

BRIDGING PERSPECTIVES: A THEMATIC ANALYSIS OF TRUST IN CONSTRUCTION MANAGEMENT

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ABSTRACT

With the increased interest in collaborative project delivery, a focus on behavioral elements is needed to increase the effectiveness and success of delivered projects. Trust, in particular, plays a critical role in promoting team cooperation, building a relational culture, mitigating risks, minimizing conflicts, and realizing the full benefits of lean principles. However, despite the frequent mention of trust in construction management literature, research on trust, and the wider topic of soft elements, is lacking and the construction industry remains in much need of trust-related research. Starting from the basics, there is no universally accepted definition of trust and the definitions used in construction are borrowed from other fields, such as sociology, psychology, and economics, which are not all applicable to construction. Therefore, this paper aims to bridge perspectives and propose a definition of trust that is accepted and understood by construction management practitioners and researchers. For that, the authors perform a thematic analysis of 45 definitions of trust from the literature and present a thematic map outlining the interrelationships of the different elements of trust and a suggested definition. This contribution correlates trust in construction to risk in project management and will be built on in the authors' future research.

KEYWORDS

Behavioral elements, collaboration, relational, risk, trust.

INTRODUCTION

Traditional construction project delivery has been characterized by severe inefficiencies (Azari-Najafabadi et al., 2012), time and cost overruns, high levels of data and team fragmentation, and increased claims and disputes (Abou Dargham et al., 2019; Choi et al., 2019; Kent & Becerik-Gerber, 2010). Collaborative project delivery models have emerged as a way to improve the performance of construction projects (Moradi et al., 2020). With collaborative delivery methods, project participants work together transparently from the start, ensuring they have aligned values (American Institute of Architects, 2007).

Nevertheless, commitment to collaboration necessitates a focus on a project's soft elements, which include behavioral aspects such as trust, honesty, and communication (Engebø et al., 2019). In fact, researchers have found that trust among project participants is closely tied to more effective project delivery (Lin et al., 2020) and project success (Challender, 2017; Pishdad-Bozorgi, 2017) and is highly influential on project performance due to its role in promoting team dynamics and cooperation (Lau & Rowlinson, 2009). Trust has been identified

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as a cornerstone for building a relational culture on a project (Kumaraswamy et al., 2005) and for establishing and maintaining efficient relationships between contractors and subcontractors (Zhang et al., 2020). Ultimately, trust is key for mitigating risks and minimizing conflicts on construction projects (Zheng et al., 2017, 2021). In fact, lack of trust is a main barrier to team integration (Kumaraswamy et al., 2005) and a chief cause of increased cost and delay (Pishdad-Bozorgi & Beliveau, 2016). To corroborate the significance of trust in lean construction, Asadian and Leicht (2021) found trust to be necessary for the full realization of the benefits of lean principles. In this regard, mutual trust is integral to the formation of lean teams, as it supports communication, information sharing, cooperation, and collaboration. Further, as trust contributes to a psychologically safer environment, this encourages teams to discuss errors and suggest improvements, which increases lean performance, improves value delivery, and supports continuous improvement (Asadian & Leicht 2021).

Therefore, considering the significant relationship between trust, collaboration and project success, it is integral to shed light on this concept in construction. While trust, as a subset of “behavioral elements” is frequently mentioned in the literature, there are several knowledge gaps on this topic. For instance, despite the fact that soft elements are integral to collaborative project delivery methods, there is a lack of research in construction that studies soft elements explicitly (Engebø et al., 2020). Trust, in particular, is often viewed as an effect, outcome, or success factor rather than a needed prerequisite (Engebø et al., 2020). Moreover, there is a knowledge gap when it comes to the interrelationships between behavioral elements of collaborative delivery models and the enablers of those behavioral elements (Moradi et al., 2022). Furthermore, scarce is the research that establishes cause-and-effect relationships between hard and soft elements or builds links between soft elements and project performance (Engebø et al., 2020). More than a decade ago, Smith and Rybkowski (2000) still echoed the recommendation of Lazar (2000) and Brensen and Marshall (2000) that the construction industry in particular is in much need of trust-related research, which recommendation still applies today due to the current status of the construction industry and the existing research gaps related to soft elements.

