now, but it is clearly less.	87-87
8:52	So I think from a collaboration point of view that I should also facilitate it more, which is kind of funny that we are now also organizing a PFU for the entire team in February. And then in groups of 3 in order to collect from People by using a collaboration monitor, how they think things are going now. Because that is something that we try to facilitate that people can actually indicate that. Well, we should be doing that kind of thing more, but I also think that as a core team we should indeed have a PFU much more often. Only what you notice is that we are so busy with all that shit that is coming our way that we don't take enough time to talk about how is our collaboration going now? What needs to be improved? what else is possible? What's going well? to talk about it together. So that, because that leads to you getting more of that empathic ability	379-381
9:31	Yeah, that has to do with trust. You have to understand and understand why one does that, what the interests for each other. you just have to understand the other's interests. Why one does this and why the other does that. And what makes him decide that way? You just have to understand each other, so empathy is showing understanding and understanding Why it even reacts. That is essential for how you proceed in such a phase or how to deal with the trust.	192 - 192
9:44	Nice if you just feel good about someone, have a good conversation with someone. You know someone In the match I think it's very important.	is 283 - 283
10:41	think it's very important that you have an outing with a project team like that a few times that you still more and more towards a personal relationship. And that shouldn't turn into friendship, that doesn't always work out. Sometimes it just becomes friendship. That is no different, but then you notice that personal contact and then not just for work contributes very much, because then you just know very quickly that someone is really comfortable in their own skin and that is what matters, right? Just that, that contributes to success for the whole team, so not if you are only doing something as an individual, but also if you are. Team must act.	216 - 216
13:36	Yeah, I guess it's okay anyway, But it's starting to share those interests, isn't it? And, 284 - 285 we already started with that in those first weeks of the Van after the award. Because that can also be explored together, right? Yes, That is, It is important to know from each other what exactly the question behind the question is. If you do that more often, you will also share it much more easily	
13:38	communication. Well, that's actually kind of a precondition for being empathetic at all can be.	291 - 291
15:37	Yes, I think we certainly have members as core team Those sessions periodically on the heath, so to speak, we take each other in Well, situations challenge you encounter from your role do you explain or describe or and how that leads to problems or what splits you get into as a result and the Other participants then think along and therefore hear the kind of challenge you have from your role and therefore understand it. Yes, we are also able to If it then we do, often with the wonderful scenarios, but If it then occurs In real life, then because of the repetition and that you have practiced it once in a safe setting, you are able to recognize that And yes, suppose you have a tendency to respond traditionally, swallow that for a moment and, with the knowledge you have, show that empathy and choose a different response. And yes, one is better and faster and easier than the other, Of course, we are all People with different compositions, But I think that as a team we have grown well at that because we can do it from ourselves, but also rely on each other to speak at the moment that it then that you observe by another, Maybe there are still steps to make. So yes, that's how we help each other in that.	200 - 201

15:49	<p>We wanted to share that experience, we found it very valuable ourselves in contributing to a better cooperation. And yes, regardless of what I said earlier, right? The technicians can find each other again. I believe that is also the case, but there too it can help that you know each other just a little better and meet each other a little more in a different context Or another setting, drink 1 beer together once, that just helps In the mutual understanding so yes, so that we have, I think that somewhere In the autumn that was done for the first time with that wider circle and we also say that, That was a success. Also from that second circle, so we will continue that way. Well, In the new year is the intention, so yes.</p>	262 - 262
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D

Classification of ranking the collaboration factors

Table D.1: Classification of ranking the factors of collaboration.

Score	Statements	Number of times indicated
5 >	Important	12
	Very important	6
	Most important	4
	Decisive	3
	Essential	2
	Crucial	1
	Starting point	1
4-5	Important	21
	Very important	5
	Also relevant	2
	Just below trust	1
	It went well	1
3-4	Important	8
	Medium important	2
	Very important, but depending on other factors	1
	Important, but depending on communication	1
	Important, but not so much the focus of the approach	1
	Essential, but not special for this approach	1
	Ranking 4th	1
	Important, but not made explicit	1
	Important, but no difference to other contracts	1
	Not so important for this project	1
2-3	Not so special for this approach	2
	Not so important for this project	2
	Not difference compared to other contracts	1
	Important, but during initial phase, thereafter only consequences	1
	Less important	1
1-2	Not so important for collaboration	1
0-1	-	-

E

Individual scores of the factors of collaboration

Table E.1: Individual scores of the factors of collaboration.

CS	Interviewee	Communication	Coordintation	Balance of member contributions	Mutual support	Effort	Cohesion	Affective trust
1	1	4	4	4	4	3	5	5
	2	4,5	4,5	2,5	3	2,5	3	4,5
	3	5	4	3	4	2	4	5
	4	4	3	3	2,5	2,5	4	5
	Average	4,4	3,9	3,1	3,4	2,5	4,0	4,9
	STDV	0,41	0,54	0,54	0,65	0,35	0,71	0,22
2	5	4	2	4	3	2	3	5
	6	5	4	3	3	4	4	5
	7	5	3,5	2	2	2	4	5
	8	4	4	3	4	3	5	5
	Average	4,5	3,4	3,0	3,0	2,8	4,0	5,0
	STDV	0,50	0,82	0,71	0,71	0,83	0,71	0,00
3	9	4	4	4	4	4	4	5
	10	5	3	3	4	4	4	5
	11	4	4	5	3	3	5	5
	12	3	2	3	4	3	3,5	5
	Average	4,0	3,3	3,8	3,8	3,5	4,1	5,0
	STDV	0,71	0,83	0,83	0,43	0,50	0,54	0,00
4	13	5	3	3	4	4	4	5
	14	4	1	2	4	2	3	5
	15	5	4	3	4	3	5	5
	16	4,5	5	3	4	3	5	5
	Average	4,6	3,3	2,8	4,0	3,0	4,3	5,0
	STDV	0,41	1,48	0,43	0,00	0,71	0,83	0,00

