

Developing trust in the collaborative hospital construction projects

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Abstract

Purpose – When forming organizational culture in collaborative projects, special attention should be paid to developing trust. This study aims to understand how to strengthen trust as part of forming an organizational culture in temporary organizations. We examine which elements influence the development of trust and generate a conceptual model to strengthen the development of trust in the collaborative hospital construction projects.

Design/methodology/approach – This study adopts an inductive and qualitative research method. Using a theoretical framework for analyzing and developing organizational and interpersonal trust, we examined two large collaborative hospital construction projects in Finland and their respective elements and challenges influencing on trust-building.

Findings – In the formation phase of organizational culture, the elements to develop trust must be understood and intentionally enabled. Organizational and interpersonal trust can be intentionally strengthened as part of organizational culture when the elements influencing trust are recognized, implemented, managed and led in a project's front-end and development phases by the project management office and project management team. Institutional trust had to become aware of, too. Trust enhances the elements of trusting behavior, creating a positive cycle of growing trust in a project.

Originality/value – Trust has been widely studied in various disciplines and in the construction project business, but less attention has been paid to how to foster trust as part of forming an organizational culture in temporary organizations. Classifying trust at institutional, organizational and interpersonal level and the emergence of relational contracts has introduced a new context for trust development. This research identifies managerial means to support trust development as part of forming organizational culture in projects.

Keywords Collaboration, Forming organizational culture, Developing trust, Institutional trust, Organizational trust, Interpersonal trust, Temporary organization

Paper type Research article

1. Introduction

Healthcare projects typically have a very complex operating environment and a high degree of uncertainty due to a large number and diversity of stakeholders (Sanderson *et al.*, 2018; Fréchette *et al.*, 2020) and the unpredictability of their requirements (Aaltonen and Kujala, 2016). Due to the multiple stakeholders, resolving organizational, management and leadership issues (Eeckloo *et al.*, 2007; Fréchette *et al.*, 2020; Samset, 2017; Snowden and Boone, 2007) has a crucial impact on the success of projects. In addition, opportunistic behavior, whereby one party exploits unexpected events to its own advantage, is a recognized problem in



megaprojects (Gil *et al.*, 2011). Thus, the challenges associated with traditional delivery methods and a growing focus on meeting clients' needs and on project value creation have increased the use of relational contracts (Aapaoja *et al.*, 2013). Collaborative projects (relational contracts) are based on collaboration between (permanent) organizations to achieve common project (temporary) goals (Dietrich *et al.*, 2010; Engebø *et al.*, 2020), and they rely on simultaneous use of formal contracts and informal relational mechanisms (Bygballe *et al.*, 2015), such as trust, shared organizational structure, shared interests and responsibilities, shared incentives (shared pain and gain) and the early involvement of main contractors (Lahdenperä, 2012) instead of merely formal governance (Bygballe *et al.*, 2015).

In collaborative projects, both organizational culture (Reed and Loosemore, 2012; Tulokas *et al.*, 2024) and trust (Bresnen and Marshall, 2000; Galvin *et al.*, 2021; Laan *et al.*, 2011; Walker *et al.*, 2013; Yeung *et al.*, 2007) are recognized as critical success factors. Culture, trust and governance can be seen as enablers of collaborative behaviors in collaborative projects (Galvin *et al.*, 2021), and a high degree of trust is necessary to achieve a high level of collaboration (Engebø *et al.*, 2022). Since collaboration is vital in construction projects, successful trust-building within the project team inevitably improves the project's outcome (Wong *et al.*, 2008; Woolthuis *et al.*, 2005); for example, in trusting relationships between clients and contractors, communication is more open and transparent regarding the risks and remedies, and risks are managed more effectively (Laan *et al.*, 2011). In addition, trust enhances spontaneous interaction without blaming, fear of hidden motives between partners or the risk of revealing information. A climate of distrust tends to cause opportunism and prevent cooperative interaction, which also indicates that a higher level of trust improves project performance (Kadefors, 2004).

In permanent organizational contexts trust is considered a critical precondition for positive outcomes (Sondern and Hertel, 2024) and the trust-building has been widely explored in the social sciences, economics, business and management (Wong *et al.*, 2008). For example, Hamm *et al.* (2025) has sorted out the trust research in *Journal of Trust Research* in 2011–2024, in which the first half suggest stronger emphasis of conceptual issues and the later focus to the specific contexts of trust related to organizations, interpersonal and international relations, society, politic, public administration and trust in health, media, science and technology. Previous studies can also be widely found related to trust-building in construction projects, which can be seen as temporary organizations with a set of organizations and diversely skilled individuals working together on a complex task for a limited period (Bakker, 2010; Jacobsson *et al.*, 2015; Ajmal and Koskinen, 2008). Related to construction projects trust has been studied, for example, in relation to the conceptualization of trust (Wong *et al.*, 2008) and building trust in construction contracting (Chow *et al.*, 2012; Engebø *et al.*, 2022; Kadefors, 2004; Khalfan *et al.*, 2007; Li *et al.*, 2025a; Swärd, 2016; Wong *et al.*, 2008), in partnering projects (Laan *et al.*, 2011) and in infrastructure megaprojects (Ruijter *et al.*, 2021) and asymmetric trust in construction projects (Li *et al.*, 2024, 2025B).

Others have studied trust as a governance mechanism (Benítez-Ávila *et al.*, 2018; Bygballe *et al.*, 2015) as well as the correlation of trust, control and risk (Das and Teng, 2001) and trust and contracts (Yao *et al.*, 2021). However, only a few studies have considered the connection between establishing trust and culture, such as the relationship between governance, trust and culture (Galvin *et al.*, 2021), and particularly developing trust as an element of forming culture in temporary organizations.

Trust is widely recognized as a key element in shaping organizational culture, warranting particular attention during the formation of such culture in collaborative construction projects (Tulokas *et al.*, 2024). Furthermore, both trust and organizational culture are acknowledged as critical success factors in collaborative project delivery. Therefore, this paper enhances understanding of how to strengthen trust as part of forming an organizational culture in temporary construction organizations with relational contracts (collaborative projects). The

study concentrated on the elements of developing trust, not on how trust varies during a project. We posed the following research questions.

- RQ1. How do the key elements of developing trust relate to the main challenges developing trust at the institutional, organizational and interpersonal level in collaborative (relational contract) hospital construction projects?
- RQ2. How can the development of trust be reinforced as an integral component of organizational culture during the early stages of collaborative hospital construction projects?

We took a qualitative research approach to answer these questions. We first undertook a literature review to understand the concepts of trust and institutional, organizational and interpersonal trust and developing trust in temporary construction organizations. Second, we examined two large collaborative hospital construction projects as case projects to identify the main elements influencing the development of trust and the main challenges to developing trust at the institutional, organizational and interpersonal levels (RQ1) in collaborative (relational contract) hospital construction projects. Third, we generated a framework for enhancing trust development in the collaborative construction projects during the formation of organizational culture (RQ2).

2. Literature review

2.1 Organizational culture in permanent and temporary organizations

Organizational culture has a significant impact on an organization's long-term performance (Kotter and Heskett, 1992, p. 11). In the permanent organizational setting, many definitions of organizational culture exist, such as culture as a shared phenomenon (Wilson, 2001) or a hidden force that drives an individual's behavior (Schein, 2009, p. 3). Every organization has its own culture (Miron *et al.*, 2004; Lei *et al.*, 2017), and culture begins to form whenever a group has enough common experiences (Schein, 2009, p. 18). Culture can be learned informally from existing employees (Schein, 2009, p. 116; Wilson, 2001) or formally through educational processes (Lehto and Aaltonen, 2021; Schein, 2009, p. 110). Culture changes only slowly over time (Baumgartner, 2009; Wilson, 2001); it is stable and difficult to change because it represents accumulated learning, such as people's way of thinking and feeling (Schein, 2009, p. 28). Culture also embraces various levels (Baumgartner, 2009; Wilson, 2001), and some scholars recognize visible and less visible levels of culture (Kotter and Heskett, 1992, p. 4; Wilson, 2001). The visible level includes all that can be seen, called artifacts, such as visible and palpable organizational structures and processes (Schein, 2009, pp. 21–22), the physical and social environment, behavior patterns and written and spoken language (Wilson, 2001). The less visible and deeper level embraces a group's values (Kotter and Heskett, 1992, p. 4; Schein, 2009, p. 21; Wilson, 2001), which members share, and which tend to be stable even if group membership changes (Kotter and Heskett, 1992, p. 4). However, Schein (2009, pp. 21, 25) recognizes a third level of culture, so the less visible and deeper level can be divided into two parts: espoused values, such as goals, strategies and philosophies, and underlying assumptions, such as taken-for-granted, unconscious beliefs, perceptions, thoughts and feelings.