To this end, the authors are working on a wider project to address certain identified research gaps and contribute knowledge relating to collaborative delivery, soft elements, and hard elements. As an early step in this research, this paper will start with the basics: proposing a definition of trust to be used in the context of construction management. While numerous definitions of trust exist, to date, there is no universally accepted definition of trust (Asadian & Leicht, 2021). Our goal is not to suggest a universally accepted definition; rather, to establish one that is accepted and understood by construction management practitioners. In fact, certain elements of trust, as defined, for instance, in psychology, sociology, and organizational behavior, are not applicable to construction (Fawcett et al., 2017; McEvily & Tortoriello, 2011). Therefore, since the existing definitions of trust are not customized for construction management research, and since there is a critical need to shed more light on this concept in construction, this paper addresses this need by performing a thematic analysis of 45 definitions of trust from the literature. The contributions of the paper are (1) a thematic map of trust, outlining the interrelationships between the different themes and elements of trust and (2) a definition of trust from a construction perspective, based on the concepts of risk in project management and the conceptualization of project delivery systems by Thomsen et al. (2009).

LITERATURE REVIEW

OVERVIEW OF THE DEFINITIONS OF TRUST

Research on trust has received significant academic attention in many fields, including psychology, sociology, economics, business management, and organizational behavior. When

it comes to defining trust, Smith and Rybkowski (2012) state that “there are likely as many definitions for trust as there are people who have defined it”. This is corroborated by the findings of the literature review performed for this paper, whereby 45 definitions of trust were identified in various academic fields. The definitions are reproduced in Appendix A due to formatting limitations.

NEED FOR CUSTOMIZED CONCEPTUALIZATION OF TRUST IN CONSTRUCTION

As per Zaheer et al. (1998), trust is inherently an individual-level phenomenon and therefore there is no definition that is incorrect or inadequate. However, given the wide span and application of trust research across various fields, certain elements of trust from one field may not apply to another. This is best reflected in the example provided by McEvily and Tortoriello (2011), whereby the authors reproduced the below survey items taken from social psychology research to evaluate trust between partners.

- *“My partner has proven to be a faithful person. No matter who my partner was married to, she or he would never be unfaithful, even if there was absolutely no chance of being caught.”*
- *“If I have never faced a particular issue with my partner before I occasionally worry that he or she won’t take my feelings into account.”*
- *“I occasionally find myself feeling uncomfortable with the emotional investment I have made in our relationship because I find it hard to completely set aside my doubts about what lies ahead.”*

From the above, it is evident that such measures of trust would not be applicable to stakeholder relationships in the construction industry, especially regarding the emphasis on “infidelity” and “emotional investment”. In fact while “trust” is a common phenomenon across industries, the definition, concepts, types, and characteristics of trust are distinct and must be customized to the field itself.

Therefore, for the purpose of this research, and as a starting point for the authors’ wider research project, we will present a map of the different elements of trust and their interrelationships and propose one definition of trust that applies to the construction management field to build upon moving forward.

METHODOLOGY AND METHODS

LITERATURE REVIEW

Initially, an extensive literature review was conducted to frame a theoretical background and understanding of the definition of trust. For that, the databases used were: “ASCE Research Library”, “Scopus” and “ProQuest Dissertations & Theses Citation Index”. Keywords and search phrases were selected, including “Construction”, “Construction Projects”, “Project Stakeholders” AND “Trust”, “Behavior”, “Soft Elements”, “Relational”. From the literature review, the researchers generated 45 definitions of trust from different sources, including research from various fields and the construction field.

THEMATIC ANALYSIS AND GENERATION OF TRUST DEFINITION

The researchers adopted “thematic analysis” to identify the main themes relating to “trust”, based on the various definitions of trust found in the literature.

