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Development levels of stakeholder relationships in collaborative projects: challenges and preconditions

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Abstract

Purpose – This article aims to address the confusion related to the meanings of interorganisational cooperation, control, coordination and collaboration in collaborative projects by developing a conceptual framework. From this, the authors aim to describe the links among these concepts in terms of development levels of stakeholder relationships. In addition, the authors aim to identify challenges and preconditions in relation to developing relationships at different levels.

Design/methodology/approach – The authors have adopted the directed approach of qualitative content analysis method to validate and extend the conceptual framework of this study. The context of this study is a large hospital construction project located in northern Finland.

Findings – The findings of this study suggest that collaboration is a multilevel process of active engagement of multiple stakeholders. These stakeholders must have a high degree of shared understanding in terms of cooperation, control and coordination to achieve the mutually desired outcomes. This study also identifies the challenges that project stakeholders could face in developing collaborative relationships and propose preconditions for the same.

Practical implications – This study provides a better understanding for project managers to manage interorganisational collaborative construction projects successfully. The outcome of this research would be beneficial to project management team to deliver dispute-free construction projects.

Originality/value – Existing practical research on the development of relationships at different levels in collaborative construction projects is limited. This study offers a framework for the same which is validated in a real-life project.

Keywords Collaborative projects, Stakeholder relationships, Cooperation, Control, Coordination, Collaboration

Paper type Research paper

1. Introduction

Due to the environmental complexity, regulatory uncertainty and increasing stakeholder expectations, organisations must collaborate with a wide range of stakeholders to achieve competitive advantages and successful project delivery (Albino *et al.*, 2012; Romero-Torres, 2020). This is especially relevant in large projects that are characterised by a large number and variety of stakeholders working together in a network of relationships that require coordination and collaboration (Liu *et al.*, 2021). Project stakeholders typically include internal stakeholders who are an integral part of the project team (e.g. owner organisation, contractors, designers and consultants) and external stakeholders who are not part of the

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project team but who may influence or be influenced by the project, such as governmental authorities, material suppliers and end users (Aaltonen *et al.*, 2010; Lehtinen *et al.*, 2019).

The complexity of large projects is driven by different factors, including technological uncertainty, environmental uncertainty, socioeconomic transformations and organisational interdependency (Bosch-Rekveldt *et al.*, 2011; Aaltonen and Kujala, 2016; Elia *et al.*, 2021), which makes interorganisational cooperation, coordination and collaboration vital for successful project delivery (Pekkinen and Kujala, 2014; Castañer and Oliveira, 2020). Such interorganisational practises have been implemented through relational project delivery arrangements (e.g. project partnering, integrated project delivery and project alliancing) to manage interorganisational relationships and collaboration in complex projects (Lahdenperä, 2012; Pauna *et al.*, 2021).

Interorganisational cooperation, control, coordination and collaboration have been defined and explained by scholars and researchers from different perspectives. Spekman *et al.* (1998) discussed these concepts (cooperation, coordination and collaboration) from the perspective of supply chain management to gain strategic advantage. Mellewigt *et al.* (2007) tested the interplay between control and coordination and their relationship with contractual complexity. Dietrich *et al.* (2010) described different elements of collaboration and their interdependencies in interorganisational projects. Romero-Torres (2020) explained different factors linked with collaboration and their impacts on interorganisational relationships. Klessova *et al.* (2020) explored the interplay between knowledge integration and coordination in setting up collaborative projects.

These concepts are at the core of stakeholder relationships in collaborative projects (e.g. project alliancing) but have been used interchangeably without a clear distinction of their meaning (Castañer and Oliveira, 2020). Hence, there is still a need to develop frameworks that explain the interplay between cooperation, control, coordination and collaboration as the links between these terms and how they develop in collaborative settings remain largely unknown, especially for collaborative interorganisational construction projects. Our study addresses this research gap by developing a conceptual framework for these concepts based on the review of existing literature, identifying challenges in a case project and creating preconditions in relation to developing relationships at different levels. We pose the following research questions to fulfil our aim.

RQ1. What are the development levels of stakeholder relationships in collaborative projects?

RQ2. What are the current challenges related to developing stakeholder relationships in project alliancing?

RQ3. What are the preconditions for developing stakeholder relationships at different levels?

To provide answers to our research questions, we have adopted a qualitative research design with the directed approach to content analysis methodology (Hsieh and Shannon, 2005; Creswell, 2009; Neuendorf, 2019). The context of our study is a hospital construction project located in northern Finland. Following the introduction of this article, the second section describes the literature review in regard to the phenomenon along with a conceptual framework that is developed through the synthesis of existing literature to validate and extend the existing literature (RQ1). In the third section, the research approach and method adopted for this study is explained. The fourth section describes the findings related to the challenges of developing relationships among stakeholders (RQ2), and then preconditions in relation to the development of relationships are derived (RQ3) based on these findings. The last section concludes this study in terms of its key contributions, managerial implications, limitations and suggestions for future research.

2. Literature review

2.1 Relational project delivery arrangements

Collaborative projects, also known as relational project delivery arrangements, are based on interorganisational collaboration and related contractual practises (Dietrich *et al.*, 2010; Lahdenperä, 2012). These arrangements mainly include integrated project delivery and project alliancing (Halttula *et al.*, 2015). Such interorganisational arrangements are characterised by the achievement of mutual goals through stakeholders' early involvement, cooperation, coordination and collaboration (Hietajärvi *et al.*, 2017; Klessova *et al.*, 2020). Amid these arrangements, project alliancing focuses more on relational aspects (no-litigation) and heavily rely on agreed pain/gain sharing incentives and early involvement of the main contractors (Walker and Lloyd-Walker, 2015; Haaskjold *et al.*, 2020).