Construction projects form temporary organizations (Bakker, 2010; Jacobsson *et al.*, 2015). Forming a project's organizational culture differs from the formation of permanent organizational culture, as temporary organizations include project participants from various organizations (Lehto and Aaltonen, 2021) who bring their background organization's culture to the project, which may influence the ability to adopt a collaborative working culture (Ali and Haapasalo, 2023; Reed and Loosemore, 2012) as well as a best-for-the-project attitude (Ali and Haapasalo, 2023). Collaboration among professionals from diverse cultural backgrounds introduces additional complexity to trust development, as differing reference frames,

behavioral norms and expressions of trustworthiness can impede mutual understanding, cooperation and the establishment of trust (Corbaz-Kurth *et al.*, 2025). To form a suitable organizational culture within a project, intentional managerial actions are needed due to the shorter timeline and faster evolution of the culture, the background cultures of the project participants, and the project's constantly incoming and outgoing participants. Special attention must be paid to preconditions related to the cultural level of underlying assumptions, in which one of the main elements is trust (Tulokas *et al.*, 2024).

In the collaborative construction projects, project culture, trust and governance are interlinked and complementary, and all of them are needed to foster collaboration and reduce opportunistic behaviors among contract partners at all phases of the project (Galvin *et al.*, 2021). Trust can improve organizational culture by promoting "fair play," enhancing members' faith in the organization and its policies and procedures, and creating a collegial working environment (Wong *et al.*, 2008). The organization's leadership must support individuals in behaving according to the organization's culture to avoid behavior contradictory to the project's culture (Khalfan *et al.*, 2007). Formal governance structures (such as dispute resolution, decision-making processes and performance measuring systems) can temporarily compensate for the lack of trust and the lack of a common culture, allowing time for the formation of a collaborative organizational culture. Nevertheless, a common culture helps parties work together, reducing the need for reliance upon formal governance structures (Galvin *et al.*, 2021).

2.2 Concepts of trust and institutional, organizational and interpersonal trust

Trust can be understood as an ambiguous and complex phenomenon (Kadefors, 2004) that exists at multiple levels (Burke *et al.*, 2007; Das and Teng, 2001), such as personal, organizational, interorganizational and even international level (Das and Teng, 2001). Trust is a state of mind (Kadefors, 2004; Nooteboom, 2006) that occurs in person's mind, inter-party process, a group-level phenomenon and a social flow (Hamm *et al.*, 2025) and can lead to a trusting behavior (Nooteboom, 2006). Concept of trust can be described as a willingness of a party (a trustor) to become vulnerable to the actions of trusted party (a trustee) based on the expectation that the other, whose behavior is beyond the trustor's control, will perform a particular action important to the trustor (Chow *et al.*, 2012; Mayer *et al.*, 1995). This definition indicates that trust involves a willingness to take risk (Mayer *et al.*, 1995; Nooteboom, 2006) or a willingness to become vulnerable to another in a risky situation, with the expectation of not being harmed by the other (Laan *et al.*, 2011; Mayer *et al.*, 1995).

According to Mayer *et al.* (1995), trust development comprises four components: (1) perceived trustworthiness – encompassing ability, benevolence and integrity; (2) the trustor's propensity to trust; (3) perceived risk; and (4) outcomes of prior cooperation. Sondern and Hertel (2024) emphasize that benevolence plays a central role in trust formation, while ability and integrity moderate its effect. They also argue that trust is not solely dependent on individuals' disposition to trust. In the early phases of trust development, initial trust – formed through the combined influences of individual, interpersonal and organizational factors – has been identified as a critical determinant of subsequent trust evolution and behavior (McKnight *et al.*, 1998). Furthermore, transference-based trust, a cognitive process whereby trusts in third-party information such as reputation or qualifications (e.g. word-of-mouth or external reviews) transfers to trust in an individual, positively influences early trust development in interpersonal contexts (Gardner *et al.*, 2024). Finally, asymmetric trust – arising when parties hold differing interpretations of trust-building behaviors (e.g. communication, care, feedback) – can complicate the process of trust formation (Wang *et al.*, 2015).

Meyserson *et al.* (1996) introduced the concept of swift trust, which refers to the rapid development of trust in temporary organizations. In such contexts, behavioral expectations are shaped more by task roles and professional expertise than by personal characteristics, distinguishing them from more permanent organizational settings (Blomqvist and Cook,

2018). Swift trust is considered a form of presumptive trust ([Gardner et al., 2024](#)). According to [Blomqvist and Cook \(2018\)](#), the original conceptualization of swift trust should be extended to better explain rapidly evolving interpersonal trust in both face-to-face and online interactions within knowledge-intensive enterprises, particularly those operating in environments characterized by fast technological advancements such as cloud computing and artificial intelligence.

Trust and cooperation have generated great interest in interorganizational relations in the field of general management since the late 1980s ([Kadefors, 2004](#)). Trust is necessary in social relationships ([Lewis and Weigert, 1985](#)) and researchers believe that trust is a main element in cooperative relationships at the interfirm level ([Das and Teng, 2001](#)). In business-to-business relationships, the role of trust must be considered at both the interorganizational and interpersonal level ([Ashnai et al., 2016](#)). Interorganizational trust means that a focal company relies on a partner company, and interpersonal trust means that a person or group in the focal company trusts a person or group in the partner company ([Ashnai et al., 2016](#)). Trust always includes risk and doubts as unavoidable elements ([Lewis and Weigert, 1985](#)). Interorganizational trust may be understood as reliance ([Khalfan et al., 2007](#); [Mouzas et al., 2007](#)), which appears in agreements and business interactions as an element to reduce risk, and interpersonal trust, based on sentiments and behavior, is associated with accepting dependency and risk ([Mouzas et al., 2007](#)).

Interorganizational and interpersonal trust are strongly connected, and building interpersonal trust seems to be an important step in the development of interorganizational trust ([Laan et al., 2011](#)). However, [Schilke and Cook \(2013\)](#) identify a theoretical mechanism and argue that trust can be developed through a process and become independent of the individual actors in the organizational context, establishing a definition of trust that is applicable to individuals as well as organizations and other collectivities. However, various institutional factors (such as legal frameworks, social networks and social norms related to conflict management and cooperation) influence the formation of both interpersonal and interorganizational trust ([Rosseau et al., 1998](#)). Additionally, institutions in the form of cultural norms shape individuals' and organizations' preconceptions of trustworthiness ([Kadefors, 2004](#)). Although trust is often treated as a single construct, different dimensions of trust can be distinguished ([Lewis and Weigert, 1985](#)). Empirical evidence from [Wong et al. \(2008\)](#) indicates that multiple dimensions of trust are necessary to establish cooperative relationships in construction projects.

Literature offers a variety of classifications of trust that differently identify the dimensions of trust. [Table 1](#) summarizes some dimensions of trust used in the context of construction projects in literature. These dimensions of trust differentiate elements at the institutional, interorganizational and interpersonal levels. According to [Li et al. \(2025a\)](#), trust research typically categorizes trust into interpersonal trust, interorganizational trust and trust between individuals and organizations. In alliance projects, interorganizational trust is grounded in an organization's reputation for competence and fairness ([Das and Teng, 2001](#)) and its avoidance of opportunistic behavior, such as seeking excessive advantage from the relationship ([Laan et al., 2011](#)). Interorganizational trust refers to the collective degree of trust that members place in their organization ([Wang et al., 2015](#)).

