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# UNVERILING THE TRUST JOURNEY IN CONSTRUCTION PROJECTS: INSIGHTS FROM THE CONTRACTOR'S PERSPECTIVE

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**Abstract**

In the dynamic environment of project-based collaborations, trust between project owners and contractors is critical for fostering effective partnerships and ensuring successful outcomes. However, much of the existing research on trust in these settings tends to adopt a static perspective. It is therefore important to explore how trust evolves over the course of a project. This study investigates the dynamic nature of trust throughout the project lifecycle, specifically examining the development of competence trust, integrity trust, and intuitive trust at three key stages: pre-contract, during project execution, and post-delivery. The findings indicate that contractors' trust level dynamics follow a U-shaped curve, with overall trust decreasing during the construction phase and recovering after project delivery. Competence trust remains the highest throughout the project, while integrity trust exhibits the most noticeable decline over time. Notably, intuitive trust is the only dimension that shows a recovery in the later stages, emphasizing its importance in sustaining long-term cooperation. Based on these findings, the study emphasizes the need for a stage-specific approach to trust management throughout the project lifecycle. To foster trust at each stage, this study recommends establishing clear competence evaluation criteria to assess partners' capabilities before the contract is signed, promoting the sharing of reputation and performance data to develop intuitive trust during the execution phase, and strengthening integrity through consistent ethical behavior, as well as making proactive commitments to manage risks post-delivery. This research provides valuable insights for practitioners on how to manage trust effectively and optimize collaboration, ultimately improving project performance.

**Keywords:** trust; project management; dynamic management



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## 1. Introduction

In recent years, construction projects are increasingly showing a trend of risk complexity and expansion, and project organizations are facing the challenge of expanding their project management methods(Chen et al., 2023). The relationship between project participants, especially between owners and contractors, has often been negatively correlated. This is reflected in several ways: owners and contractors have conflicting goals and fail to cooperate effectively; small frictions between the two sides during the transaction process evolve into disputes; and throughout the cooperation process, both parties engage in mutual defense, making it difficult to achieve the desired results of collaboration.(Le and Jiang, 2010). Problems caused by the negative relationship between the owner and the contractor will affect the project schedule, quality, cost, safety, and the long-term cooperative relationship between the parties involved. A key reason for this negative relationship is the lack of trust, particularly between the owner and contractor. Establishing trust can alleviate hostility, enhance cooperation, reduce transaction and contract performance costs, improve team efficiency, minimize opportunistic behaviors, and foster a more harmonious working relationship(Chen et al., 2023, Khalfan et al., 2007).

Trust, as a complex psychological state, is characterized by ambiguity and dynamism. Its ambiguity lies in the inability of the trustor to accurately state the important factors affecting the level of trust between the two parties, such as the willingness and ability of the trustee party to cooperate; its dynamism lies in the fact that the influence of some internal and external factors may change the level of trust between the two partners, such as the change in the willingness of both parties to cooperate with the passage of

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time, and the external training or study change the ability of the trusted party to cooperate (Chang et al., 2005). In construction projects, trust reflects the evolving psychological expectations of the parties involved. It is a continuous and dynamic process that transitions from initial trust at the project's inception, to trust during the project execution, and finally, to trust after project delivery (Ying and Wang, 2013). Previous research, however, has often treated trust as a static construct, neglecting its evolving nature and the fluctuations in trust levels that occur throughout the course of project collaboration. The critical changes in trust that emerge at different stages of the project may influence the quality of relationships and influence the collaboration strategy. It is necessary to explore the dynamic trend of trust relationship between contractors and contractors at different stages of project cooperation, to understand the impact of different dimensions of trust on the level of trust between the two parties at different stages, and to provide theoretical suggestions and empirical support for the construction of trust between contractors and contractors and the benign development of the construction project.

The structure of this study is organized as follows: the second part is the literature review; the third part is the research design; the fourth part is data collection and analysis; the fifth part is discussion and recommendations; and the seventh part is conclusions.