In project alliancing, internal stakeholders (alliance partners) undertake joint responsibility in terms of risk sharing, information exchange and unanimous decision-making in relation to pursuing the project goals (Lahdenperä, 2017). This delivery method can be a response to construction industry challenges related to the low productivity that stems from the fragmentation of a project arrangement under traditional methods in which stakeholders have multiple individual interests rather than common interests (Halttula *et al.*, 2015). Project alliancing evolved from the need to improve the delivery of demanding construction projects and provide a better way to respond to uncertainty, cope with complexity and generate value for money (Walker and Hampson, 2003; Lahdenperä, 2019). However, it requires certain capabilities by the project stakeholders such as cooperation, control, coordination and collaboration (Zhu *et al.*, 2020).

2.2 Forms of stakeholder relationships

2.2.1 Cooperation. Cooperation can be seen as a starting point for organisations to exchange essential information for the purpose of engaging partners in long-term relationships (Spekman *et al.*, 1998). Cooperation can also be viewed as the alignment of incentives or interests through which stakeholders show their willingness to work together towards mutual goals (Gulati *et al.*, 2012; Kretschmer and Vanneste, 2017). Interorganisational cooperation is based on two basic units: (1) the beginning of a beneficial relationship with the aim of common goals and (2) the development of mutual trust by avoiding opportunism (Parkhe, 1993). Cooperation refers to the behaviour that is required to engage in any reciprocal interaction to facilitate the collaborative relationships process (Bedwell *et al.*, 2012).

Successful reciprocal interaction is the outcome of cooperation among the stakeholders involved in a project (Kaulio, 2018). Cooperation is concerned with the common benefits of an alliance rather than the private benefits of any individual stakeholder (Castañer and Oliveira, 2020). One of the biggest risks involved in an alliance could be the relational risk in which stakeholders lack cooperation and seek their self-interest (Eckhard *et al.*, 2012). Alliance contracts promote cooperation by imposing limits on the behaviour of stakeholders through contractual governance (provisions related to a shared understanding of the roles and to legal authority) to avoid exploitation (Lumineau and Malhotra, 2011). Cooperation is one of the important capabilities that is required to establish a project alliance (Zhu *et al.*, 2020).

2.2.2 Control. The literature of interorganisational relationships is influenced by different theoretical perspectives such as contract theory, resource-based views and transaction cost economics; from the perspective of transaction cost economics, contracts function as a controlling device (Mellewigt *et al.*, 2007). From this perspective, stakeholders involved in interorganisational relationships use contracts for control in order to bring compliance to a

desired outcome and restrain opportunism through contractual provisions (Etzioni, 1965; Yao *et al.*, 2021). The control provisions are generally related to restrictions, legal enforcement, rights, obligations, liquidated damages and dispute resolution (Gulati *et al.*, 2012; Zhang *et al.*, 2016; You *et al.*, 2018). Moreover, the capability of the alliance management team in terms of control is important for decision-making in relation to project goals (Zhu *et al.*, 2020).

Organisations create control mechanisms in line with their governance structure (contractual or relational), which can be adjusted to achieve the right balance between rigour and flexibility in accordance with project objectives (Ferrer *et al.*, 2020). Governance is a system through which an organisation is controlled and directed in accordance with established plans and rules (Pinto, 2014). To comply with these plans and rules, control mechanisms (formal or informal) are established and implemented; these include linking payment with formal performance milestones or teamwork for shared goals and achieving related incentives through collaboration (Kirsch, 1997; Jagtap and Kamble, 2020).

2.2.3 Coordination. The structure of stakeholders' involvement in interorganisational projects plays an important role in the success of the projects (Dietrich *et al.*, 2010). The term structure also refers to how different stakeholders divide and arrange their resources to accomplish their interdependent tasks through coordination (Klessova *et al.*, 2020). Coordination refers to the degree of mutual understanding among project stakeholders in relation to the shared project goal and the related task structure for each stakeholder without gaps and overlaps (Hoegl and Gemuenden, 2001). It relates to the integration and sequencing of stakeholders' resources to accomplish their interdependent tasks (Marks *et al.*, 2001; Okhuysen and Bechky, 2009). In other words, it is related to the alignment of stakeholders' actions towards achieving mutual goals (Castañer and Oliveira, 2020). The main challenge is how to organise the resources of project stakeholders to ensure coordination (Mellewigt *et al.*, 2007).

One mechanism to handle this challenge is through contractual governance wherein the rights, obligations and roles of stakeholders are clearly defined and the focus of contractual provisions is on the mutual expectations for the relationships to avoid misunderstandings and maintain coordination (Lumineau and Malhotra, 2011). Alliance agreements require coordination provisions in relation to the communication procedures, task descriptions and definitions that enable stakeholders to manage task interdependencies and reach consensus to achieve a desired mutual outcome (Gulati *et al.*, 2012). Another mechanism is related to building alliance management capability in terms of coordination during the alliance-establishment stage (Zhu *et al.*, 2020). Such capabilities are important to avoid coordination failures that stem from cultural differences, organisational structures, predictive knowledge and cognitive limitations of stakeholders in terms of scheduling of tasks and their interdependencies (Puranam *et al.*, 2012).