In this study, we use the term organizational trust to describe trust between contracting partners within the temporary organization. By contrast, interpersonal trust is a form of relational trust that emerges between individuals who interact repeatedly over time ([Kadefors, 2004](#)). In this study, interpersonal trust refers to trust between project participants or individuals within a temporary organization. Since institutional factors influence the forming of interpersonal and interorganizational trust ([Rosseau et al., 1998](#)) and refer to the systems that regulate professional practices and shape preconceptions about individuals and organizations ([Kadefors, 2004](#)), we also use "institutional trust" in this study to describe the trust that exists between stakeholders' permanent (background) organizations.

Table 1. Dimensions of trust adopted in previous studies of construction projects and classified to the level of institutional, organizational and interpersonal trust

Dimensions of trust	Description	References (for the dimensions of trust)	Level of trust
Goodwill trust	Referring to the trustor's good faith and intentions about the trustee's goodwill in risky exchange situations (a firm's reputation for dealing fairly with its partners in alliance)	Das and Teng (2001) , Yao et al. (2021) , Nooteboom (1996)	Organizational trust
Competence trust	Refers to the trustee's competence and is based on various resources and capabilities (a firm's reputation for competence in previous alliances)	Das and Teng (2001) , Yao et al. (2021)	Organizational trust
Calculus-based trust	Based on rational choices and benefits to the trustor, such as economic incentives for cooperation or contractual sanctions for violations of trust	Kadefors (2004) , Rosseau et al. (1998)	Organizational trust
Relational trust	Based on individuals' relationships and interactions to obtain personal experience and information that forms the basis of trust, relationships are influenced by emotions and personal attachments	Kadefors (2004) , Rosseau et al. (1998)	Interpersonal trust
Institution-based trust	Based on the role of institutions in shaping the conditions necessary for trust, such as legal systems and social norms pertaining to conflict management and cooperation and systems regulating professional practice	Kadefors (2004) , Rosseau et al. (1998)	Institutional trust
Competence aspect of trust	Reflects the level of trust one has in the technical, organizational and managerial competencies of a trustee/partner	Laan et al. (2011) , Woolthuis et al. (2005) , Nooteboom (2006)	Organizational/interpersonal trust
Intentional aspect of trust	Embraces the intentions of a partner toward the relationship, such as that the trustee will not behave opportunistically	Laan et al. (2011)	Organizational/interpersonal trust
Calculus-based trust	Impersonal trust that is based on a structure of rewards and penalties	Ruijter et al. (2021) , Rosseau et al. (1998)	Organizational trust
Normative trust	Related to personal relations and based on past behavior and shared identity	Ruijter et al. (2021)	Interpersonal trust
System-based trust	Based on performance and faith in systems (contracts and agreements, organizational policy, communication systems)	Wong et al. (2008) , Lewis and Weigert (1985) , McKnight et al. (1998)	Institutional/organizational trust
Cognition-based trust	Based on knowledge and understanding (communication/interaction, knowledge)	Wong et al. (2008) , Lewis and Weigert (1985) , McAllister (1995)	Organizational/interpersonal trust
Affect-based trust	Indicates feelings and emotions; tends to be personal (being thoughtful, emotional investments)	Wong et al. (2008) , Lewis and Weigert (1985) , McAllister (1995)	Interpersonal trust

Thus, as explained above, in this study we use the levels of institutional trust, organizational trust or interpersonal trust.

2.3 Developing trust in temporary construction organizations

Good interpersonal relations and trust are very important elements in collaborative projects, but trust does not automatically develop in virtuous cycles in these circumstances (Laan *et al.*, 2011), and even contractual agreements with a partnership philosophy cannot guarantee smooth collaboration in megaprojects (Ruijters *et al.*, 2021). The contractor's characteristics – such as reputation and capability, along with the owner's trust beliefs and institution-based trust, significantly influence the initial stages of trust-building in projects (Li *et al.*, 2025a). Previous experiences and past performance of contract partners enhance creating a collaborative environment in a project and trust can be present even with a short-term contract (Bygballe *et al.*, 2015). An organization's reputation may influence who may be trusted in a project, but project participants tend to trust people rather than companies (Khalfan *et al.*, 2007). The development of trust is a big challenge in megaprojects (Ruijter *et al.*, 2021); the larger and more complex the project, the greater the need for trust, because large, complex projects include more people, relationships and information to manage, and the cost of deciding to trust can be higher than in smaller projects (Khalfan *et al.*, 2007). The level of trust changes during a project (Swärd, 2016), and trust is shaped by relationships (Nooteboom, 2006). For example, in a trusting atmosphere, parties share timely and accurate information; problems come to light more quickly and are jointly resolved, which increases trust and deepens the relationship, and problems do not so easily harm the level of trust or the relationship (Woolthuis *et al.*, 2005).

At the organizational level of trust, organizational policy, communication systems and contracts are deemed to be three major attributes of developing trust (Wong *et al.*, 2008). Trust can be enhanced by collaborative types of contracts (Laan *et al.*, 2011), which must be fair to all contract partners, with the rewards reflecting the work to be done (Khalfan *et al.*, 2007). Additionally, economic incentives may have an influence on trust (Kadefors, 2004). Transparency of governance supports the development of trusting relationships, such as a strong collaborative culture (Galvin *et al.*, 2021). Team-building processes and project-wide communication in the early phases of a project have been found to enhance trust-based collaboration, such as systems to monitor relations and manage conflicts by preventing problems and misunderstandings (Kadefors, 2004). The psychological sources of trust are also vital, such as co-location (enabling frequent and informal interactions), transparency and keeping a common project record and administration (Laan *et al.*, 2011). Research on team workplaces indicates that trust may decline in remote work settings due to weakened organizational communication and reduced sharing of personal information, despite frequent interactions (van Zoonen *et al.*, 2024). Projects should be organized in an environment that resembles a unified organization, which gives freedom and decision power to those who have insight and competence (Engebø *et al.*, 2022). The financial situation of the organization must be stable so as not to lead partners to commit untrustworthy behavior (Khalfan *et al.*, 2007).

At the interpersonal level, building trust is linked to open, honest communication and the willingness to share information (Khalfan *et al.*, 2007), to reliability (relying on the other party's actions and words and that they will tell the truth and keep promises), to competence (the other party's skills, abilities and characteristics) (Khalfan *et al.*, 2007; Burke *et al.*, 2007; Corbaz-Kurth *et al.*, 2025), appreciation of others' perspectives and values (Corbaz-Kurth *et al.*, 2025) and to the project's outcomes matching or exceeding people's expectations (Khalfan *et al.*, 2007). Deep trust can also be characterized by interpersonal care, concern (Woolthuis *et al.*, 2005) and benevolence (a person wishing to do good without opportunistic motives) (Burke *et al.*, 2007; Woolthuis *et al.*, 2005). Thoughtfulness, emotional investments (Wong *et al.*, 2008), and intuitive and emotional reactions and sensitivity to behavioral aspects can strongly influence the development of trust, such as in informal cooperative relationships (Kadefors, 2004). Interpersonal trust can be enhanced by shared common goals (Engebø *et al.*, 2022; Khalfan *et al.*, 2007; Ruijter *et al.*, 2021), which can be defined in a start-up seminar (Engebø *et al.*, 2022) or a workshop soon after contract partners are selected (Ruijter *et al.*, 2021). Shared goals foster a mutual understanding of the project's ambitions, the roles and

aims of a project team and their individual goals (Khalfan *et al.*, 2007). Ruijter *et al.* (2021) also recommend additional workshops in megaprojects, which can mitigate potential loss of trust when conflicts arise during the project. In addition, trust can be enhanced by reciprocity, working fairly and professionally, and sharing and solving problems together (Khalfan *et al.*, 2007). Support from management is vital to trust, as it encourages project participants to commit to common problem-solving, to handling and making decisions independently and to working formally and informally as a team (Engebø *et al.*, 2022).