## 2. Literature review

### *2.1. Trust in Construction Projects*

Trust, as a subjective feeling, has always been the focus of scholars' research, and there are some differences in the understanding of its connotation under the research paradigms of different disciplinary fields. In the field of economics, some scholars define trust as a rational calculation made by individuals to maximize their personal interests, as a risky decision made by a rational actor who has internally calculated the cost-benefit (Williamson, 1993). Hartman (1999) argues that there are three different types of trust in construction projects, which are competence trust, integrity trust, and intuitive trust. Cheung et al. (2011) summarized three types of trust, which are system-based trust, cognition-based trust, and affect-based trust, and designed detailed measurement clauses for these three types of trust to be applied to construction projects, and the measurement terms were all tested for reliability and stability. Ye et al. (2009) classified inter-organizational trust into three dimensions: calculating trust, understanding trust, and cognitive trust(Ye and Jiang, 2009). Jiang et al. (2011) categorized trust in construction projects into calculative and relational dimensions based on the antecedents of trust(Jiang et al., 2011). Based on the above analysis, this study refers to Hartman's classification to categorize the trust between the contracting parties of construction projects into three dimensions: competence trust, integrity trust, and intuitive trust.

- Competence trust

Competence is a set of skills, abilities, and characteristics that enable a party to exert influence in a particular domain. The main elements of the competence are specific in the sense that the trustee party may be highly competent in certain technical fields, thus giving the trustor in tasks related to that field(Lui, 2009). Competence trust in construction projects can be defined as the confidence of the trustor in the experience and competence of the partner that the other party will be able to complete the project with a high level of performance(Jeffries and Reed, 2000, Roger C. Mayer, 1995). In the project bidding stage, the formation of initial trust relies on both parties' assessment of the performance of the completed project, the project management capability, the technical capability, the financial capability, and the reputation in the marketplace(Liang and Wang, 2009).

- Integrity trust

The relationship between integrity and trust involves the trustor’s perception that the trustee adheres to a set of principles that the trustor finds acceptable, and that trust based on integrity is founded on perceptions of the other party's attitude toward ethical behavior(Sitkin and Roth, 1993, Haesevoets et al., 2015). Issues such as the consistency of the trustee's past behavior, other organizations' evaluations of the trustee's trustworthiness, and whether the trustee is believed by the trustor to have a strong sense of justice affect the degree to which the trustee is judged to be honest.

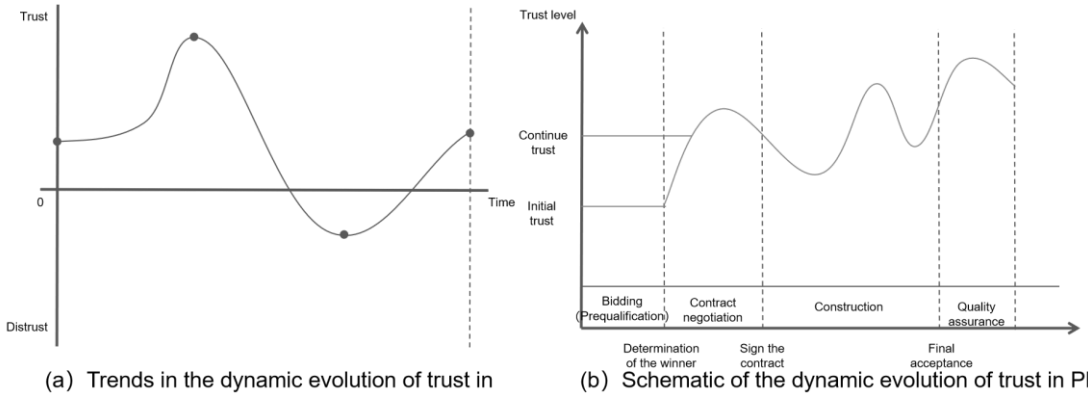
- Intuitive trust

Intuition is an emotion or hunch that one party can trust the intentions and actions of another party and is the result of a combination of emotional reactions and rapid processing of information. Burke et al. (1999) suggest that interorganizational intuitive trust decisions are the result of managers' feelings and emotions about the behavior of relevant cooperating parties based on their own past perceptions, and consequently, their trust in an object that conforms to their own or the organization's culture(Burke and Miller, 1999). Combined with the characteristics of construction projects, intuitive trust is formed through the behavior of the other party, the credibility formed by previous cooperation, the performance in the interaction process, as well as the organization's culture and values, to determine whether the other party can cooperate with them in the long term, and to successfully complete the project goals.