2.2.4 Collaboration. There are multiple theories that talk about collaboration, such as transaction cost economics, social relationships, resource dependence, contingency theory and game theory. Transaction cost economics considers alliances as governance structures for achieving collaboration among stakeholders; social relationships focuses on building the stakeholders' relationship within an alliance; resource dependence views alliances from the perspective of a power balance in terms of the control of critical resources; contingency theory focuses on organisational structures and how these structures are influenced by uncertainty and the interdependence of stakeholders for common goals; game theory focuses on stakeholders' incentives and how these can be influenced by adopting a long-term collaboration (Parkhe, 1993; Kretschmer and Vanneste, 2017).

Collaboration can be defined as a dynamic process through which multiple stakeholders actively engage in joint interdependent activities to achieve their mutual goals

(Bedwell *et al.*, 2012). In this process, stakeholders seek to develop collaborative relationships to gain mutual benefits (Saukko *et al.*, 2020). Interorganisational collaboration is a complex process that includes multiple stages and multiple integral elements of bringing stakeholders together from different perspectives (Gulati *et al.*, 2012). There has been an increased tendency for interorganisational collaboration in project-based firms to reduce transaction costs (Dietrich *et al.*, 2010; Haaskjold *et al.*, 2020).

Transaction costs are related to the precontract (preparation, design, negotiation) and post-contract (implementation, governance) phases of construction projects (Li *et al.*, 2015). The transaction costs associated with dispute resolution in construction projects can be extremely high and do not add any value to the project (Lu *et al.*, 2015). Stakeholders' early involvement and integration in the design stage and effective collaboration in the construction stage reduce transaction costs (Guo *et al.*, 2016). Interorganisational collaborative projects are characterised by trusting relationships, efficient coordination and mutual interests among stakeholders (Romero-Torres, 2020).

The delivery of large projects demands collaboration among several stakeholders (Invernizzi *et al.*, 2019). The key element of collaboration in construction projects is related to the involvement of cross-disciplinary stakeholders at the project start-up working together throughout the project phases (Engebø *et al.*, 2020). It provides a framework to achieve the project goals through cross-functional collaboration and shared vision (Ko *et al.*, 2011; Fanousse *et al.*, 2021). However, there are multiple factors that influence collaboration in projects, such as trust, uncertainty, organisational efficiency and changes in the scope of the work (Haaskjold *et al.*, 2020).

2.3 Relationship development framework

The above literature review has been synthesised to form links between cooperation, control, coordination and collaboration to describe the four development levels (Figure 1) of stakeholder relationships in collaborative projects. There is a need to cover the risks involved in interorganisational cooperation that could lead the organisations to different objectives (Nooteboom *et al.*, 1997) rather than the shared goal. Interorganisational cooperation does not guarantee cooperation among the stakeholders until they develop a right attitude and interpersonal relationships. Hence, cooperation is an attitude that is required to focus on the

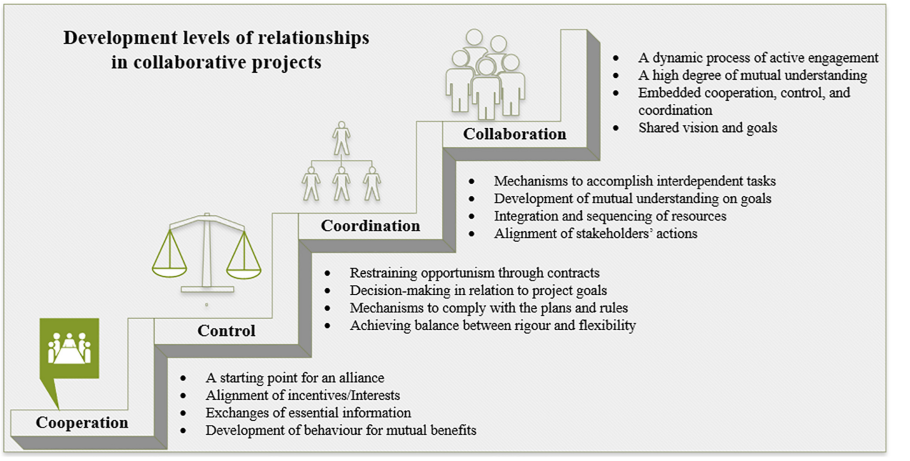

Figure 1.
Conceptual framework for developing stakeholder relationships

shared goal rather than the individual goal (Bedwell *et al.*, 2012). There is a need to develop cooperation through trust along with a certain element of control (Okamuro, 2007; Lumineau and Malhotra, 2011).

Although contracts safeguard stakeholders from unfair treatment and opportunistic attitudes, they lack clarity in terms of stakeholders' roles and their related tasks may compromise the achievement of project goals regardless of the full cooperation between the stakeholders (Eckhard *et al.*, 2012). Such issues are quite common in construction projects because of the complexity of tasks and their interdependency (Kujala *et al.*, 2020). Even in a state of ideal alignment of incentives and interests, there will still be a need to sequence and align stakeholders' resources to coordinate the joint activities efficiently (Gulati *et al.*, 2012). Thus, there is a need to pay attention to the coordination structure of the project along with the control mechanisms (Yao *et al.*, 2021).

Coordination provides a structure for stakeholders aiming to engage in a dynamic process (collaboration) to achieve mutually desired outcomes (Dietrich *et al.*, 2010; Bedwell *et al.*, 2012; Klessova *et al.*, 2020). Hence, collaboration should not be viewed as a stand-alone static process since it incorporates and interplays with cooperation, control and coordination. To further clarify the interplay among these constructs and how they develop from one level to the next, we developed a framework (Figure 1) showing the development levels of collaboration.