2.4 Theoretical framework for developing trust in temporary organizations

Large projects (particularly hospital construction projects) operate in complex environments marked by high uncertainty and a diverse array of stakeholders (Sanderson *et al.*, 2018; Fréchette *et al.*, 2020). These stakeholders often have conflicting interests and unpredictable requirements (Aaltonen and Kujala, 2016) and may even engage in opportunistic behavior (Gil *et al.*, 2011). Relational contracts have emerged as a collaborative framework that encourages joint action aimed at achieving optimal project outcomes – referred to as the “best for the project” approach – especially when aligned with stakeholders’ revenue logic. This development presents a novel opportunity to examine the role of trust in managerial decision-making (Tampio and Haapasalo, 2022; Tampio *et al.*, 2022).

Building on the literature reviewed above, we have developed a theoretical framework (Figure 1) to examine the elements influencing on and challenges related to development of trust. The framework is grounded in the premise that fostering a spirit of trust within the project positively influences its organizational culture, thereby creating favorable conditions for the project success. For the framework, we first emphasize the connection between organizational culture and trust. From that connection, we outline the three levels of organizational culture as artifacts (visible, describable aspects of the organization, such as logos, office design, dress code, policies and tools), espoused values (goals, strategies and philosophies) and underlying assumptions (taken-for-granted, unconscious beliefs, perceptions, thoughts and feelings, which are the source of values and actions) with respective detailed definitions according to Schein (2009, p. 21).

Second, we have identified and synthesized the elements that influence the development of institutional (permanent organization level), organizational (temporary organization level) and interpersonal trust (member/individual level of the temporary organization) (see Table 1) to understand clearly which elements of trust must be available before the project and which elements must be at least recognized and managed at the beginning of the project among the people forming the temporary organization. The analysis of these two main approaches reveals new intentional managerial pathways for projects employing relational contracts. Specifically, it highlights how project management can actively facilitate the development and establishment of trust during the early phases of collaborative projects, particularly as organizational culture begins to take shape.

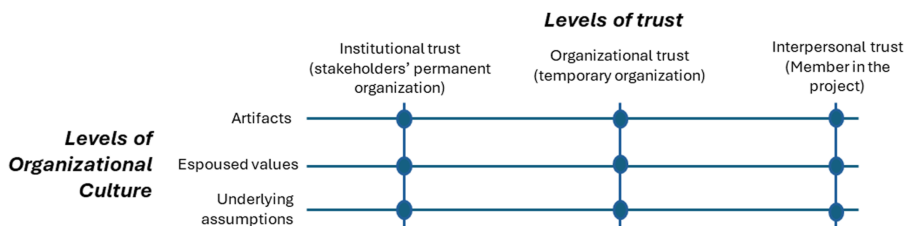


Figure 1. Theoretical framework for the study

3. Research methodology

This study adopted an inductive, qualitative research approach (Bryman and Bell, 2015), selected for its suitability in exploring human behavior and experiences – specifically, the development of trust within temporary organizations. This methodology enabled the generation of insights grounded in empirical data. Focus group sessions served as the primary data collection method, allowing for both the synthesis of participants’ responses and the observation of group dynamics during discussions. This approach facilitated a deeper understanding of how individuals interpret their experiences, behaviors and social contexts. Moreover, it is particularly well-suited for examining complex and dynamic environments (Azungah, 2018; Denzin and Lincoln, 2011).

We selected two large hospital construction programs as case studies: Laakso Hospital in Helsinki (LYS) and Oulu University Hospital (OYS). These projects were chosen due to their strong emphasis on development and their openness to research collaboration, which ensured transparent access to the research phenomenon (Yin, 2009). We employed purposive sampling to select information-rich and contextually relevant cases (Seawright and Gerring, 2008), particularly given the availability of prior project data and our extensive access to it. Both programs were divided into several subprojects due to their scale, enabling us to examine trust development across two major projects while collecting data from three distinct groups within different subprojects (Yin, 2009). This design allowed us to align the selected cases directly with our research questions and objectives, supported by our prior understanding of the phenomenon and the real-life project context – an essential aspect of this type of study. At the time of the interviews, both projects (LYS and OYS) and their respective subprojects were ongoing, allowing us to capture fresh and timely perspectives from the respondents.

In our research, we first created a theoretical framework for developing trust in temporary organizations (Chapter 2.4 and Figure 1) from Schein’s (2009) levels of organizational culture and synthesized the elements that influence the development of institutional trust, organizational trust and interpersonal trust (Figure 2). Building on the extensive body of prior research that highlights the logical relationship between trust and culture, we conducted an empirical analysis to examine the initial emergence of factors influencing the development of trust across different cultural levels. Second, we depicted the elements of forming trust in the case projects. Third, we analyzed the challenges to develop trust at the levels of institutional trust, organizational trust and interpersonal trust, since all levels of trust are impacting and needed to cultivate trust in temporary construction organizations. In our research, the unit of analysis is the (sub)project level of hospital construction project.

To identify the elements of forming trust and the challenges to forming institutional trust, organizational trust and interpersonal trust, we used the focus group method (Kitzinger, 1995). Data collection was implemented in six focus group interviews (three per case project). We selected the focus group method because it allows for analyzing a group’s perceptions, attitudes, opinions, beliefs and views on various topics and enables group members to talk and interact freely with one another. Because of the nature of our research, this method enabled us to ask questions and clarify representatives’ beliefs, opinions and views through group

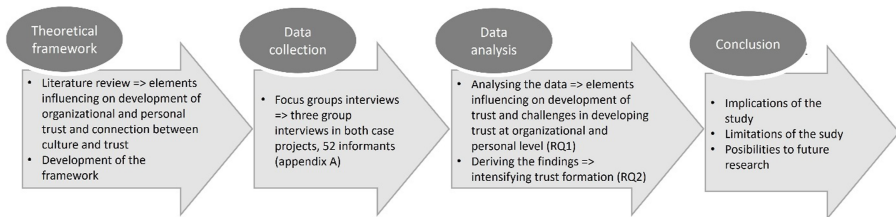


Figure 2. Research methodology

interactions instead of asking questions individually (Azungah, 2018; Denzin and Lincoln, 2011). The focus groups represent an internal perspective, because the scope of this study specifically embraced forming trust within hospital construction projects. Direct external perspective is excluded as being out of that scope.

The questions for the focus groups were created from the literature focusing on the elements related to forming and maintenance of the organizational culture and role of trust in temporary construction organizations (Appendix). We did not directly ask interviewees about their views on trust. Instead, our questions focused on factors identified in the literature, allowing us to explore the elements influencing trust development within the project in greater depth. At the end of each session, we included an open discussion on trust to give respondents the opportunity to share any additional perspectives. The interview questions were structured around the management functions described by Robbins and Coulter (2021, p. 38): planning, organizing, leading and controlling. While the primary focus of this study is on the development of trust, we also incorporated the functions of leading and controlling, as the literature suggests they significantly influence trust formation. The questions were open-ended to encourage elaboration, exploratory in nature to uncover insights, context-sensitive and neutral to access participants' environments and experiences, and reflective to capture meanings and implications (Creswell and Poth, 2016).

A total of 52 project representatives participated in the six focus group interviews (Table 2). The focus group participants represented the main contractual partners, the client's project management office (PMO), and the super users (discipline specific main users) of the client organization (from the hospital organization). The focus group representatives were selected by non-probability sampling (Saunders *et al.*, 2012) because the study focused on a small number of cases that were able and willing to share their experiences of relational contracts. Although an official ethics form was not utilized, we obtained a formal consent form from the participating organization. Respondents in the focus group interviews were clearly informed about the study's objectives, methodology and the researchers' institutional affiliations. Participation was entirely voluntary, and participants were made aware that the sessions would be recorded and that all data would be securely stored within the research team's repositories. Due to the sensitive nature of the data, it will not be made publicly available.