Definition and Advantages

Thematic analysis is a method that identifies, analyzes, organizes, describes and reports patterns, or themes, within data (Braun & Clarke, 2006). It is a qualitative research method that is widely applicable to a range of research questions (Nowell et al., 2017). However, rather than simply

providing a summary of the data, thematic analysis is used for interpreting different elements of the research topic and making sense of it (Maguire & Delahunt, 2017).

Some advantages of thematic analysis are its flexibility, being easily modifiable for the needs of the study, facilitated use, as it does not require detailed theoretical and technical knowledge, and ease of learning due to having few and clear steps (Braun & Clarke, 2006; Nowell et al., 2017).

Inductive vs Theoretical Thematic Analysis

The identification of themes or patterns can be done in two manners: inductive (or bottom-up) approach (Frith & Gleeson, 2004), or deductive (theoretical, or bottom-down) approach (Hayes, 1997). The inductive approach encompasses the coding of data without trying to fit this data into a pre-existing coding frame or the researcher's preconceptions, making it data-driven (Braun & Clarke, 2006). On the other hand, deductive analysis is based on the researcher's theoretical interest and preconceptions, making it analyst-driven (Braun & Clarke, 2006). For this research, we adopted the inductive approach as the data (definitions) was initially coded without preconceptions in mind, and patterns were later identified and theories formed based on the findings.

Semantic vs. Latent Thematic Analysis

Themes can be identified at a semantic (explicit) level or a latent (interpretive) level (Boyatzis, 1998). A semantic approach identifies surface-level themes without further deep analysis while a latent approach seeks to examine the underlying concepts and theories of such semantic content (Braun & Clarke, 2006). Therefore, the latter approach involves interpretation and theorization of the data. In our research, we have adopted a latent approach as the outcome of the analysis is a mapping of the underlying themes of trust and their interrelationships, which theories are not explicitly described in the analyzed data.

Steps

Braun and Clarke (2006) proposed a six-step framework for conducting thematic analysis, as described below:

1. **Step 1: Familiarizing Yourself with Your Data:** It is integral for the researcher to become familiar with the "breadth and depth" of the raw data even before conducting the analysis. This involves the repeated reading of such data in an active manner and making initial notes on recurring ideas or patterns.
2. **Step 2: Generating Initial Codes:** This step involves the identification of keywords, phrases, or concepts that appear frequently, and assigning codes to these elements. Yet, these codes are not the final themes, which are often broader and more interpretive.
3. **Step 3: Searching for Themes:** In this step, the identified initial codes are analyzed and grouped, such that broader patterns and themes that emerge from these groupings can be identified.
4. **Step 4: Reviewing Themes:** This phase involves two levels to review and refine the identified themes. In the first level, the coded data extracts are reviewed to ensure they form a coherent pattern for each theme. In the second level, the identified themes and thematic map are reviewed in relation to the data set as a whole, to ensure that they accurately represent the data. At this stage, re-coding may be done to either add new codes that were not described or remove codes that are redundant or not necessary. After viewing the map as a whole, themes can also be combined or split into different themes.
5. **Step 5: Defining and Naming Themes:** In this step, the researcher clearly describes what each theme represents and selects concise names that capture the essence of each theme.

6. Step 6: Producing the Report: The final step involves synthesizing the themes into a coherent narrative and presenting the write-up, which should provide a concise, clear, non-redundant, and logical account of the data within and across themes.

RESULTS

THEMATIC ANALYSIS APPLICATION

Table 1 presents the detailed process of applying thematic analysis and mapping of the data, which consists of the 45 definitions generated from the literature and presented in Appendix A.