*2.2. Predictive map of dynamic evolutionary trends of trust in construction projects*

Mcknight et al. (1998) pioneered the study of initial trust, and in the past, researchers generally believed that the establishment of trust requires the accumulation of time and experience, and that the cooperating parties gradually observe each other's behaviors in communication and interaction, and establish trust through verification and confirmation of information , however, the results of some empirical studies suggest that in specific contexts, the cooperating parties may express a relatively high level of trust at the initial stage(Mcknight et al., 1998). Anita (2015) found through empirical research that trust in construction project organizations experienced a dynamic process of gradual increase followed by a significant decrease, and finally a slow rebound as the increase of organizational interaction behavior, which is shown in Figure. 1(a)(Anita, 2015).

Du et al. (2014) take the information asymmetry problem as an entry point to analyze the dynamic evolution trend of trust in PPP projects, and classify trust in construction projects into the initial trust formed between the parties to a transaction in the preparatory phase of the transaction based on their judgment of each other's inherent characteristics, as well as in the transaction process, the two sides of the transaction with each other's interaction behavior increased and the objective context of the continuous change to update their expectations of each other, and thus the formation of continuous trust with the changing time, the dynamic evolution of trust is shown in Figure 1 (b) (Du and Yan, 2014).




(a) Trends in the dynamic evolution of trust in engineering projects (Anita, 2015)

(b) Schematic of the dynamic evolution of trust in PPP projects (Du and Yan, 2014)

*Figure 1. The study on the dynamic evolutionary trend of trust in construction projects by different scholars.*

Trust dynamics in construction projects have been widely explored by researchers. Xu et al. (2021) conducted semi-structured interviews with construction project participants to analyze the establishment, reproduction, and evolution of trust across three project phases: pre-project, during project execution, and post-project completion. Their findings highlight that trust dynamics are driven by the formation of trust structures and continuous inter-organizational interactions.

From a temporal perspective, initial trust in construction projects is formed during the early cooperative relationship between the owner and contractor. This trust is influenced by factors such as the contractor's qualifications, financial capabilities, and social reputation. During project execution, changes such as design modifications or unforeseen geological conditions often challenge the original workflow and contract terms, requiring both parties to reassess their cooperation mode and

responsibilities. This reassessment may lead to conflicts of interest, dissatisfaction, and fluctuations in trust levels (Kadefors, 2004, Manu et al., 2015).

Trust in construction projects is also a multidimensional concept, with its structure determined by the relative proportions of different trust dimensions. Among these, competence trust, which stems from factors such as experience and organizational capabilities, is particularly critical (Lu et al., 2015). Before contract signing, trust is primarily a rational judgment based on objective criteria such as qualifications, skills, and performance records, as parties have limited interaction and incomplete information (Tang et al., 2016). In PPP projects, for example, competence trust is the dominant component of initial trust, driven by factors like financial capability, safety standards, and technological expertise (Du and Yan, 2014). During the construction phase, trust evolves as parties interact and gain insights into each other's preferences, interests, and behavior. This stage incorporates both rational assessments and emotional responses, with factors like communication, fairness in interactions, and cooperation attitudes playing a pivotal role in shaping trust (Yan et al., 2022). Formal mechanisms established during this phase foster shared values, common goals, and open communication, further enhancing trust (Kadefors, 2004, Suprapto et al., 2016). For Post-project delivery, trust deepens through sustained interaction, as parties develop a clearer understanding of each other's ethical conduct and consistency in behavior(Gao et al., 2021). At this stage, trust is shaped by rational judgments based on external information and perceptions of ethical attitudes and long-term relationship history. Repeated interactions are essential for sustaining trust in the dynamic and complex environment of construction projects (Kadefors, 2004a).

## 3. Research Design

To investigate the dynamic evolution of trust dimensions, this study employed a questionnaire-based approach to measure trust levels between owners and contractors across different stages of construction projects. The questionnaire comprised four sections: (1) personal information, (2) trust levels at different stages and (3) trust levels based on different dimensions. In the third section, respondents were asked to recall a recently completed project and rate the degree of trust during each project stage. Using a 7-point Likert scale, participants assessed their level of agreement with statements designed to capture various dimensions of trust, where 1 indicated "completely disagree" and 7 indicated "completely agree." Additionally, respondents provided an overall evaluation of trust intuitively at each stage using a percentage scale. The questions were carefully developed to reflect the nuances of trust dimensions at distinct stages, ensuring a comprehensive and reliable assessment.

## 4. Data Collection and Analysis

### *4.1. Personal information*

The questionnaires were distributed in the following two ways in China: 1) paper distribution, where the questionnaires were printed in paper form and sent to specific teams of construction project contractors by mail, handout, and email; 2) online distribution, where the questionnaires were designed as online surveys and sent to the respondents by email, social media, and website links. A total of 153 questionnaires were distributed and 129 were received for the study. Before statistical analysis, the 129 returned questionnaires were first screened and a total of 104 valid questionnaires were obtained. The specific sample distribution is shown in Table 1.