In our data collection, one author was internally involved in the focus groups to encourage objectivity, foster open discussion and respond to inquiries. One of the authors working on LYS acted as a facilitator in the focus group for OYS and vice versa. The internal researcher did not directly participate as an informant in the focus group interviews but observed silently. Through this setup, we were able to obtain rich data and a better understanding of the projects. Given that at least one of the authors was directly involved in each project, we had access to project events and internal documentation. These materials served as secondary data sources, complementing the primary interview data. The secondary data were used solely to validate observations and

Table 2. Data collection in focus groups and informants' roles in the project

Focus group	Number of participants	Participants' and organizations' roles in the project
OYS1	9	1 PMO super user, 8 super users
OYS2	14	3 from client PMO, client maintenance, main architectural designer, 4 main contractors, 3 HVAC contractors, automation contractor, construction consultant
OYS3	7	2 from client PMO, 3 main contractors, HVAC contractor, automation contractor
LYS1	7	2 from client PMO, main architectural designer, 2 main contractors, lean consultant, construction consultant
LYS2	8	2 from client PMO, super user, architectural designer, structural designer, HVAC designer, 2 infrastructure contractors
LYS3	7	Super user, architectural designer, structural designer, HVAC designer, 2 main contractors, HVAC contractor

support the conclusions drawn during the analysis phase. In addition, all case projects implemented a relational contract model, reflecting a development-oriented approach in their processes. The average duration of the focus group interviews was approximately 120 min.

The data analysis started during the interview session with notetaking and observing the interview dynamics. In the analysis of both cases, one author acted as an “involved researcher,” ensuring rich access and interpretation of phenomena, while the other authors acted as “outside researchers,” ensuring the objectivity of the results (Walsham, 2006). All the interviews were recorded for more accurate analysis.

In detail, our analysis employed the systematic text condensation method as described by Malterud (2012), which consists of four steps.

- (1) *Total impression* – moving from initial chaos to identifying themes,
- (2) *Identifying and sorting meaning units* – progressing from themes to codes,
- (3) *Condensation* – transforming codes into meaningful content and
- (4) *Synthesizing* – developing descriptions and concepts from the condensed material.

During the analysis, we acknowledged several limitations inherent in content analysis, including subjectivity, context dependency, data complexity, lack of standardization and ethical considerations (Duriau *et al.*, 2007; Krippendorff, 2018).

To identify the elements influencing the development of trust, we analyzed interview recordings to determine whether our data – evidence of trust-building elements in case projects (Braun and Clarke, 2006) – aligned with the cultural categories adapted from Schein (2009). Initially, we listened to the focus group transcripts to gain a total impression. Our theoretical framework served as the backbone of the analysis. Next, we identified and sorted meaning units, discussed detailed interpretations from the recordings and developed descriptions of trust-related elements in the case projects. We then progressed to coding and theme development, conceptualizing findings through the interpretation of the theoretical framework, themes and content. Finally, we synthesized these insights into a conceptual model – condensation into descriptions and concepts (see, e.g. Braun and Clarke, 2006; Naeem *et al.*, 2023). We did not use software such as NVivo, as our analysis was guided by a theoretical framework aimed at providing content for projects in collaborative settings (see Table 3). The primary purpose of using Schein’s framework was to systematically classify and describe evidence of trust-building within the case projects.

To describe the challenges in developing trust at the personal and organizational levels, we applied analogically the procedure from Malterud (2012) based on three levels: institutional trust, organizational trust and interpersonal trust, as derived from the interview data (see Table 4). The aim of presenting these challenges is to establish a foundation for intentional and proactive leadership, as well as deliberate managerial actions that support the formation of trust in collaborative projects.

Finally, as a main synthesis from the theoretical framework levels of organizational culture (artifacts, espoused values and underlying assumptions) connected to the development of trust (institutional, organizational and personal trust) combined the empirical data from this study, we created a framework for trust formation specifically for collaborative hospital construction projects following relational contract. Our framework depicts the main elements and phases in forming trust in an intentional activity enabling and resulting positive and collaborative culture in the project.

4. Findings

4.1 Case projects

The case projects in this study were two large hospital construction programs in Finland with relational contracts (alliance contracts): LYS and OYS. Both hospitals had budgets of about EUR 1 000 million and included several subprojects (Figure 3).

Table 3. Main elements influencing the development of trust in collaborative hospital construction projects according to focus group interviews

Level of culture	Evidence of elements in developing trust in case projects	Description of elements in developing trust in case projects
Artifacts	Big Room, physical (or virtual) co-location	The Big Room enables them to become familiar with one another's set-up by enhancing personal contacts, providing informal situations and building an atmosphere of trust to form a working community like that of the parent organization
Artifacts	Competence/alliance capability	Competence/expertise as a recognized characteristic of project participants enhances trust; alliance capability specially creates trust in the alliance contract model and for working for the best for the project
Artifacts	Common decision- making process	A defined process for making decisions with alliance partners, even if the decisions are not always pleasant
Artifacts	Common problem- solving	A defined process for solving problems (e.g. A3 problem-solving, collaborative approach to problem-solving) together in a good spirit without blaming one another strengthens trust; sometimes compromises are needed but without follow-up questions in case the solutions can be found together
Artifacts	Common processes and tools	Defined processes and operational methods (e.g. change management) or tools (e.g. Target Value Design, Last Planner System) enhance trust and the feeling of community
Artifacts	Collaboration	The contract promotes the primary goal of collaboration but requires special effort to work in a team without permanent organizational borders between the client, main contractor, and designers to operate best of the project
Artifacts	Open communication (e.g. information sharing)	People communicate openly and are willing to share information and express their opinions freely, honestly, and directly on all issues across permanent organizational borders, including on difficult issues such as mistakes, and there is confidence that problems can be solved
Espoused values	Common values and objectives	The project's common values and objectives are defined and accepted together; shared understanding of and conformance to them enhances cooperation and trust
Espoused values	Fair contract conditions (e.g. shared pain and gain, no unusual conditions)	Fair and clear contract conditions and risk sharing between contract partners create trust for the alliance contract and commercial model and encourage all the partners to work for the best for the project
Espoused values	Formal relational contract	A relational contract promotes the primary logic of collaborating, innovating, and collaboratively managing risks and opportunities and developing plans during the project

(continued)

Table 3. Continued

Level of culture	Evidence of elements in developing trust in case projects	Description of elements in developing trust in case projects
Underlying assumptions	Open atmosphere	An open atmosphere fosters the feeling that one may communicate easily, express opinions freely and honestly (even when disagreeing), question and ask “stupid” questions without fear of humiliation and raise difficult issues without regard to organizational borders and without fear of fighting; people feel they can speak and will be heard
Underlying assumptions	Feeling of reliability	People or alliance partners do what they promise to do on time and can rely on everybody doing their best; trust is built through actions, such as the implementation corresponding to plans
Underlying assumptions	Respecting people	A feeling that people respect one another and their opinions, needs, and expertise; people can state their opinions without fear of embarrassment
Underlying assumptions	Non-opportunistic behavior	A feeling that one can be trusted not to pursue their own interests; people operate without hidden agendas, and you can sense the trust in people’s actions

The LYS alliance consisted of one alliance contract for the whole project period and five subprojects with separately contracted development and implementation phases. The alliance was initiated in May 2021, when the tender of the main contractor for the whole program was accepted. Before the alliance’s establishment, the program plan was developed from 2018 to 2020 by the client, users in the city of Helsinki and in HUS, and the designers, whose tender was accepted in 2018. The alliance was formed with the main contractor and selected designers together with the client. In the focus group interviews for LYS, the representatives were from the subprojects of the main building and infrastructure and the strategic management team of the alliance. The subproject of main building was in the development phase, and the subproject of infrastructure project was in the implementation phase at the time of interviews.

The OYS was a long-term investment program launched in 2012, and the program plan was developed from 2012 to 2014 by the client’s PMO. The program’s main goal was to improve the hospital’s efficiency, impact and quality of healthcare by replacing older premises with new hospital buildings. In 2014 and 2015, a technical design team was charged with developing preliminary designs for the first subproject together with the users. At the same time, contract documents were prepared for the procurement of a main contractor. The implementation model was designed to choose a collaborative contract, with the already selected designers together with the procured contractors forming an alliance. The OYS program comprised three subprojects with separate alliance contracts, including development and implementation phases. All the subprojects were organized individually as separate construction projects to minimize risk and disruptions to ongoing healthcare services. The OYS program was led by the PMO on behalf of the owners. In the focus group interviews for OYS, the representatives were from the A and B alliances and a group of super users. Subprojects of A- and B-alliances were in the implementation phase and subproject of C-alliance in the development phase at the time of interviews.