Table 1: Thematic Analysis Application

Steps	Description
1 [Familiarizing yourself with the Data]	45 definitions of trust were extracted from the literature and reproduced in a Microsoft Excel sheet to form the data set. The writers actively read the data and noted initial patterns and themes.
2 [Generating Initial Codes]	Initial codes were generated based on keywords identified from the definitions. These codes were direct and explicit. For example, from the definition "Trust is the mutual confidence that no party to an exchange will exploit another's vulnerabilities", the extracted codes were "Mutual Confidence", "Non-exploitation", "Vulnerabilities", and "Exchange".
3 [Searching for Themes]	The identified codes were organized and grouped into common themes. For example, the theme "Openness" included the following codes: "Open Communication", "Openness", and "Transparency".
4 [Reviewing Themes]	The codes within each theme were reviewed for coherency. Further, themes were structured into a thematic map and their relationships were established. Certain themes were grouped under one main theme. For example, "Cognitive trust" and "Moral/Value-based Trust" became sub-themes under "People-based Trust".
5 [Defining and Naming Themes]	A representative name is selected for each theme and each theme is defined and described for clarity, as shown in Table 2.
6 [Producing the Report]	The final step is presenting the results and generating the definition, as outlined in the Results of this paper.

IDENTIFIED THEMES, SUB-THEMES AND CODES

Table 2 presents the themes and sub-themes identified as a result of the thematic analysis. A description of each sub-theme is provided. Moreover, the codes falling under each sub-theme are reproduced for clarity.

Table 2: Identified Themes and Codes

No.	Theme	Sub-theme	Description	Codes
1	State of Trust		Presents trust as a psychological and emotional state of the trustor, which is earned, built, grown, and maintained. It	Belief No Reservation

			is complex, multidimensional, multidisciplinary, and multifaceted.	- Built - Complex - Confidence - Earned - Faith - Grown - Maintained - Multidimensional - Multidisciplinary - Mutual Confidence - No Fear/Anxiety - Not - Nervous/Defensive - Positive Attitude - Psychological State - Social - Phenomenon - Multifaceted
2	People-based Trust	- Moral Trust - Cognitive Trust	Describes trust stemming from the trustee's moral qualities, such as honesty, respect, benevolence, and goodwill, as perceived by the trustor. Describes trust stemming from the trustee's abilities, skills, and competencies as perceived by the trustor.	- Benevolence - Fairness - Goodwill - Honest - Integrity - Intentions - Moral - Motives - Mutual Respect - Non-exploitation - Protect other's interests - Respect - Sincere - Ability - Aggregate - Character - Cognition (of trustee) - Competence - Competencies - Expertise - Perception
3	System Trust		Describes trust stemming from the institutional environment or system, which includes the utilized contracts, organization structures, tools, technologies, and processes.	Institutional Environment

4	Voluntary Choice		Represents the voluntary and intentional decision to trust, out of willingness.	Intention Voluntarily
6	Trust as a Risk	Risk	Focuses on the risk of trust, initially stemming from the willingness to become fragile and vulnerable while being uncertain about and having a lack of control over the outcomes.	Dependence Fragile Lack of Control Reciprocity Uncertainty Reliance Risk Uncertainty Vulnerable
		Threat of Trust	Trust as a risk carries potential negative consequences of loss, betrayal, and exploitation.	Exploitation Opportunistic Risk of Betrayal Risk of Loss
		Opportunity of Trust	Highlights the expectation of positive outcomes, mutual goals, and common interests as major drivers of trust between stakeholders.	Common Interest Common Purpose Expectation of Performance Expected Cooperation Harmony Mutual Goal Positive Expectations Positive Outcomes Right Outcomes
8	Dynamic Exchange		Presents trust as a series of interactive exchanges between relationships of stakeholders.	Actions Behavior of Another Communication Collaboration Relationship Interact Exchange Interdependence Interpersonal Dynamics
9	Trust in Consistency		Emphasizes the importance of consistency in creating and maintaining trust, encompassing elements of dependability, predictability, and reliability.	Consistency Dependability No Unexpected Actions Predict Predictability Predictable

			Behavior Reliability
10	Trust in Commitment	Emphasizes the importance of fulfilling commitments and honoring promises by the trustee in establishing and maintaining trust.	Commitment Credibility Fulfilling Commitments Fulfills Promises Guarantee Honors Promises Promises Reliable Promises
11	Trust in Openness	Encompasses attitudes and actions of openness, transparency, and open communication, all integral to creating trust.	Open Communication Openness Transparency