F

Conceptual framework

	Start of Phase I	Throughout Phase I <i>(order and repetitiveness are only indicative and are project dependent)</i>		
	Invest and develop a collaborative process	Product development based on the collaborative process	Maintain and improve the collaborative process	Threats to the collaborative process
Collaboration level				
Prepare Where do we stand?	<ul style="list-style-type: none"> Team member level: limited understanding of other team members' interests, culture, issues, and behavior Organizational level: limited understanding of other organizations' interests, culture, and work processes. The importance of understanding increases with increasing unfamiliarity No focus on the fundamental basis for the collaborative process: trust, communication, and cohesion 	<ul style="list-style-type: none"> Predetermined performance criteria determine the focus of the first phase. Preferably the criterion quality has the main focus Utilizing the obtained understanding and actual consideration of each other to develop products that comply with the predetermined criteria 	Developed collaborative process results in mutually supported products focusing on the process where both organizations act on obtained understanding and insights	Decreased focus on the collaborative process caused by changes in the project team, external influences, or exhibiting traditional behavior by either the client or contractor
Vision What do we want to achieve?	<p>1) Developing an understanding</p> <ul style="list-style-type: none"> Team member level: conscious behavior and decision-making based on the understanding of other team members. Furthermore, improving the ability to support and let others flourish and build relationships based on a deeper connection improves the collaborative feeling Organizational level: increased motivation and ability to support through understanding the other organization. Both organizations can learn from each other <p>2) Developing the fundamental basis from the start for the collaborative process</p> <ul style="list-style-type: none"> Establishing trust in and between all organization layers is crucial and enables loosening control and improves the decision-making process Awareness of communication, especially how information is exchanged, is crucial for the collaborative process by contributing to, e.g., mutual support, coordination, and trust through increased understanding and insights into the other Cohesion serves as a motivator for team members to work together through involvement among members, team spirit, and relationships 	<p>3) Shifting to focus on process instead of product to improve the performance criterion quality <u>Improving the performance</u> of the criterion quality</p> <p>4) Shifting to focus on process instead of product to improve the perception of the performance criteria time and cost <u>Facilitating the perception</u> of criteria time and cost</p> <p>5) Developing mutually supported products Development of <u>mutually supported products</u> based on a smooth development process despite many potentially traditional points of conflict. Including a reduction in revising products</p>	<p>6) Maintaining collaboration</p> <ul style="list-style-type: none"> Maintaining the developed level of collaboration and fundamental basis Contributing to increasing and facilitating performance on quantitative and qualitative criteria Collaboration no longer has to yield (financial) benefits. Benefits result from the added value in the products resulting from the collaborative process <p>7) Proactively improve collaboration <u>Proactively improve</u> the level of collaboration</p>	<p>8) Minimizing impact of team changes <u>Team changes have minimal impact</u> on the established level of trust and cohesion</p> <p>9) Reestablishing focus on collaboration <u>Reestablish focus</u> on the collaborative process during traditional behavior and external influences</p>
Plan How will we get there?	<p>1) Developing an understanding</p> <ul style="list-style-type: none"> Invest from the start of the project in increasing understanding Team member level: develop an understanding of the impact of your decisions on team members, the causes of certain behavior of team members, how to approach team members, why something is important, what someone needs, and what is going on personally and in the organization. Include this understanding into one's own behavior and into consideration during decision-making <i>Organizational tools:</i> team building sessions and arranging the work environment¹ Organizational level: develop an understanding of the culture and work processes of the other organization and awareness about what is important for the other organization and why they need something at a certain moment in the process <i>Organizational tools:</i> Project Start-Up and arranging the work environment¹ Proactively sharing what is going on personally and within one's own organization allows others the opportunity to behave empathic and to act accordingly <p>Creating the facilitating environment through focus on factors that influence empathic behavior By arranging a work environment, inc. work location, the relationship between team members, communication, willingness to behave empathic, empathic ability, number of people¹</p> <p>2) Developing the fundamental basis from the start for the collaborative process</p> <ul style="list-style-type: none"> Trust is developed based on mutual understanding through sharing each other's personal and organizational interests and getting to know team members informally. It takes time to develop, and it is fragile. Important to consistently show empathic behavior; it is no tool During communication, team members must consider communication tools, language, and how it is conveyed and received. Keeping information behind (i.e., not open and transparent) must be avoided. The members of the tactical layer bear communicative responsibility to the members of the strategic and operational layers. Selective communication becomes increasingly important when the number of members and disciplines increases Information sharing is facilitated through empathic behavior and creates opportunities for others to understand interests, problems (personal or organizational), and circumstances. Creating an environment where others find it easier to engage in empathic behavior Cohesion depends on sharing the context of the two-phase approach, the project, and the project team. Empathizing the necessity to contribute as one team to the shared goal to increase team spirit. Furthermore, improving mutual understanding contributes to the involvement among team members and improves relationships 	<p>3) Shifting the use of criteria to improve the quality</p> <ul style="list-style-type: none"> Focus on the process leading to the product. The product is implicitly satisfactory if it results from a satisfactory process. If the process is not satisfactory, the causes are valid Share responsibility for design choices based on a decision-making process based on equality and collaboratively designing using both parties' expertise. Choices are often made collectively, resulting in a shift in non-contractual liability from the contractor to the client <p>4) Shifting the use of criteria to facilitate the perception of time and cost</p> <ul style="list-style-type: none"> Focus on the process leading to the product because both organizations know the process leading to the product Allow flexibility in the criteria to allow for optimizations by involving the other organization's expertise. Accepting a degree of uncertainty in the boundary conditions of the criteria is essential for the perception of project performance <p>5) Developing mutually supported products</p> <ul style="list-style-type: none"> Understand the explicit interests of the other organization Design integrally by considering these interests in the collaborative development process. This is possible because the scope and price are not fixed in a contract resulting in a smooth process despite many potential points of conflict 	<p>6) Maintaining collaboration</p> <ul style="list-style-type: none"> Maintaining through the opportunity to discuss differences in viewpoints. Monitor compliance with project goals, including goals on collaboration <i>Organizational tools:</i> Project Follow-Up, collaboration monitor, check-in during meetings facilitated by an external coach¹ Trust should remain a topic of discussion, even if it is not present; this will inevitably happen. Team changes are harmful to trust Communication must remain open and transparent, incl. a focus on the communication style to facilitate empathic behavior For cohesion, remaining focused on the team aspect is important. Team changes are harmful to the cohesion of the team <p>Maintain the facilitating environment <u>Keep focus</u> on the facilitating factors</p> <p>7) Proactively improve collaboration <u>Improving</u> by connecting with team members to develop a more profound understanding both professionally and personally through exercises <i>Organizational tools:</i> team building sessions facilitated by an external coach¹</p>	<p>8) Minimizing impact of team changes</p> <ul style="list-style-type: none"> Aligning them with the context of the two-phase model, project, and project team, incl. relational aspects The focus should remain on utilizing the tool by designating responsibility and enforcement Especially the selection of the tactical layer should include a focus on empathic behavior <i>Organizational tool:</i> onboarding¹ <p>9) Reestablishing focus on collaboration</p> <ul style="list-style-type: none"> Both organizations should be willing and open to adapting this way of working by learning from the other party and not sticking to traditional working methods. The cause applies to both the familiar and unfamiliar project phases Communication about external factors influencing the project should act as a coping mechanism to resulting frustrations and impactful decisions