*Table 1. Distribution of samples*

| Personal Information | Typology | Number of Samples | Proportion |
|---|---|---|---|
| Position | Management position | 66 | 63.46% |
| | Technical position | 32 | 30.77% |
| | Other position | 6 | 5.77% |
| Project experience | Less than 5 years | 33 | 31.73% |
| | 5-10 years | 54 | 51.92% |
| | 11-20 years | 12 | 11.54% |
| | More than 20 years | 5 | 4.81% |

*4.2. The Overall Trust level trends in construction projects*

Based on the statistical analysis of Part 2 this study presents a graphical representation (Figure 3) illustrating the contractor's overall trust in the owner throughout the project lifecycle, as well as the trends in trust levels across different dimensions. The figure shows that, under a percentage scale, the contractor's initial overall trust in the owner stands at 84.05% before the project contract is signed. As the project progresses and interactions between owners and contractors increase, the overall trust level declines slightly during the construction phase, reaching 82.52%. Following project delivery, the contractor's overall trust in the owner rises marginally to 83.31%, forming an "inverted U-shaped" trend. This pattern aligns with the predicted dynamics of trust in construction projects illustrated in Figure 2 and corresponds with findings by Anita (2015).

Previous studies suggest that this trend is influenced by factors such as the complexity and dynamic nature of construction projects, which may lead to risky events and opportunistic behaviors arising from information asymmetry between contracting parties (Kadefors, 2004). When trust is eroded, both parties often employ trust restoration strategies—such as positive communication, making new commitments, and issuing partial progress payments—to ensure smooth project progression and enhance performance (Zheng et al., 2018).

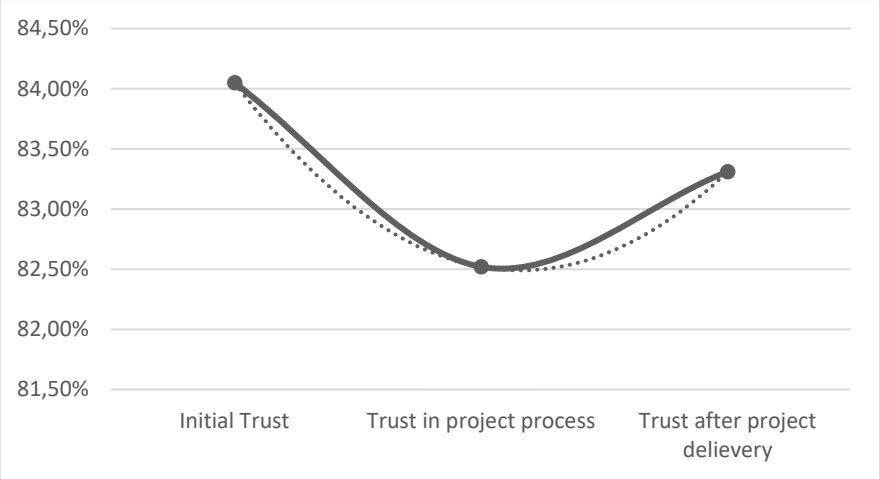



*Figure 2. Trends of overall trust.*

*4.3. Dynamic changes of trust levels based on different dimensions*

Table 2 presents the descriptive statistics for the main study variables. The results indicate that contractors exhibit the highest level of competence trust in the owner before signing the contract, with a mean value of 5.96 and item scores ranging from 3 to 7. This suggests a strong trust based on rational evaluations of the owner's financial stability, technical expertise, and management capabilities.

During the project process, competence trust remains the highest but slightly declines (mean = 5.80). Intuitive trust shows greater variability among contractors, with standard deviations of 0.91. It reflects the influence of both rational assessment and emotional responses, which vary significantly across organizations after a period of interaction with the owner.ost-project delivery, integrity trust still exhibits the most variability, with standard deviations exceeding 1. This suggests substantial differences among contractors in their perceptions of the owner's consistency in actions and ethical behavior during collaboration.