THEMATIC MAP

Figure 1 presents the thematic map, which shows the developed interrelationships between the themes. These interrelationships are later described. Relationships 1 to 11 are derived from the thematic analysis. Relationships 12 and 13 are added based on the model of trust developed by Mayer et al. (1995), which introduced a key iterative relationship between the outcomes and the beginning of the model, translated in our case as the “state of trust”. This cyclical nature of trust is echoed in the model by Vangen and Huxham (2003) who describe trust-building as a loop where trusting attitudes are reinforced by having outcomes that meet expectations.

It is worth noting that the resultant thematic map shares similar elements to the model by Mayer et al. (1995) in terms of the general framework. Yet, the latter model excluded the impact of institutional (or system) trust and did not explicitly consider the dynamic exchange element. Therefore, the generated map is believed to be more detailed in describing the interrelationships of the different elements.

We can also draw comparisons to other notable work by McKnight and Chervany (2001), who presented an interdisciplinary model for trust constructs, covering the disciplines of psychology/economics, sociology, and social psychology. This model describes trusting behavior as the product of the dynamic interaction of a trustor’s “disposition to trust”, “institutional trust”, “trusting beliefs”, and “trusting intentions”. In our map, trusting intentions and disposition to trust are incorporated in the transition from “state of trust” to the “choice” to trust. The institutional trust is part of “system” trust, and the “trusting beliefs” are part of the “people” trust. While the former model views and presents trust and its components from a psychological and sociological lens, our presentation of trust leans toward a system perspective, in terms of components, input, and output, in line our use of a construction management lens.

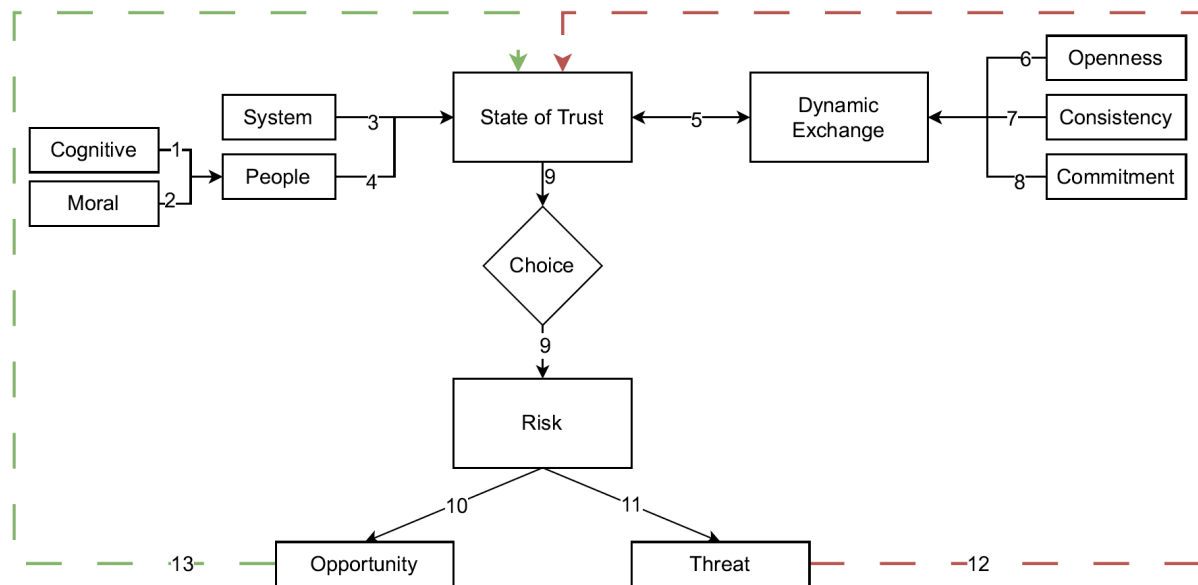


Figure 1: Thematic Map of Trust

¹Cognitive trust is a sub-element of People-based trust and represents the trustor's perception of the trustee's abilities and skills.