Underlying principles of the framework

Table G.1: Principle framework: criteria that determine project performance of the first phase.

Criteria project performance first phase	Included in framework?	Argumentation
Time	Yes	This criterion is always important and mainly used as a control mechanism. Predominantly used when external influences on the project become uncontrollable. Furthermore, there is more emphasis on this criterion when the project is part of a program or portfolio
Cost	Yes	See criterion time
Quality	Yes	The criterion quality mainly determines the project performance of the first phase. Focus is possible because there is no competition with respect to cost in the tender. The focus of the criterion is on including more added value into the design that was not possible in a tender procedure with competition. Noteworthy is the assumption that the project proceeds under controllable external influences. If these become uncontrollable, the focus on the criterion of quality shifts to the criteria of time and cost
Collaboration	No	Is included in this research as a factor rather than criterion for project performance despite being indicated as a project objective in the project documents
Stakeholder satisfaction	No	Only indicated by the two stakeholder managers, despite being described as a project objective in the project documents
Safety	No	In case in which it was indicated as a criterion (CS4), safety was addressed by specific project circumstances and therefore not a general criterion for project performance. Safety in design is furthermore considered under the criterion quality because there is more room because of the lack of competition in during the tender procedure

Table G.2: Principle framework: factors of collaboration.

Factors of collaboration	Included in framework?	Argumentation
Communication	Yes	Facilitating other factors, such as coordination and mutual support, by creating a better understanding and insight into the other party. Important throughout the entire first phase and between all organizational layers and in both types of collaboration
Coordination	No	There is consensus on the need for coordination for an efficient process rather than that collaboration is strictly necessary for coordination
Balance of member contributions	No	The application becomes more important as the size of the project team increases throughout the first phase. Furthermore, this factor is mainly relevant in the case where the decision-making process is based on a balanced relationship between the client and contractor (integral collaboration). The factor communication is essential because one must collaborate in consensus and understand each other
Mutual support	No	Working with an integrated collaboration requires more mutual support, especially when the management team organization consists of representatives from both the client and the contractor. The dependence on the factor of communication is emphasized in all four cases
Effort	No	Its importance depends on the priority of teamwork for the first phase. Thus, in the case of integrated collaboration, this factor is more embedded in the work process. The factor communication is an essential related factor
Cohesion	Yes	In all cases, the need to invest in and work on creating cohesion from the beginning of the project to increase the sense of collaboration is highlighted. Then it must be monitored throughout the project to maintain it. The emphasis should be on working as one team toward one common goal. This factor is important for both types of collaboration
Affective trust	Yes	There is no exception to the importance of trust in collaboration. Unanimously, it is considered the most essential factor. Trust is fragile and takes time to develop; however, it can disappear quickly. Trust must be built at all levels of the organization. This factor is important for both types of collaboration

Table G.3: Principle framework: activities for collaboration and empathy.