3. Research approach and method

This is an empirical qualitative study in which we have adopted the qualitative content analysis method (Hsieh and Shannon, 2005; Creswell, 2009). The goal of adopting this scientific method is to generate knowledge about the phenomenon under study (Neuendorf, 2019). There are different approaches of content analysis, such as conventional, directed and summative (Hsieh and Shannon, 2005). For this study, we have adopted the directed approach, which is a top-down form of content analysis, as we have started with the development of a conceptual framework that is imposed on the data. The selection of this approach enables us to focus on a real-life problem and solve it by using the existing literature. This approach also enables us to validate and extend the existing literature about the phenomenon under study (Hsieh and Shannon, 2005). The research method of this study is depicted in Figure 2.

3.1 Empirical context

Our research context is the construction project of the Oulu University Hospital located in northern Finland. The project owner is an organisation of the Northern Ostrobothnia Hospital District formed by 29 municipalities in that region. The university hospital construction project was launched by the project owner in 2012 with the goals of improving health care facilities, quality, cost efficiency and productivity. The construction project includes the demolition of the old hospital facilities and the construction of new hospital facilities. The university hospital project programme will be implemented through project alliancing, in which the entire project is divided into multiple subprojects and their alliances with separate phases (Figure 3). The entire programme is divided into series of interlinked alliance subprojects in which old facilities (buildings) will be demolished one by one and replaced with new buildings.

Following the selection phase, Alliance A and Alliance B were established in 2018 for the development and implementation of building A and B for emergency services, maternity services and the intensive care unit. Completion of these buildings is planned in stages between 2023 and 2024. The development phase of the buildings involved various

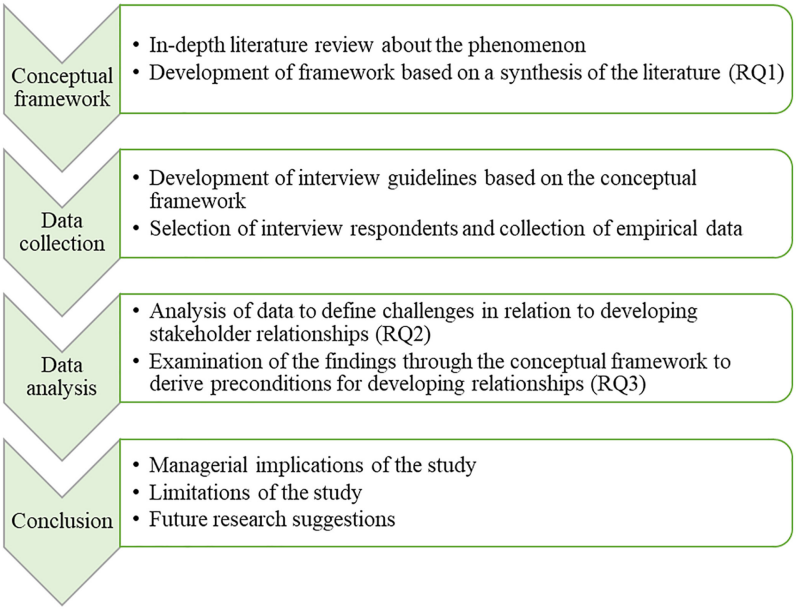

Figure 2.
Research method

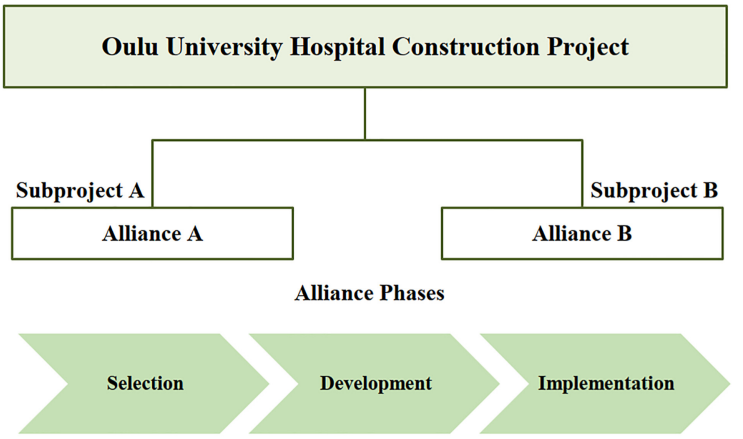

Figure 3.
University hospital construction project

stakeholders (the project client, architects, engineers, the main contractor, services contractors, end users) for planning, design, schedule and target cost development, risk management approach and team development. The implementation phase of the buildings involves the execution of the project plans by the respective alliance partners.

3.2 Data collection

The data were collected through semistructured interviews (Clifford *et al.*, 2016) in which respondents were provided with interview guidelines in advance to provide an idea of the

interview's extent and subject matter. Since we have adopted the directed approach of qualitative content analysis, the interview questions were designed in accordance with the developed conceptual framework of this study. Respondents were selected from both alliances (A and B) based on their distinctive roles. We interviewed 14 stakeholders representing the main alliance partners (Table 1) of both alliances. These respondents were recruited on the basis of nonprobability sampling (Saunders *et al.*, 2012) due to the nature of this study as the focus is on the small number of cases who are able and willing to share their alliance experiences. The end users (operational staff) are represented by the client representative. Each interview lasted for an average duration of 45 min, and they were recorded for transcription into a Word document. Each transcribed document was reviewed and edited with the original interview recording to ensure its accuracy.