4.2 Elements influencing the development of trust in collaborative hospital construction projects

The elements influencing the development of trust (Table 3) are derived from focus group interviews and are divided according to the levels of the organization’s cultural artifacts,

Table 4. Main challenges in developing trust at the institutional, organizational and interpersonal, levels in collaborative hospital construction projects according to focus group interviews

Level of trust	Challenge	Description of the challenge
Organizational/ interpersonal	Conflicts	Trust is tested or trust may be weakened because of mistakes, unattainable or unrealistic goals, or unsolved problems
Organizational	Conflicting values, objectives and interests	If alliance partners or background organizations interpret project goals differently or from their own point of view, if their goals conflict with the project's goals, or if the goals of the background organization alone guide the operations in a project, it may weaken the formation of cooperation and trust
Organizational	Culture of the project	Culture or team spirit may vary in projects and in subprojects; a culture of blame may exist in some subprojects; culture depends not on the contract model
Institutional	Different cultures of background organizations	Alliance partners work according to the processes of their own background organizations and not according to alliance processes; the culture of the project depends more on the background organizations than on people
Organizational	Fostering an open atmosphere	It takes time to form a culture and an open atmosphere in which people dare to state their opinions, communicate openly and bring up issues in discussion; the atmosphere may vary in projects, subprojects and teams
Organizational	Phase of the project	The level of trust and atmosphere may vary (get worse or better) during the project
Organizational	Remote working	It takes more time to form trust when not working face to face in the Big Room
Organizational	Unclear or unfair contract conditions	Alliance partners interpret conditions differently or there is unequal risk-sharing between contract partners, which does not encourage all the partners to work for the best for the project, potentially weakening the formation of cooperation and trust
Interpersonal/ organizational	Problems in conflict resolution	People blame one another (this may vary in subprojects) and try to discover who is guilty instead of solving problems; difficulties are not brought up because people do not dare bring them to the conversation (if it is known that the other party's views are conflicting), resulting in unsolved problems
Interpersonal	Traditional habits and attitudes	Habits from traditional contract model projects may emerge in daily activities, and harmful attitudes toward people in another industry (such as toward users or designers) may complicate the development of trust. Learning a new mindset and unlearning traditional habits and attitudes takes time, and a construction site operates in a more traditional way than the Big Room, so cooperation requires more negotiation, but cultural differences and experienced differences between industries are corrected when trust and shared good experiences increase
Interpersonal	Weak alliance capability	It takes time to learn to work in a project alliance, such as learning to understand what is best of the project, respecting one another or not to sub-optimize (the way of acting comes from having worked in an alliance); people working in an alliance need to train the managers of their background organizations to obtain their support

(continued)

Table 4. Continued

Level of trust	Challenge	Description of the challenge
Interpersonal	Unopen communication	People are not willing to share information (especially commercial information that could be harmful to themselves); withholding information is harmful, and difficult matters accumulate if they are not talked about

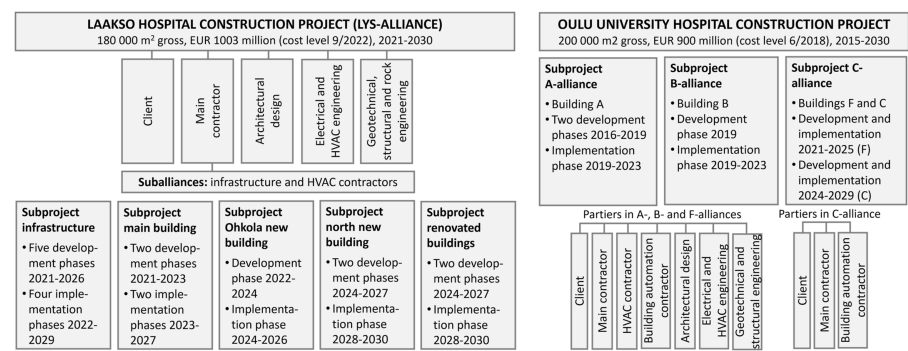


Figure 3. Organization structures of the case projects LYS and OYS

espoused values and underlying assumptions (Schein, 2009, p. 21). The elements of developing trust at the level of artifacts are related to alliance capability, collaboration, open communication and common processes and tools, such as common decision-making, problem-solving, and co-location. Overall, the elements related to artifacts reflect an ability to cooperate and collaborate across organizational boundaries as an alliance organization. It is not obvious, even in collaborative contracts, that competent project participants from different organizations can and will cooperate automatically without attention being paid to team-building and getting to know one another so as to trust one another and have the courage to communicate openly and express opinions freely, honestly and directly in the development phase, for example, in relation to concerns in developing plans. Alliance capability usually develops during a collaborative project but requires special efforts and training. Previous experience and third-party reviews can facilitate trust development and promote collaboration among project participants. In developing trust, it is vital that people are willing to share information on all issues, problems and mistakes and that they prepare and make decisions together across organizational borders, as one interviewee said: *The big thing is that the decisions have been made together in a really good spirit. Of course, some of the decisions are not necessarily pleasant for some, but I don't think any one party has had to suffer the most, but everyone has had to make unpleasant decisions.* (OYS3) Also, physical co-location is especially helpful in enhancing trust development: It just comes here somehow (in the Big Room), which atmosphere of trust. It's not terribly good if we're all in Teams (collaboration platform) all the time, I don't think it's built there in teams (LYS2)

Common values and objectives, formal relational contracts and fair contract conditions are the elements of forming trust at the level of espoused values. These provide the basis for collaboration and trust. Project participants must understand the alliance contract and commercial model and have a mindset and ability to work for the good of the project and behave according to the guidelines of the alliance contract model, which are shown in the artifacts. The elements of forming trust at the level of underlying assumptions are related to

respect, reliability, an open atmosphere and non-opportunistic behavior, which are vital to forming trust and a collaborative culture in projects, as one interviewee said about respect: *You can fight about the issues, but you still have to respect the person. . . . If you lack trust, this won't work, or if you don't respect the other party, this whole thing will crumble. . . . And you can sense it from people's behavior.* (LYS3) Respecting people and their opinions and being reliable in an open atmosphere promote raising difficult issues in conversation, solving problems together, and relying on people's honesty and working for the good of the project without hidden agendas, as said in interview: *I have noticed that people dare to express their opinions and views, and they are valued. Not necessarily agreeing but not laughing and immediately dismissing other people's ideas. It sparks discussion, we discuss, go through things, and decide together. I would believe that many people have and will eventually experience that I belong to this group and that I can also have an impact.* (OYS3)

4.3 Challenges to developing trust at the interpersonal and organizational level in collaborative hospital construction projects

The challenges to developing trust (Table 4) are derived from focus group interviews and divided according to the levels of institutional trust, organizational trust and interpersonal trust. The challenges related to institutional trust arise from cultural issues, like background organization's culture influence on the project participants' way of working. Challenges related to organizational trust arise from fostering an open atmosphere, remote working, phase of the project, unclear or unfair contract conditions, conflicting values, objectives and interests and conflicts, as said in interview: *As a rule, there is quite good trust. But there are exceptions . . . it is tested sometimes. When we come to circumstances and situations where the alliance is not reaching its goals, the goals have been unrealistic or even though they are realistic, some mistakes have been made. They have tested trust.* (OYS1). The basis of trust is formed in the front-end phase, when establishing the project's contract, values and objectives. Unfair contract conditions pose a risk to the development of trust, and the effects may endure over the whole project period. Furthermore, conflicting objectives between the contract partners must be attended to, and partners must develop a shared common understanding of the project's goals and one another's objectives and interests in a project. Trust-building can be enhanced by fostering an organizational culture with shared common objectives, values, processes and tools for the project. Special attention must be paid to the alliance capability of the background organization's management to obtain their support. Co-location enhances getting to know one another by increasing the number of informal situations and fostering trust. An open atmosphere is also a prerequisite to the development of interpersonal trust between project participants. Conflicts that arise influence the level of trust during the project, but they can be resolved together in an open atmosphere, after which trust can become even stronger.