Tools for collaboration and empathy	When it should be used	Applicability in the framework
Project Start-Up	Start of Phase I	The PSU is considered a formal tool. Both client and contractor management teams share their cultures, working methods, core values, project goals and objectives, and interests in order to gain an understanding of each other. Often facilitated by external coaching
Teambuilding session	Start of Phase I and throughout Phase I	The session is considered an informal tool. Getting to know each other in a non-work setting while performing activities. Develop a bond with team members by getting to know them through a deeper level than the professional level. Often facilitated by external coaching
Arranging work environment	Start of Phase I	Both the tactical and operational levels need to work from a single project location. At the tactical layer the office spaces should be arranged based on IPM roles. Creating a better understanding of the other team member and eliminating ambiguities in communication
Project Follow-Up	Throughout Phase I	The PFU is considered a formal tool. Create the opportunity to discuss differences in views (following issues) to maintain and improve collaboration and/or monitoring compliance with PSU objectives
Onboarding of new team members	Throughout Phase I	The onboarding of new team members is considered both a formal and informal tool. Aligning the new team member with the context of the PDM, the project (formal) and the project team (informal)
Check-in during regular meetings	Throughout Phase I	The check-in is considered both an informal tool. First focusing on the team members, e.g. how everyone is feeling and if there are any problems, and then on the actual content of the meeting. To understand what drives someone and get to know the other person
Collaboration monitor	Throughout Phase I	The collaboration monitor is considered both a formal and informal tool. The monitor is part of the PFU and is used at both the client and the contractor to measure compliance with collaborative goals set during the PSU. Often facilitated by external coaching.

Table G.4: Principle framework: the influence of empathy on the factors of the collaborative process.

Factors of collaboration	Included in framework?	Argumentation
Communication	Yes	Empathic behavior affects collaboration through information sharing between individuals and between organizational layers. It affects communication through team members sharing personal and organizational interests, culture, issues and work processes. Resulting in an environment where others find it easier to engage in empathetic behavior and to understand those aspects. The behavior affects the communication from the start of Phase I and throughout Phase I
Coordination	No	Coordination is considered a practical factor of collaboration. It is indirect affected by empathic behavior following from the factor communication. Resulting in understanding about the effect of coordination on the other organization and awareness of dependencies. However, depending on communication to behave empathic
Balance of member contributions	No	Empathic behavior has a limited influence on factor. The influence would be through facilitating an understanding of the strengths and expertise of team members. However, there is no consensus on the extent of this influence. The reason for the lack of agreement is that the factor is primarily practical and requires a professional approach. As a result, the influence of empathic behavior is comparatively limited
Mutual support	No	Empathy can influence the factor of mutual support. It is affected through a more profound understanding of the other. Offering an increased ability to help each other to find solutions. However, this factor is not included in the framework because of the indicated dependence on the factor affective trust, communication and cohesion to influence the collaboration. Therefore, an improved communication could contribute to mutual support to enhance the understanding
Effort	No	Empathic behavior cannot significantly influence the factor effort. Therefore, the factor is excluded from the framework. The influence of understanding the personal or professional circumstances of the other are indirect and dependent on the factor communication and cohesion. Furthermore, the factor is indicated as practical and related to professionalism
Cohesion	Yes	Cohesion is influenced by empathic behavior through increasing the involvement among team members by sharing, linking cohesion to the factor of communication, and involving team members, creating more mutual understanding. The behavior affects the factor from the start of Phase I and throughout Phase I
Affective trust	Yes	Empathic behavior affects affective trust by facilitating the mutual understanding about each other's motivations and circumstances needed for the development of trust. Empathic behavior would contribute especially to the affective side of trust by facilitating insights into understanding feelings rather than knowledge-driven understanding. Consistency in showing empathic behavior is important for creating and developing trust. The behavior affects the factor from the start of Phase I and throughout Phase I

Table G.5: Principle framework: the factors that influence empathic behavior.