4. Analysis and findings

The data were analysed through the conceptual framework (cooperation, control, coordination and collaboration) of this study, based on which we determined the coding scheme (Hsieh and Shannon, 2005; Duriau *et al.*, 2007) that was applied to the data by using NVivo. The unit of analysis of our study is the entire university hospital construction project (Manning, 2017). We identified challenges in relation to each concept of the conceptual framework one by one. Accordingly, the identified challenges were categorised under the predetermined concepts and listed in the tables. The solutions suggested by the respondents for these challenges were then examined through the conceptual framework in order to derive preconditions for developing stakeholder relationships.

4.1 Challenges in developing relationships

Data analysis findings related to the challenges in developing relationships among stakeholders in collaborative projects are categorised under the predetermined concepts (cooperation, control, coordination and collaboration) derived from the existing literature, based on which we developed a conceptual framework for this study. The key findings are listed in the relevant tables along with an explanation under the related sections.

4.1.1 Cooperation. Table 2 summarises data analysis findings on cooperation-related challenges faced by the interview respondents in their respective project alliance. According to which the main contractors of both alliances are working side by side on this project, but

Stakeholder	Position	Type	Subproject
1	Project Manager	Main Contractor	Alliance A
2	Area Manager	Main Contractor	Alliance A
3	Business Director	HVAC Contractor	Alliance A
4	Managing Director	Building Technology Contractor	Alliance A
5	Project Manager	Main Contractor	Alliance B
6	Regional Director	Main Contractor	Alliance B
7	Business Unit Head	Automation Contractor	Alliance A and B
8	CEO	Architect	Alliance A and B
9	CEO	Architect	Alliance A and B
10	CEO	Architect	Alliance A and B
11	Construction Manager	Project Management	Alliance A and B
12	Business Unit Manager	Structural Engineering	Alliance A and B
13	Business Unit Manager	HVAC Design	Alliance A and B
14	Client Representative	Client	Alliance A and B

Table 1. Main stakeholders of the project

Categories	Challenges: Cooperation
Alignment	Stakeholders' interests and incentives are not properly aligned. There is a lack of shared understanding of the alliance contract and its governance
Behaviour	Misunderstandings among stakeholders raise issues that could lead to a situation where it is hard to adopt a best-for-project attitude. Pending issues lead to negative behaviour among stakeholders
Culture	It is challenging to change the working habits of stakeholders that they have inherited from their parent organisations. It is a hard and time-consuming process to come out of their parent organisation culture, unlearn old habits and learn new ways of working. There is no mechanism to evaluate the capabilities of a client to run an alliance project, which sometimes leads to challenges
Competitors	Some stakeholders are part of project alliances, but they are competitors in the construction industry, which causes challenges
Opportunism	Some stakeholders seek their individual benefits rather than leveraging the skills of alliance partners to gain strategic advantage for the whole project alliance
Trust	Lack of trust among stakeholders leads to a lack of project alliance success. This causes disputes, which do not fit into the project alliancing philosophy

Table 2.
Cooperation-related challenges

they are competitors in the construction industry, which causes challenges in terms of developing a collaborative attitude with the aim of realising common project goals. It is challenging for competitors working in an alliance to shift their attitude from private benefits to common benefits. Moreover, developing a belief in the importance of alliance goals rather than individual goals is challenging in such situations as competitors seek their individual benefits rather than leveraging the skills of supply chain partners to gain strategic advantage for the whole supply chain.

Stakeholders' interests are not properly aligned to develop an attitude towards mutual benefits. Some of them seek their self-interest through contractual provisions due to the lack of a shared understanding of the alliance contract and contractual governance. In fact, it is a hard and time-consuming process for stakeholders to come out of their parent organisation culture, unlearn old habits and learn new ways of doing work. Some of them are not willing to detach themselves from their parent organisation and integrate themselves into the organisation of a shared project with the spirit of mutual loyalty as they are not fully aware of the rules of collaborative delivery methods.

The influence of parent organisations' culture impacts project stakeholders and varies their abilities to adopt a collaborative working culture. One of the biggest challenges is to change the working habits of stakeholders. Some stakeholders' parent organisation reporting routines are not aligned with the project alliance routines, as a result of which those stakeholders need to do double work in terms of reporting progress to both organisations. Sometimes challenges emerge from pending issues that lead to negative behaviour among stakeholders.

Due to misunderstandings among stakeholders while interacting, it is hard to adopt a best-for-project attitude and ensure that all stakeholders are committed to behavioural commitments during the selection process. During the selection phase, the client (the project owner) adopts a competitive process to evaluate the capabilities of participating consortiums for project alliance and, based on that, an alliance is formed. However, no one evaluates the capabilities of the client to run an alliance project, which sometimes leads to challenges. In addition, the adopted model of engaging subcontractors is based on a traditional arrangement that causes challenges in terms of explaining and teaching them alliance principles. In addition, the lack of trust among stakeholders leads to a lack of project alliance success. In one of the alliances under study, lack of trust has led to opportunism and

blame culture, and slowly that lack of trust and opportunism has led to disputes, which do not fit into project alliancing philosophy.

4.1.2 Control. The main points of control-related challenges faced by the interview respondents in their respective project alliance are presented in Table 3. The findings show that, in one of the alliances, control mechanisms (contractual provisions) are in conflict with the governance system of the project, causing an imbalance between rigour (formal control against opportunism) and flexibility (shared risks and trust) to achieve the desired collective performance. For instance, one of the contractual provisions related to the project target cost is ambiguous, which gives the concerned stakeholder the opportunity to protect its individual benefits. The project budget was established based on the conditional target cost (based on the available design information during the development phase when target cost was established and the same is appended to the alliance contract as an appendix), which is not realistic due to later changes in the design, and related contractual ambiguity (the purpose of this appendix is not defined in the alliance contract) causes conflicts and opportunism rather than restraining them.