The challenges related to interpersonal trust arise from problems in conflict resolution, unopen communication, alliance capability, and traditional habits and attitudes. Problems in conflict resolution may originate from the absence of openness in the atmosphere or communication, lack of trust or people not daring to raise problems because the project participants are unfamiliar with one another or there is no common process for conflict resolution. It is impossible to overstate the importance of bringing to the conversation all the difficult issues and problems and trying to solve them together: *The more we go through together, the easier it is to talk about the difficult things and go through them and probably even reach a solution. . . . you just must bring the difficult thing to the table and then start discussing it . . . over the last six months, we have developed a lot of discussion, and then the challenge of bringing up difficult things decreases* (OYS2). This demands an open atmosphere and respect for people without determining who is guilty of the problems. This is also related to alliance capability and understanding how to work in an alliance project, which takes time without previous experience on relational contract or project participants. Traditional habits and

attitudes can be dangerous and must be mitigated by leadership. When trust is formed, however, traditional attitudes vanish little by little.

4.4 Strengthening trust development in the collaborative hospital construction projects

We created a framework for strengthening trust development based on earlier research, elements influencing the development of trust and confronted challenges in developing trust at the institutional, organizational and interpersonal levels in collaborative hospital construction projects. The framework integrates levels of culture (artifacts, espoused values and underlying assumptions) (Schein, 2009, p. 21) and levels of trust (institutional, organizational and interpersonal trust) (e.g. Yao *et al.*, 2021; Das and Teng, 2001; Kadefors, 2004; Laan *et al.*, 2011; Ruijter *et al.*, 2021; Wong *et al.*, 2008) to strengthen the development of trust, enabling the cultivation of a collaborative organizational culture in a project. It reflects underlying assumptions that must be given special attention when forming the culture of the project. In collaborative projects, the trust development must be intentionally led, requiring deliberate and proactive managerial actions. In temporary construction organizations, trust may remain at a significantly lower level even in collaborative projects without previous experience if it is allowed to emerge organically without intentional management. Proactive leadership and deliberate actions are therefore essential to foster trust effectively in such settings. Figure 4 presents managerial setups for enabling trust development as a part of forming organizational culture. These can be dedicated to the PMO and project management team (PMT) responsibilities in the front-end, development and implementation phases of the project.

In the front-end phase, it is fundamental that the client's PMO be responsible for creating the conditions to promote the elements of developing organizational trust by defining a setup for fair and clear contract conditions and commonly understood and shared values and objectives for the project. In addition, the PMO needs to foster a collaborative culture with an open atmosphere and establish common processes for matters such as decision-making, problem-solving, team building, co-location and in the invitation for tenders must demand that

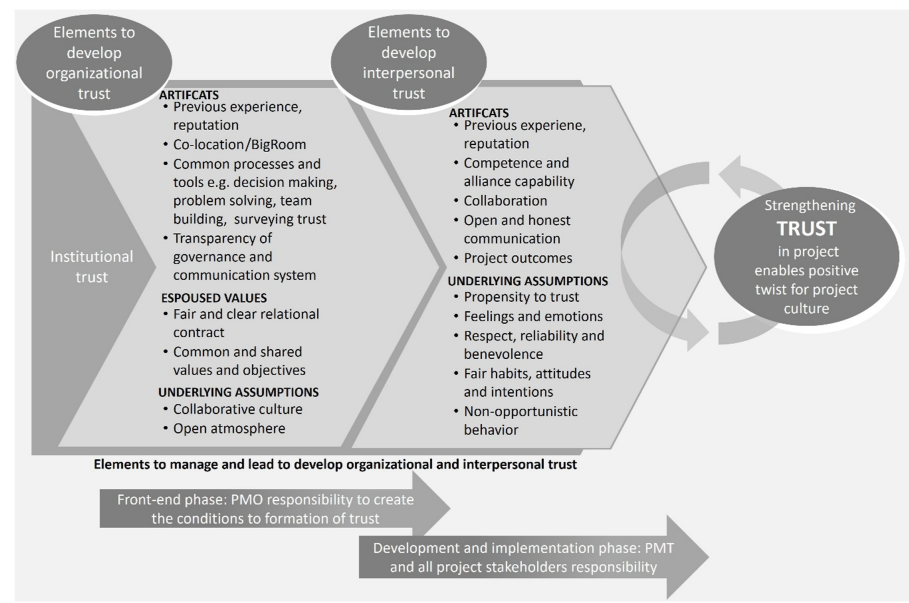


Figure 4. Strengthening trust development as a part of forming an organizational culture in the collaborative hospital construction projects

the PMT implement the project's desired culture, processes and co-location at the beginning of the development phase. Support from project management is vital to encouraging project participants and enabling them to commit to common problem-solving, to making decisions independently and to working formally and informally as a team. Team-building activities, such as start-up seminars and workshops, can be used to create shared experiences and define common goals to enhance trust-building, collaboration and team composition. Also, monitoring relations through surveys and transparency in project administration and communication is useful in building trust at the organizational level. Attention must be paid also to the support from the management of background organizations to form institutional trust between contract partners and project participants.

Organizational and interpersonal trust are strongly connected, and both organizational and interpersonal, and institutional trust are needed to develop high level of trust in a project. Thus, the PMT and all project stakeholders are responsible for the development of interpersonal trust, which merits special attention at the beginning of the development and implementation phases as well as during the project due to constantly incoming new project participants. The elements of organizational trust provide a basis for the development of interpersonal trust, since an open atmosphere enhances open and honest communication, sharing all concerns (including difficult issues), and addressing them together, which are all important in forming interpersonal trust. The development of interpersonal trust should be negotiated challenges related to unopen communication and challenges related to problem and conflict resolution, alliance capability and traditional habits and attitudes. Feelings, emotions and how people behave toward one another play a big role in developing interpersonal trust. Respecting one another along with reliability, benevolence and good intentions toward others (not hidden agendas) are vital. When interpersonal trust is built, communication is even more open, and it is easier to raise difficult issues such as mistakes in conversation and to eliminate established attitudes toward other stakeholders, which enhances even more trust-building. When trust is at a good level, even conflicts in the project do not greatly influence collaboration and the level of trust. In the end, good interpersonal relations and trust are the main elements in the development of organizational trust in collaborative projects. Previous experience and a strong reputation contribute to effective collaboration and accelerate the development of both interpersonal and organizational trust among stakeholders and project participants.

5. Discussion

Forming an organizational culture differs in a few ways in temporary organizations as compared to permanent organizations; project participants come from various organizations with their background organizations' culture, there is a shorter timeline and faster evolution of culture, and project participants constantly come and go (Tulokas *et al.*, 2024). In addition, healthcare projects typically have a very complex operating environment and a high degree of uncertainty due to a large number and diversity of stakeholders (Sanderson *et al.*, 2018; Fr  chette *et al.*, 2020) and the unpredictability of their requirements (Aaltonen and Kujala, 2016). To intentionally manage and strengthen the formation of organizational culture in the collaborative hospital construction projects, special attention must be paid to underlying assumptions, in which a main element is trust (Tulokas *et al.*, 2024). In the earlier literature, both trust and culture are strongly linked with collaboration. Collaboration is one of the core values of a culture (Miron *et al.*, 2004; Lei *et al.*, 2017), and a high degree of trust is needed to achieve a high level of collaboration (Engeb   *et al.*, 2022). Thus, a collaborative culture in collaborative hospital construction projects cannot be formed without establishing trust between project participants and contract partners, and a collaborative culture is needed in the development of trust. Trust does not develop automatically in virtuous cycles even in collaborative projects (Laan *et al.*, 2011), and the role of trust at both the organizational and interpersonal levels must be considered in business-to-business relationships (Ashnai *et al.*, 2016); thus, the elements of developing trust must be recognized already in the formation

phase of organizational culture. Both organizational and interpersonal trust are vital in developing high levels of trust and must be managed to engender a positive cycle of growing trust in collaborative hospital construction projects (see [Figure 4](#)). It must also be recognized that the culture of background organizations influences the formation of institutional trust. Moreover, the support provided by these organizations to project participants – enabling them to align with the project’s goals and processes – is vital.