Factors influencing empathic behavior	Applicability in the framework
Work environment	<p>The work environment influences empathic behavior by allowing an environment where team members are open, able to ask questions, and reveal vulnerability. Influencing the extent to which team members engage in empathic behavior. Establishing and maintaining this environment should be based on the following tools:</p> <ul style="list-style-type: none"> - <u>Proactively sharing</u> to provide the other with the opportunity to understand one's interests and explain why certain aspects are important for one's roles in the project or due to organizational interests or circumstances. - <u>Weekly meetings</u> to discuss the day-to-day practicalities in the work environment. - <u>Collaboration monitor</u> to evaluate the established work environment.
Relationships between team members	<p>A relationship based on some connection between team members is necessary to behave empathic. This connection can be based on personal profiles, former experiences or developed over time during project. This connection is especially important on the tactical layer. Trust is a prerequisite in the relationship. Practically this relationship should be achieved through:</p> <ul style="list-style-type: none"> - <u>Team-building sessions</u> should be used to build the relationship when there is no former experience or to improve the existing relationship between team members. - <u>Informal communication</u> relating to topics to facilitate the connection, such as domestic, financial, or health-related achievements and problems.
Communication	<p>The influence of communication on empathic behavior is twofold: 1) communication style and 2) the actual communication taking place in the team. Communication should be used in the following manners to facilitate empathic behavior, related to the two influences:</p> <ol style="list-style-type: none"> 1) Communication style should be low-threshold, open, transparent and objective. Eliminating personal accusations and being aware of someone's character (e.g. sensitive to words or reacting emotionally) using conscious words. <u>Tool</u>: awareness on the communication style should always be present. 2) Proactive information sharing about information and feelings (entail issues and the impact and why you do certain things the way you do them), and therefore keeping information to yourself must be avoided. Furthermore, talking about empathy can create the feeling that someone is being heard, resulting in building trust. <u>Tool</u>: engage during regular work practices, groupsize should be small. <p>Information sharing to keep team members informed throughout all organizational layers is important. This is especially important for the tactical layer. <u>Tools</u>: weekly starts and monthly updates. Finally, the formalization of communication influences the room for empathic behavior. Starting meetings in an informal manner creates room for empathic behavior. <u>Tool</u>: check-in during regular meetings. Informal communication related to one's personal life is an important facilitator.</p>
Work location	<p>The work location influences the extent to which team members are able to engage in empathic behavior. Practically this should be achieved by:</p> <ul style="list-style-type: none"> - The tactical and operational layers should physically work from one project location and not from a remote location. - The tactical layer should have work places arranged based on their IPM roles. However, there must be awareness on actively establishing a connection between the different IPM roles.
Willingness to behave empathic	<p>Willingness to engage in empathic behavior on the team member level depends on two aspects: 1) one should be willing to express empathic behavior and position oneself vulnerably. 2) receiving empathic behavior stimulates exhibiting the same behavior. At the organizational level, it is about the willingness to deviate from strictly following contractual provisions. Increasing willingness is based on the following tool:</p> <ul style="list-style-type: none"> - <u>Team sessions</u> to build on the relationship between team members because this seems important to behave empathic. Increasing the level of trust and familiarity will make it easier to be vulnerable.
Empathic ability	<p>The empathic ability influences the extent to which team members can behave empathic based on someone's personal experiences. This factor is especially important when unfamiliarity increases or when working on a two-phase model for the first time. Increasing the team members ability to behave empathic is possible in the following manner:</p> <ul style="list-style-type: none"> - Increasing an understanding of the other individual and organization's culture, interests, goals and work processes. <u>Tool</u>: team sessions, by discussing and practicing real world scenarios to increase someone's experiences. - Selecting team members that have experience with the two-phase model or relation-based PDM's. <u>Tool</u>: onboarding on team members. - Someone's ability will increase naturally over time.