Decision-making in project alliancing is difficult because clear scope definitions and task descriptions are not readily available; these need to be developed during the process and decisions need to be made together. Because of the huge number of stakeholders, it is difficult to develop consensus and make decisions together, especially when they are not physically colocated due to the pandemic. In addition, decision-making in project alliance is a time-consuming process due to the involvement of a huge number of stakeholders.

The project alliance organisational structure, including the management team and the project team, has decision-making rights, and these decisions must be unanimous to restrain opportunism. There have been issues in decision-making in one of the alliances due to slightly different versions of the alliance contract in terms of its contractual provisions. Sometimes decision rights in project alliance conflict with the parent organisations of the alliance partners, and that causes confusion for the employees working in the alliance organisation as to which orders to follow. This prolongs the decision-making process, leading to schedule delays and negatively impacting project goals.

The target cost (budget restriction) of the project was established based on low estimates due to limited design information during the development phase. This causes problems in terms of assessing the performance of the alliance and complying with the related plans and rules.

4.1.3 Coordination. The main points of the coordination-related challenges faced by the interviewees in their respective project alliance are presented in Table 4. According to this, information exchange is a challenge due to the huge number of stakeholders involved in this project and the resulting different kinds of information required to plan and execute activities. For instance, sometimes there are delays in information sharing with regards to

Categories	Challenges: Control
Ambiguities	Contractual provisions conflict with the governance system of an alliance. This causes opportunism and lack of trust among stakeholders
Decision-making	Decision-making is a difficult and time-consuming process due to the involvement of a huge number of stakeholders, unclear scope definitions and tasks descriptions and subsequent conflicts. In addition, conflicts between the temporary and permanent organisations in terms of decision rights slow down the decision-making process, which causes schedule overrun
Restrictions	Inappropriate budget restrictions cause problems and negative implications for the governance mechanisms adopted on a project

Table 3. Control-related challenges

Categories	Challenges: Coordination
Communication	Effective communication is challenging due to the complexity of this project in terms of the number and variety of stakeholders involved. In addition, clarity of information is lacking in stakeholders' communication due to their different backgrounds and understandings
Conflicts	Most conflicts arise from the delay in information exchange between stakeholders. Some conflicts are born of ambiguous contractual provisions
Integration	Stakeholders are not able to integrate themselves into an alliance due to a lack of belief in mutual success and their individualistic mindset. Furthermore, the prolonged availability of resources for interdependent tasks is challenging
Mutual understanding	There is a lack of mutual understanding about the form of contract being adopted for this project, and the majority of subcontractors and suppliers are not included in the main alliance agreement
Plans and procedures	Constant changes in designs and plans cause coordination issues in terms of the scheduling of resources and the alignment of actions. There are changes all the time, and these mainly stem from the permanent organisation level (end users), the project level and the long duration of the project. This has negative implications for the goals and objectives set at the start of the project
Roles	There are misunderstandings and gaps in the roles and responsibilities of the stakeholders as the roles and responsibilities related to the interaction of subprojects are not clearly defined
Location	Stakeholders are not physically colocated, which has negative implications for their interaction as the lack of physical proximity leads to different coordination issues

Table 4.
Coordination-related challenges

heating, ventilation and air conditioning (HVAC) units across groups, and that leads to huge changes later. Clarity of information is lacking in stakeholders' communications due to their different backgrounds and understandings. Some stakeholders, such as subcontractors and suppliers, are not familiar with the joint management structure with open book documentation and information exchange of project alliance organisational arrangements. A lot of effort and training is required to get them on board.

In addition, delay in information exchange causes conflicts among stakeholders. Some conflicts are born of ambiguous contractual provisions that lead to different interpretations by the stakeholders and cause disputes among them. One of the alliance stakeholders is unable to integrate itself due to a lack of belief in mutual success and achieving a win-win situation. It is hard to convince some stakeholders due to their individualistic mindset that there is always an opportunity to earn more in cases of mutual success. Accomplishing interdependent tasks is challenging in terms of related shared resource availability for a longer period. Another challenge is that there is lack of mutual understanding about the form of contract being adopted in this project. Most subcontractors and suppliers are not included in the main alliance agreement, which causes challenges in terms of achieving mutual understanding about project goals.

In project alliancing, scope definitions and task descriptions are developed and agreed together to align stakeholders' actions, which becomes challenging in the case of changes. Constant changes in designs and plans cause coordination issues in terms of the integration and scheduling of resources. Changes emerge from the project level in terms of installing equipment that is different from that which was proposed during construction. Constant changes in plans and design negatively impact schedules and resources. Some challenges are imposed by the long duration of the project as the goal and objectives set at the start of the project change because of changes happening in the owners' permanent organisations. There are changes all the time, and these mainly stem from the permanent organisation level (end users) as well as the project level. End users (doctors, nurses) are finding new ways to do

things in the hospital and that leads to changes at the project level. Some changes impact the project level goals and related consensus in terms of rules concerning task responsibilities and related incentives. Understanding and consensus on network-level goals is a lengthy process. Processes and procedures adopted for alliance partners are not applicable to subcontractors and suppliers in some cases, which leads to problems. During the implementation phase, subcontractors and suppliers join the project, and it is challenging to effectively introduce alliance processes and procedures to these new stakeholders.