²Moral, or value-based, trust is a sub-element of People-based trust and represents the trustor's perception of the trustee's values, including honesty, integrity, and benevolence.

³System-based trust, which is a function of the institutional environment, including the utilized contracts, organization structures, processes, tools, and technologies, contributes to the trustor's "state of trust" as a whole.

⁴People-based trust, which is a function of cognitive and moral trust, contributes to the trustor's "state of trust" as a whole.

⁵The state of trust is affected by the dynamic exchange of information, promises, and actions between the trustor and the trustee. This dynamic exchange is also affected by the state of trust, making this relationship double ended.

⁶Openness in attitudes and actions, transparency, and open communication, contribute to trust dynamics and are integral to creating, maintaining, and growing trust.

⁷Consistency, which includes elements of dependability, predictability, and reliability, contributes to trust dynamics and is integral to creating, maintaining, and growing trust.

⁸Fulfilling commitments and honoring promises contribute to trust dynamics and are integral to creating, maintaining, and growing trust.

⁹Trust as a state changes into a risk upon taking the voluntary choice to act on this trust.

¹⁰The risk of trust can result in an opportunity, in terms of positive outcomes, common interests, and mutual benefits.

¹¹The risk of trust can result in a threat, through exploitation and opportunistic behavior.

¹²Threats, or unwanted outcomes, feed back into the system and negatively affect the state of trust.

¹³Opportunities, or positive outcomes feed back into the system and positively affect the state of trust.

DEFINING TRUST IN CONSTRUCTION MANAGEMENT

From the thematic analysis, it is apparent that “trust” is a double-edged sword that can either result in positive outcomes or in loss. In choosing to trust, the trustor is willingly accepting to become fragile and vulnerable to the trustee by relying on them, all while having a lack of control over the trustee’s actions and a degree of uncertainty in the results.

This description of trust inspires a correlation to the definition of “risk” in project management. In fact, the Project Management Institute (PMI) defines risk as “an uncertain event or condition that, if it occurs, has a positive or negative effect on one or more project objectives”(Project Management Institute, 2021).

Inspired by the research of Thomsen et al. (2009), we consider that all project delivery systems operate within three basic domains: (1) the contractual terms binding project stakeholders, (2) the project organization, and (3) the project’s operating system. While the literature considers “system” as a whole in evaluating trust, it is integral to distinguish between the different elements that contribute to this system-based trust.

From the above, we define trust in the construction management context:

“Trust is a state of mind and is earned, built, grown, and maintained through the dynamic exchange between project stakeholders. It is based on the trustor’s perception of (1) people, being the project stakeholders, presented through cognitive and moral factors and (2) systems, being the project delivery system, presented through the contract, organizational structure, and operating systems. To trust is a voluntary choice to take a risk. As a risk, trust carries uncertainty and mandates becoming vulnerable by relying on others. It can lead to positive opportunities, mutual benefits, and collaboration or to threats, exploitation, and loss.”

CONCLUSION

With the increased shifting of the construction industry from adversarial to collaborative relationships to overcome the deficiencies brought about by the former, it is essential to shed light on the enablers of successful collaboration. Specifically, soft elements, such as trust, should be studied through a lens of being active enablers, rather than simple effects or outcomes. While different fields have investigated trust through their perspective, the definitions and characteristics do not all apply to the construction industry. Trust should be defined, characterized, quantified, and modeled in the context of construction management research.

As part of a wider research project, this paper conducts a thematic analysis to form an understanding of trust and proposes a definition pertinent to the construction field, under the umbrella of “risk management” as described by the Project Management Institute (PMI) and following the categorization of project delivery systems by Thomsen et al. (2009). The paper also provides a thematic map that describes the interrelationships of the different elements of trust. This contribution captures the essence of trust from the construction management perspective and will be built on in the authors’ future research. It can also be used by construction practitioners and researchers as a more representative definition of trust in construction.

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