Updated conceptual framework

	Start of Phase I – Invest and develop a collaborative process	Throughout Phase I – Product development based on the collaborative process
Prepare Where do we stand?	<ul style="list-style-type: none"> • Team member level: limited understanding of team members' interests, culture, issues, and behavior. • Organizational level: limited understanding of other organizations' interests, culture, and work processes. The importance of understanding increases with increasing unfamiliarity. • No focus on the fundamental basis of the collaborative process: trust, communication and cohesion. 	<ul style="list-style-type: none"> • Focus on the end product instead of the process leading to the end product: not able to improve the performance criterion quality and facilitate an improved perception of the criteria of time and cost • No focus on shared responsibility: not able to improve the performance criterion quality • Not allowing flexibility in the criteria: not able to facilitate an improved perception of the criteria of time and cost
Vision What do we want to achieve?	<p>1) Developing an understanding</p> <ul style="list-style-type: none"> • Team member level: an understanding of the other team members' interests, culture, issues, and behavior through empathic behavior. Include this understanding into one's own behavior and into consideration during decision-making. Improved ability to support, let others flourish, and build relationships based on a deeper connection improves the collaborative feeling. • Organizational level: developing an understanding of other organizations' interests, culture, and work processes through empathic behavior. Increasing the motivation and ability to support through understanding the other organization. Both organizations can learn from each other. • Focus on the fundamental basis for the collaborative process: trust, communication, and cohesion. 	<p>3) Focus on the process leading to the end product</p> <ul style="list-style-type: none"> • Improving the performance criterion quality. The end product is implicitly satisfactory if it results from a satisfactory process. If the process is not satisfactory, then the causes are known, and these are manageable due to the mutual process. Mutually supported products, including a reduction in revisions of the products. • Facilitating an improved perception of the criteria of time and cost. The perception is improved because both organizations know the process leading to the product. <p>4) Focus on shared responsibility Improving the performance criterion quality. A shift in non-contractual liability from the contractor to the client. The result is an integral design based on the interests of both organizations.</p> <p>5) Allowing flexibility in criteria Facilitating an improved perception of the criteria of time and cost. Accepting a degree of uncertainty in the boundary conditions of the criteria is essential for the perception. Allowing optimizations by involving the other organization's expertise</p>
Plan How will we get there?	<p>1) Developing an understanding</p> <p>Level: team member Tool: team building session¹ Goal: understanding interests, culture, issues, and behavior through sharing and retrieving underlying motivations and feelings, i.e., the why. Result: include this understanding into one's own behavior and consideration during decision-making. Points of attention: important on the tactical level, especially between client and contractor counter partners. Facilitated through external coaching. Include the development of trust and cohesion and consider the communication style. Facilitate a non-working environment during the session (informal).</p> <p>Level: organizational Tool: Project Start-Up² Goal: improving understanding and creating awareness of the other organization, their cultures, working methods, core values, project goals and objectives, and interests through sharing and retrieving underlying motivations, i.e., the why. Result: increasing the motivation and ability to support the other organization. Both organizations can learn from each other. Points of attention: important on the tactical level. Facilitated through external coaching.</p>	<p>3) Focus on the process leading to the end product</p> <ul style="list-style-type: none"> • Understand and consider each other's interests. • Both organizations should be actively involved in the design process. • Make design choices collectively based on a decision-making process based on collective responsibility. • Use integral design studios. <p>4) Focus on shared responsibility</p> <ul style="list-style-type: none"> • Deviate from the strict acceptance procedure of the client. • Use the expertise of both organizations. • Make design choices collectively based on a decision-making process based on collective responsibility. • Use integral design studios. <p>5) Allowing flexibility in criteria</p> <ul style="list-style-type: none"> • Allowing for scope freedom. • Allowing the other organization their expertise during dialogue sessions. • Allowing design loops to iteratively arrive at a balance between time, cost and quality.
Factors enabling empathic behavior and the collaborative process	<ul style="list-style-type: none"> • Working environment, including work location³: allow an environment that fosters openness, ability to ask questions, and reveal vulnerability. Influences the extent of empathic behavior in team members • Communication⁴: communication is an aim and means. Aim for awareness of the communication style from the start on the team member level and selective communication throughout the organizational layers. A means to facilitate empathic behavior through the communication style and the actual communication taking place in the team. Empathy improves information sharing among members. • Empathic ability⁵: influences the extent to which team members can behave empathic based on personal experiences. The importance increases with unfamiliarity in project phase or delivery model • Trust⁶: establishing trust from the project's start is considered most essential for the collaborative process. It must be present at all organizational layers. It must remain a topic of discussion, even if not present. Empathic behavior facilitates understanding of each other's motivations and circumstances. 	<ul style="list-style-type: none"> • Relationships between team members⁷: some connection between team members is necessary to behave empathic. Establishing trust is a prerequisite. This connection is especially important on the tactical layer. • Willingness to behave empathic⁸: willingness to engage in empathic behavior on the team member level depends on two aspects: 1) one should be willing to express empathic behavior and position oneself vulnerably. 2) receiving empathic behavior stimulates exhibiting the same behavior. At the organizational level, it is about the willingness to deviate from strictly following contractual provisions. • The number of team members⁹: the effect of group size should be considered for the effectiveness and outcome of the empathic behavior. • Cohesion¹⁰: important to invest and work on creating cohesion from the start of the project to increase the sense of collaboration. It must be maintained throughout the project by keeping the focus on the team aspect.
Maintain and improve the collaboration	<ul style="list-style-type: none"> • Tool: Project Follow-Up + collaboration monitor¹¹ Goal: measure compliance with objectives, incl. collaboration goals set during the PSU. Result: improved compliance with the objectives by steering. Resolving issues in the process. Improved collaboration and ability to behave empathic, Points of attention: facilitated by an external coach. Recurring periodically. 	<ul style="list-style-type: none"> • Tool: check-in during meetings¹² Goal: understanding day-to-day issues and circumstances. Result: include this understanding into one's own behavior and consideration during decision-making. Points of attention: start with focus on members. Include in agenda. • Tool: Team (building) sessions¹³ Goal: measure compliance with collaborative goals. Result: an improved collaborative process by steering on the outcome of the monitor. Points of attention: facilitated by an external coach.
Threats to the collaboration	<ul style="list-style-type: none"> • Minimizing the impact of team changes through onboarding on new team members¹⁴ Tool: onboarding of new team members Goal: minimizing the impact of team changes on the established level of trust and cohesion. Result: Aligned team members with the context of the two-phase model, project, and project team. Points of attention: the focus must remain on utilizing the tool by designating responsibility and enforcement. Especially the selection of the tactical layer should include a focus on empathic behavior. 	<ul style="list-style-type: none"> • Reestablishing focus on collaboration¹⁵ Goal: reestablish focus on the collaborative process during traditional behavior and external influences. Result: focus on the collaborative process and, therefore, a better performing first phase. Points of attention: communication at both organizations throughout the entire first phase is essential to reestablish the focus on collaboration.