There are misunderstandings and gaps in the roles and responsibilities of stakeholders in terms of task structure and related interdependencies of the project. The roles and responsibilities related to the interfaces of the subprojects are not clearly defined, as mechanical systems and electrical and other utilities interact between subprojects. In addition, the huge number and variety of stakeholders and their requirements cause confusion in terms of the roles of their related tasks. Remote working also contributes to the complexity of the project and causes coordination issues. Due to the pandemic, stakeholders cannot physically colocate, which has negative implications for their interaction in terms of their inability to post information in a common space. Lack of physical proximity leads to different problems, such as a negative impact on trust and a lack of oversight on the tasks others are doing.

4.1.4 Collaboration. Table 5 summarises the data analysis findings on collaboration-related challenges faced by the interview respondents in their respective project alliance. According to these findings, a higher degree of mutual understanding and engagement has been achieved with few stakeholders only; there are still misunderstandings and a lack of trust among others, which has negative implications for mutual project goals. Collaboration is a multilevel process, and stakeholders could not develop a shared vision to achieve the project goals because of various issues related to cooperation, control and coordination levels.

4.2 Preconditions for developing relationships

Most of the challenges related to cooperation arise from the unaligned interests of the stakeholders, opportunistic behaviour, the culture of the parent organisation, old habits and lack of trust. Therefore, it is important to conduct training and briefings for new stakeholders joining the project alliance to make them understand the philosophy of the collaborative project and, accordingly, adopt the appropriate attitude and working habits. In addition to induction training for new project stakeholders to develop a collaborative culture, it is also important to identify competitors participating in the consortium during the selection phase to ensure alignment of their interests in terms of their roles. The selection process of the alliance team must also make sure that participating stakeholders are well aware of the project requirements so that they act responsibly in terms of their role and responsibilities.

When establishing a project alliance, there is a need to evaluate the capabilities of the client along with the participating consortiums in terms of running the project to avoid misunderstandings in the later phases of the project. Discussions and information exchanges need to be conducted at different levels, such as in the alliance management group, the project management group and different specialised work groups, all of which helps in resolving

Categories	Challenges: Collaboration
Active engagement	Only a limited number of stakeholders could achieve a higher degree of mutual understanding and engagement. This has negative implications on mutual project goals
Shared vision	The stakeholders' lack of a shared vision in relation to project goals has negative implications

Table 5. Collaboration-related challenges

issues and building trust among the parties. In addition to the alignment of incentives and interests, it is important to offer volunteer services during the development phase of the project to increase cooperation among stakeholders. Collaboration is a continuous process that includes multiple stages. The very first stage is cooperation among the stakeholders, through which they learn how to change and develop their attitude towards mutual goals.

Control-related challenges stem from contractual ambiguities, decision-making and project restrictions. Although communication is extremely important in resolving challenges related to collective responsibility and performance, such situations can be controlled through authority and power. However, dominance over others by using power is quite difficult in collaborative projects. Sometimes challenges related to individual thinking can be resolved through contractual mechanisms. For instance, contractual provisions can be used to make stakeholders comply with plans and rules. Although contractual arrangements and related provisions dictate the actions and serve control and coordination functions, it is important to develop and adopt an unambiguous contract as it raises the stakeholders' familiarity with the contract terms and creates less room for interpretation and related opportunism. Hence, to prevent relationship challenges and tensions in an alliance, there must be an appropriate balance between policies, rules, project management tools, processes, procedures and restrictions.

The power of internal stakeholders in collaborative projects is limited to decision-making and resolving conflicts. Therefore, decision-making rights and associated power must be used for the common project goals. The complexity of decision-making in collaborative projects increases in cases in which there are no mechanisms in place for joint decision-making in terms of shared responsibilities. It is important to understand the project goals and identify important stakeholders who have the biggest stakes. Accordingly, all stakeholders should reach consensus and share their opinions, but opinions of the salient stakeholders who have the biggest stakes connected to the project goals must have more weight when selecting options for mutual decisions to ensure ethical decision-making.

Decision-making meetings take place on different levels and with different groups, such as in the project group (for joint alliances), the alliance management group, the alliance project group and different work groups related to procurement, design, cost control and change management. Participation in the decision-making meetings must be restricted to the relevant stakeholders who are directly connected to the issue under discussion so that decisions are made in a timely manner.

Most of the challenges related to coordination are caused by ineffective information exchange among stakeholders, lack of belief in mutual success, lack of mutual understanding, constant changes in plans, lack of clarity in roles and the lack of physical proximity of stakeholders to each other. The challenges related to the coordination of activities among stakeholders could be resolved through effective communication. Open communication at different levels forms the foundation for coordination and trust. Information-sharing plays an important role in sharing resources for effective coordination. Different information exchange tools should be used to ensure that the required information is delivered in a timely manner. Moreover, stakeholders' meetings must aim to exchange information with regards to coordination issues such as conflicts in schedules and organisation of activities, the management of coordinated activities, the resolution of conflicts and related decision-making.

There must be a belief in developing mutual understanding to achieve a win-win situation. It is important to have the capability to align actions with other stakeholders to accomplish interdependent tasks. Stakeholders must be open to accept differences (conflicts), and in such situations, they should respect the impartial views of third parties and find an amicable solution to the problems. Conducting regular "lessons learned" workshops and developing new processes and procedures to handle the past challenges effectively in the future are

also helpful. It is also important to include relevant subcontractors and suppliers while developing processes and procedures for interdependent tasks.