The findings from the focus group interviews are very much in line with the previous literature concerning developing trust in collaborative projects. When asked about the elements influencing the formation of a high level of trust, the interviewees typically highlighted elements related to forming interpersonal trust. This was also recognized in the study of [Laan et al. \(2011\)](#), who assumed that interpersonal trust was much more concrete to project participants. In the focus group interviews, the notably mentioned elements influencing on formation of interpersonal trust in the hospital construction projects as well as in literature were open communication, information sharing on all issues between contract partners ([Khalfan et al., 2007](#)) and a feeling of reliability ([Khalfan et al., 2007](#); [Burke et al., 2007](#)). An open atmosphere and common problem-solving and decision-making were also seen as important elements in forming trust at the organizational level as seen in features such as co-location, which are line with the literature ([Engebø et al., 2022](#); [Laan et al., 2011](#)). Mentioned as challenges to forming trust were unfair contract conditions, conflicting values with background organizations, project outcomes not exceeding expectations and traditional habits and attitudes, all of which are in line with the literature (e.g. [Galvin et al., 2021](#); [Kadefors, 2004](#); [Khalfan et al., 2007](#); [Laan et al., 2011](#); [Wong et al., 2008](#)).

According to the focus group interviews, it often takes time for participants to learn how to function effectively within a project alliance. This learning process appears to align with the stages of team development outlined in Tuckman’s model. The model identifies five sequential stages: Forming, where members become acquainted; Storming, where conflicts and differences emerge; Norming, where cohesion, norms and roles are established; Performing, where the team operates efficiently toward its goals; and Adjourning, when the team disbands after completing its tasks ([Bonebright, 2010](#)). These stages were also evident in our focus group data, particularly in relation to challenges stemming from weak alliance capability. In literature, the elements influencing the development of trust are clearly divided into elements of organizational trust and elements of interpersonal trust. In the formation of organizational trust, common values and goals are especially highlighted. Shared goals give a joint understanding of the roles and aims of the project team and their individual and organizational goals ([Khalfan et al., 2007](#)).

The literature also identifies a transparent governance and communication system and team-building processes, such as workshops, start-up seminars ([Engebø et al., 2022](#); [Ruijter et al., 2021](#)) and monitoring relations during the project ([Kadefors, 2004](#)), as elements of building organizational trust, but these were not as evident in the focus group interviews. In the formation of interpersonal trust, feelings emotions ([Kadefors, 2004](#); [Wong et al., 2008](#)) and benevolence ([Burke et al., 2007](#); [Woolthuis et al., 2005](#)) appeared more clearly in the literature, such as honest communication ([Khalfan et al., 2007](#)). In the focus group interviews, it emerged that not all information was shared, such as financial (cost) information. The literature clearly indicates that trust is seen as a vital element in eliminating opportunistic behavior (e.g. [Kadefors, 2004](#)), and it can be related partly to traditional habits and attitudes, which were described as challenges to forming trust at the interpersonal level in focus group interviews. Both the literature and focus group interviews indicate that previous experience and third-party reviews can accelerate trust development and foster collaboration among stakeholders.

6. Conclusions

Developing trust has been widely studied in various disciplines and in the construction project business, but less attention has been paid to the connection between developing trust and

forming organizational culture. Furthermore, the emergence of relational contracts has introduced a new context for trust development, as their underlying revenue logic promotes collaboration. These factors collectively justify the design and relevance of this research. For the framework, we first emphasized the connection between organizational culture and trust. Second, we recognized and synthesized the elements that influence the development of organizational trust and interpersonal trust and categorized them by level of organizational culture (Schein, 2009, p. 21). Third, we analyzed the challenges to develop trust according to the level of institutional trust, level of organizational trust and level of interpersonal trust to determine which elements must be managed at the beginning of the project to form trust as a part of organizational culture in collaborative hospital construction projects.

Our findings indicate that the elements of developing both organizational and interpersonal trust must be understood, fostered, managed and lead in the formation phase of organizational culture to create the conditions for strengthening trust in collaborative hospital construction projects (Figure 4). In addition, having formed trust enhances the elements of trusting behavior, which creates a positive cycle of growing trust. We also found that in the front-end phase of the collaborative hospital construction projects, the client's PMO is responsible for recognizing the elements of trust-building and creating the conditions for cultivating organizational trust. The PMT is responsible for implementing, managing and leading elements of organizational trust, and all the project participants are responsible for the formation of interpersonal trust. Attention must be paid also to the support from the management of background organizations to form institutional trust between contract partners and project participants.

Our findings are case specific, as the case projects were hospital projects, and each project is unique with its own challenges. We also studied projects with contracts that promoted collaboration, which may emphasize the importance of organizational culture and trust. Project utilizing relational contracts will initially have collaborative set up, which may also impact positively on development of trust. However, our initial expectations were confirmed by the empirical analysis, which found that organizational and interpersonal trust can be formed as a part of organizational culture in the collaborative hospital construction projects when the elements influencing trust are recognized and when the recommended elements (Figure 4) are implemented, managed and lead in projects' front-end, development and implementation phases. Collaborative contracts represent a relatively new contractual model in which the underlying revenue logic promotes collaboration. This may have positively influenced participants' attitudes, fostering a constructive project culture. Importantly, this context did not negatively affect our findings; on the contrary, it may have helped to reveal elements of trust more clearly. While the national cultural context was beyond the scope of this study, it may also have implications for project culture. Accordingly, we plan to explore this dimension in future research using Hofstede's cultural dimensions theory. Future studies and analysis are needed in different types of projects (e.g. infrastructure projects or projects implemented with traditional contract models) to validate our findings and determine whether the elements of forming organizational and interpersonal trust are the same as in collaborative hospital projects. We will continue to study the emergence of new project participants and their respective impacts on project culture and trust during implementation.

Appendix

Thematical questions for the focus group interviews

Planning

- (1) How and by whom were the common vision, goals and values of the alliance (project) defined?
In which phase of the project did this occur?

- (2) How are the common vision, goals and values shown in practical work? How are those handled together?
- (3) Do the alliance contract and commercial model motivate and steer the alliance partners adequately to meet the goals of the project?

Organizing

- (1) Which commonly determined alliance tools and processes are used in the alliance?
 - Are they used and trained systematically in the project?
- (2) How do (or should) the background organizations train project participants (people) in the way of working in collaborative projects?
- (3) Is information shared openly between project participants in the alliance?
- (4) Do the project participants and partners also speak about difficult issues with each other?
 - What kind of difficult issues are addressed?
- (5) How are conflicts, mistakes or failures dealt with in the alliance?

Leading

- (1) How and which ways do the managers of the client/subprojects (in OYS: the managers of the client's PMO/A- or B-alliances) lead and motivate project participants (people) toward common goals and values and use common tools and processes?
- (2) How is the trust and mutual respect between alliance partners and alliance participants (people)?
- (3) How is the collaboration, feeling of community and atmosphere of psychological safety in the alliance?
 - Do you feel you can influence the issues in a project?
 - Do you feel being part of the community?
 - Do you feel free to express your opinions and views?
- (4) What kind of things have caused troubles and conflicts in the alliance?
 - What has happened in these situations and how have the conflicts influenced the atmosphere/activities in the alliance?
- (5) How the "right" persons can get to stay in the long alliance projects?

Controlling

- (1) What main successes and challenges do you recognize in the issues dealt above in this interview?
 - Have there been any changes in those areas during the project?
 - Like in the goals of the alliance, in trust, in openness, in processes, in the way of working and thinking, in the way of managing and leading, in cooperation or in an atmosphere?
- (2) Do you think they have alliance partners or the project participants (working in the alliance) visible or unconscious, taken-for-granted beliefs or attitudes or social rules/norms, which steer how they are working and may hinder the meet the common goals of the alliance project?
 - Like traditional ways of working, own goals of the background organizations or personal goals, values and ways of working or preconceptions.

- Social rules/norms = unwritten rules related to beliefs, attitudes and ways of working, which are acceptable in a certain social group or in a culture like in a work community or in a project.
- (3) What else would you like to say/add to the project culture or to the formation or maintenance of the culture or to the theme dealt with in this interview?

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