Number	Topic	Organizational layer	Practical use during the collaborative process	Points of attention
Plan				
1	Team building sessions	Tactical	<ul style="list-style-type: none"> The session is considered an informal tool. Getting to know each other in a non-work (external) environment while performing varying activities. Many different formats are possible for these sessions. Getting to know the person behind the team member. Important on the tactical level, especially between client and contractor counter partners. <p><u>External coach:</u> keeps the focus on the collaborative process and should determine the actual content of the session.</p>	<ul style="list-style-type: none"> Focus must remain on the informal setting. Focus on the development of trust and cohesion. Create awareness on communication Physical interaction
2	Project Start-Up	Tactical	<ul style="list-style-type: none"> The Project Start-Up is considered a formal and informal tool. The formality explains the project-specific background and project objectives. Informality deals with explaining the organization's backgrounds, such as cultures, work processes, and interests. <p><u>External coach:</u> keeps the focus on the collaborative process and should determine the actual content of the session.</p>	<ul style="list-style-type: none"> Essential at the tactical level Understanding is developed through physical interaction between organizations.
Factors enabling the collaborative process				
3	Working environment, including work location	Tactical and operational	<p><u>Establishing and maintaining this environment should be based on the following tools:</u></p> <ul style="list-style-type: none"> Proactively share to allow the other to understand one's interests and explain why certain aspects are important for one's roles in the project or due to organizational interests or circumstances. Collaboration monitor¹¹ to evaluate the established work environment. Weekly starts¹³ to discuss the day-to-day practicalities in the work environment. 	
4	Communication	Strategic, tactical and operational	<p><u>Communication must be used in the following manners to facilitate empathic behavior related to the two influences:</u></p> <p>1) Communication style should be low-threshold, open, transparent and objective. Eliminating personal accusations and being aware of someone's character (e.g., sensitive to words or reacting emotionally) using conscious words. <u>Tool:</u> awareness of the communication style should always be present.</p> <p>2) Proactive information sharing</p> <ul style="list-style-type: none"> About information and feelings (entail issues and the impact and why you do certain things the way you do them), and therefore keeping information to yourself must be avoided. Furthermore, talking about empathy can create the feeling that someone is being heard, resulting in building trust. <u>Tool:</u> engage during regular work practices; group size should be small. Information sharing is important to keep team members informed throughout all organizational layers. This task is especially important for the tactical layer. <u>Tools:</u> weekly starts¹¹, monthly updates¹¹, or WhatsApp groups¹¹. Finally, the formalization of communication influences the room for empathic behavior. Starting meetings in an informal manner creates room for empathic behavior. <u>Tool:</u> check-in during regular meetings¹². Informal communication related to one's personal life is an important facilitator. 	<ul style="list-style-type: none"> Throughout the first phase, communication must remain open and transparent, incl. a focus on the communication style to facilitate empathic behavior
5	Empathic ability	Tactical and operational	<p><u>Increasing the team members' ability to behave empathic is possible in the following manner:</u></p> <ul style="list-style-type: none"> Increasing an understanding of the other individual and organization's culture, interests, goals and work processes. <u>Tool:</u> team sessions, by discussing and practicing real-world scenarios to increase someone's experience. Select team members with experience with the two-phase or relation-based project delivery models. <u>Tool:</u> onboarding of team members¹⁴ Someone's ability will increase naturally over time by performing the first phase. 	<ul style="list-style-type: none"> Selection of team members is especially important at the tactical level.
6	Trust	Strategic, tactical and operational	<ul style="list-style-type: none"> Trust must be built at all levels of the organization. This process must start from the beginning of the project through tools such as team-building sessions¹ and the Project Start-Up². Must be maintained throughout the first phase through tools such as team (building) sessions and onboarding¹⁴. <p><u>External coach:</u> must determine the actual operationalization.</p>	<ul style="list-style-type: none"> Trust is fragile and takes time to develop; however, it can disappear quickly Consistency in showing empathic behavior is important for creating and developing trust.
7	Relationships between team members	Tactical and operational	<p><u>Practically this relationship should be achieved through the following:</u></p> <ul style="list-style-type: none"> Team-building sessions¹³ should be used to build the relationship when there is no former experience or to improve the existing relationship between team members. Informal communication relating to topics to facilitate the connection, such as domestic, financial, or health-related achievements and problems. 	<ul style="list-style-type: none"> This connection is especially important on the tactical layer.

8	Willingness to behave empathic	Tactical and operational	<p><u>Increasing willingness is based on the following tool:</u></p> <ul style="list-style-type: none"> • Team sessions¹³ to build on the relationship between team members because this seems important to behave empathic. Increasing the level of trust and familiarity will make it easier to be vulnerable. 	<ul style="list-style-type: none"> • The willingness of the strategic layer is relevant because, at this layer, the stakes of the mother organization weigh heavier. Therefore, less empathic behavior is expressed and needed.
9	Number of team members	Tactical and operational	<p><u>Practically one should consider the following regarding the number of team members:</u></p> <ul style="list-style-type: none"> • The tactical layer can and should focus on a relatively large group because this layer manages the project team. • The operational layer should engage with a relatively smaller group due to their role in the project. 	
10	Cohesion	Tactical and operational	<ul style="list-style-type: none"> • Investment is necessary from the start of the project and must be maintained throughout the first phase. • Tools such as team (building) sessions¹³ are used to develop the collaborative feeling and maintain this feeling. 	<ul style="list-style-type: none"> • The emphasis must be on working as one team toward one common goal.
Maintain and improve the collaboration				
11	Project Follow-Up, incl. collaboration monitor	Tactical and operational	<ul style="list-style-type: none"> • The PFU is used to monitor if t project still complies with the objectives set during the PSU, including the goals regarding collaboration, specifically the core values. • It offers the possibility to talk about the established collaborative process based on the results of the monitor. <p><u>External coach:</u> facilitates applying, processing, and discussing the collaboration monitor.</p>	<ul style="list-style-type: none"> • The tactical layer monitors compliance with the project objectives. • The collaboration is monitored at both the tactical and operational layers.
12	Check-in during meetings	Tactical and operational	<ul style="list-style-type: none"> • First, focus on the team members, e.g., how everyone is feeling and whether there are any issues, and second on the actual content of the meeting. 	<ul style="list-style-type: none"> • Include this check-in on the agenda of the meeting to prevent negligence.
13	Team (building) sessions	Tactical and operational	<p><u>The tool can have many different formats.</u></p> <ul style="list-style-type: none"> • Team sessions at an external location (hei sessie): the content of the session could be to take each other through situations or challenges that someone faces in his or her role. Then the person describes whether and how that leads to problems and/or which dilemma you find yourself in. The other participants think along and thus hear the kind of challenges someone faces from his or her role and gain understanding. Work-related scenarios are also used to practice. This tool should at least be used at the tactical level during the first phase. When this scenario occurs through experience, which you have practiced in a safe setting, you are less likely to fall back into traditional behavior. Experience allows you to empathize more easily and choose a different response. <p><u>Examples of activities:</u> campfire sessions, having dinner, or active activities.</p> <p><u>External coach:</u> keeps the focus on the collaborative process and should determine the actual content of the session.</p> <ul style="list-style-type: none"> • Collaboration sessions: discussing on request, what a certain situation is doing to someone or what someone is struggling with. Or indicate what is bothering someone. Discussing a problem or difficult situation with a team member. • Weekly: Discuss one core value through interactive activities with the entire team each week. A communication tool to align both the tactical and operational layers with what is going on in other teams with which they do not have direct lines. This increases the involvement in the project and creates understanding for each other. • (Monthly) update: communication tool to share information among both the tactical and operational layers to catch up with the progress of the project. This increases involvement in the project. • WhatsApp groups: narrow-oriented communication tool to share and inform about day-to-day updates. • Having a drink after work: creating a more profound understanding of the person behind the team member 	<p>Team session (hei sessie)</p> <ul style="list-style-type: none"> • Coach each other after the session on expressing traditional behaviors. • Understand that each team member has different levels of empathy. • Focus on the empathic ability of the tactical layer because they have a role in the project where interests meet, alignments are needed, and trade-offs must be made. • Focus on maintaining and improving trust and cohesion. <p>Collaboration session</p> <ul style="list-style-type: none"> • Important to have the session in small groups or between two people to increase the effectiveness and outcome. <p>Communication tools</p> <ul style="list-style-type: none"> • Maintain involvement in the project to ensure cohesion. • Being informed facilitates empathy
Threats to the collaboration				
14	Onboarding of new team members	Strategic, tactical and operational	<ul style="list-style-type: none"> • Align new team members by sharing <u>why and how a two-phase model</u> is applied in this project, the <u>project-specific information</u> (the project context, what is expected from the new team member, and what the team has already accomplished), and <u>behavioral aspects of the project team</u> (e.g., communication styles). • The strategic layer should be involved in the process to prevent the layer from imposing team members that do not fit. The layer should understand the importance of the onboarding process and the project team's needs. The tactical layer is responsible for establishing the understanding. 	<ul style="list-style-type: none"> • Focus must remain on utilizing the tool by designating responsibility and enforcement. • Especially the selection of the tactical layer should include a focus on empathic behavior.
15	Reestablishing focus on collaboration	Tactical and operational	<ul style="list-style-type: none"> • Both organizations should be willing and open to adapting this way of working by learning from the other party and not sticking to traditional working methods. The cause applies to both the familiar and unfamiliar project phases • Communication about external factors influencing the project should act as a coping mechanism to resulting frustrations and impactful decisions 	<ul style="list-style-type: none"> • Communication at both organizations throughout the first phase is essential to reestablish the focus on collaboration.