Alliance stakeholders should not restrict themselves to their contractual roles and responsibilities only; they must participate in additional activities whenever needed to ensure coordination and develop trust for mutual success. For example, one of the alliance stakeholders responsible for providing construction work hired additional resources to ensure efficient coordination of activities among alliance partners to achieve the desired project goals.

However, roles and responsibilities must be clearly defined, especially related to the interfaces of subprojects and the interfaces with existing infrastructure. It is important to follow governance rules in relation to the roles and responsibilities adopted in the project. It is also important to be open and transparent when participating in and sharing resources for additional activities caused by the gaps in task descriptions so that task interdependencies are managed and desired mutual outcomes are achieved. In addition, stakeholders should find new ways and develop new tools, such as a big virtual room to facilitate effective coordination in cases where physical colocation is not possible, to bring project participants into closer proximity.

It is important to focus on each intermediate level (cooperation, control, coordination) and resolve related issues in a timely manner in order to develop strong bonds and a shared project vision among stakeholders. Hence, collaboration should not be viewed as a stand-alone static process but as a multilevel process that includes multiple activities to achieve project goals through a shared vision.

4.3 Discussion

Most of the preconditions for effective cooperation (Table 6) are in line with the related theoretical issues identified in the conceptual framework (Figure 1) of this study, but they provide an extended view and enrich related conceptual ideas. For example, it is not only important to exchange essential information to start cooperation; it is a continuous process that encompasses all levels of collaborative relationships. When an alliance is formed on the basis of capable participating stakeholders, they have the willingness to align their interests, avoid opportunism, and develop trust and an attitude that prioritises mutual benefits.

Control-related preconditions are also in line with the related issues identified in the conceptual framework (Figure 1). However, it is important to note that opportunism can be restrained through contracts only if there are no ambiguities in the contractual provisions. Otherwise, bigger relationship problems among stakeholders can result. Unanimous decision-making in relation to project goals is only possible if there is complete understanding and consensus on project goals. In addition, it depends on the adopted governance system, related organisational structure, decision rights and capability of the decision-makers. Therefore, it is important to develop a project governance system in line with the adopted delivery method and related form of contract.

The coordination-related preconditions correspond to the relevant theoretical issues identified in the conceptual framework in Figure 1. It is worth noting that the development of mutual understanding about project goals depends on the mindset of individual stakeholders and varies from context to context. It is also important to note that contractual mechanisms are important to guide stakeholders in aligning their actions and maintaining coordination, but they should not limit themselves to it only; other relational mechanisms and tools are equally important to accomplish interdependent tasks efficiently. The successful integration and sequencing of resources for interdependent tasks depends on well-informed plans and procedures, gap-free task descriptions and the consensus of stakeholders on related roles and responsibilities. Finally, the precondition related to collaboration is fully aligned with the conceptual framework of this study (Figure 1).

Levels	Preconditions
Cooperation	• Information exchange is a continues process that must be conducted at different levels • The capabilities of all the participating stakeholders, including the client, are evaluated • Induction training and briefings for the participating stakeholders are conducted • Competitors are identified and alignment of their incentives is ensured • An attitude towards common interests is developed • Stakeholders have a mutual awareness of the project requirements • Volunteer services to enhance trust are offered
Control	• Unambiguous alliance contracts are used to avoid individual interpretations and related opportunism • Only relevant stakeholders should be invited to participate in the decision-making discussions • Decision-making rights and associated power must be used for the common goals • Understanding and consensus among stakeholders on project goals is a must
Coordination	• Different communication tools should be adopted to ensure the delivery of required information • Capability to align actions with other stakeholders to accomplish interdependent tasks is developed • Stakeholders must believe in developing trust for mutual success and understanding of goals • Well-informed plans and procedures for effective coordination are developed • Conflicts are accepted and amicable solutions for the same are targeted • Clarity in stakeholders' roles and responsibilities is a must • Gap-free task descriptions and definitions are developed
Collaboration	• Development of cooperation, control and coordination aspects are focused on

Table 6.
Preconditions for developing relationships at different levels

5. Conclusion

This article addresses the confusion related to the meanings of interorganisational cooperation, control, coordination and collaboration in collaborative projects. We developed a conceptual framework through a literature review, based on which links between cooperation, control, coordination and collaboration are established in terms of development levels of stakeholder relationships in collaborative projects. By following the directed approach of qualitative content analysis, data were collected and analysed in accordance with the said conceptual framework.

First, we analysed and identified the challenges with regards to relationship development among project stakeholders. The identified challenges were categorised under the development levels (cooperation, control, coordination and collaboration) described in the conceptual framework of this study. Second, our findings propose the preconditions in relation to the development of relationships among stakeholders that could be followed to mitigate the related challenges.

Our main contribution is related to the conceptual clarifications about the development levels of relationships in collaborative projects, the associated challenges of such projects and related preconditions. These clarifications would help project management teams in terms of clarifying related actions and activities at each level. Therefore, we propose that project managers consider this multilevel process while developing stakeholder relationships in collaborative projects. They should also note that each level has its own significance in terms of achieving the desired mutual goals. To establish effective collaborative relationships, it is important to follow the related activities and mechanisms and to develop the related capabilities.

Our findings are case specific, and careful attention is required while generalising the findings since each project has its own specific challenges and related preconditions.

Future studies could go deeper by linking the development levels of relationships with the progress in terms of different phases of the projects. Future studies could also link these development levels with project performance. Our study did not cover the transition-related activities and issues from one level to the next level of relationship development in detail, a topic that can be explored in future studies.

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