I

Construct validity

		Intended variable	Measured variable
Empathy	Cognitive	Someone's ability to put oneself in the shoes of another and perceive the world through their eyes and create understanding through perspective-taking (Kouprie and Visser, 2009).	Contribution during empathic behavior: the understanding of each other's, e.g., interests.
	Affective	Perceiving and resonating with somebody's feelings to experience an emotional response (Kouprie and Visser, 2009).	Contribution during empathic behavior: the emotional reaction in the other person's interest and making it your own, resulting in sincere involvement.
	Behavioral	To display an understanding of the perceived feelings (Chiu et al., 2011). This behavior may present itself in someone's attitude, as a skill ((non)verbal or listening), or as actionable behavior (Shapiro, 2002).	Contribution during empathic behavior: action-related behavior, e.g., actual consideration during decision-making.
Two phase	Form of collaboration	How the tasks and roles are divided between the two parties. Furthermore, the structure of the management team and, finally, the relationship between both parties.	No measurement based on the relevant data.
	Contractors design assignment	Whether the solution space of the contractor is narrow or wide, the moment of involvement in the project, and the level of specification that is needed before moving to Phase II.	No measurement based on the relevant data.
Collaboration	Affective trust	Affective trust is based on the feeling one has toward another. This trust is not built through established trust, based on predictability and reputation, but based on trust that has established from the collaboration itself, for example, through the bearing of care and showing concern (Johnson, 2005).	<ul style="list-style-type: none"> - Important to invest in trust from the start. It needs time to develop. - Trusting the professional will follow from trusting the individual - You can only give trust to other, you cannot demand trust. - That you have confidence in each other and that you know what you have to gain from each other.
	Communication	Communication enables information exchange among team members. The quality of communication depends on the frequency, level of formalization, structure, and openness of the information exchange. The communication should be frequent, informal, have a direct structure (no intermediaries), and be shared openly with team members (Hoegl, 2001).	<ul style="list-style-type: none"> - Information management. - Does the other really understand what I am saying and vice versa. - Open communication is more important when there are things you do not have experience with or competing interests. - That exchanging information with each other and sitting down with each other regularly. - Be aware about communication between different organizational layers. - Communicate also about domestic, financial or health-related topics.
	Cohesion	Cohesion is the factor that entails the degree to which team members identify as a team and radiate this—acting as a motivation to work (intensively) together. Cohesion is stimulated through (1) commitment/responsibility for the goal, (2) the presence of team spirit, and (3) mutual relationships within the team (Hoegl, 2001).	<ul style="list-style-type: none"> - Commitment and responsibility to the shared goal. - Working from your own organization, but for a shared goal and same project. - One joint team. - You should be willing to make concessions and compromises.
Project performance	Criteria related to task-related outcomes	Time, cost, and quality (Hoegl, 2001).	Time, cost, and quality.
	Criteria related to people-related outcomes	E.g., team member satisfaction and viability of the team (Hoegl, 2001).	No measurement based on the relevant data.