*Table 2. Descriptive statistics*

| Type of trust | Trust dimension | Measurement item | Min | Max | Mean | Std | Cronbach's α |
|---|---|---|---|---|---|---|---|
| Initial trust | Competence trust | The counterparty's past performance record is genuine and supportive of the completion of this project. | 3 | 7 | 5.96 | 0.58 | 0.77 |
| | Integrity trust | We believe that the counterparty will adhere to high ethical principles throughout the course of the project | 2 | 7 | 5.87 | 0.70 | |
| | Intuitive trust | We agree with the behavioral and institutional culture of the counterparty. | 2 | 7 | 5.82 | 0.66 | |
| Trust in project process | Competence trust | The counterparty's past performance record is genuine and supportive of the completion of its future projects | 3 | 7 | 5.80 | 0.67 | 0.82 |
| | Integrity trust | We believe that the counterparty will adhere to high ethical principles throughout the course of the project | 2 | 7 | 5.68 | 0.91 | |
| | Intuitive trust | We agree with the behavioral and institutional culture of the counterparty | 2 | 7 | 5.68 | 0.81 | |
| Trust after project delivery | Competence trust | The counterparty's past performance record is genuine and supportive of the completion of its future projects | 2 | 7 | 5.78 | 0.82 | 0.87 |
| | Integrity trust | We believe that the counterparty will adhere to high ethical principles throughout the course of the project | 1 | 7 | 5.58 | 1.01 | |
| | Intuitive trust | We agree with the behavioral and institutional culture of the counterparty | 1 | 7 | 5.66 | 0.95 | |

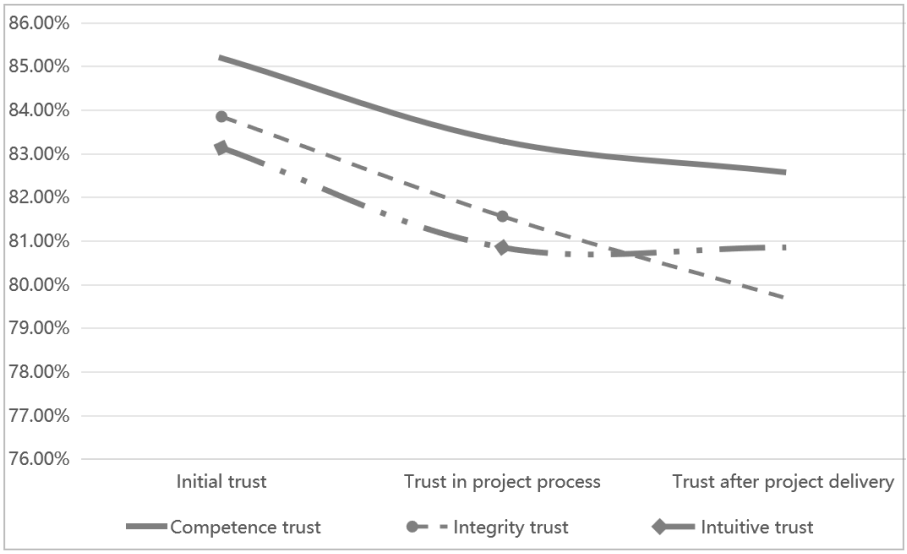



*Figure 3. Evolution of Trust Dimension*

To provide a clearer view of the dynamic trends in different dimensions of trust across various stages of project collaboration, this study presents a graph depicting these trends (Figure 3). As shown, competence trust, integrity trust, and intuitive trust exhibit a continuous decline from the pre-contract stage through the project process to post-delivery. Among these, competence trust consistently remains at the highest level. Competence trust reflects the trustor's rational assessment of the trustee's capabilities, including technical and managerial skills, financial status, and past project performance. It is often considered the most critical dimension of trust in construction projects, particularly in the absence of prior interaction or cooperation (Lu et al., 2015). As the project progresses and interaction between participants increases, integrity trust declines more rapidly than the other dimensions. This decline is influenced by the dynamic and complex nature of projects, which can give rise to risky events and opportunistic behaviors stemming from information asymmetry. Such factors undermine the trustor's perception of the trustee's ethical standards and professionalism, leading to reduced integrity trust and potential trust crises(Kadefors, 2004, Manu et al., 2015).

## 5. Discussion and Recommendations

Trust is a critical element in the success of construction projects, influencing collaboration between owners and contractors at various stages of the project lifecycle. By utilizing trend and regression analysis, this research identifies key factors that drive trust throughout each phase and offers targeted recommendations to improve trust dynamics and project outcomes.

Competence trust consistently remains the highest throughout the duration of the project. This dimension of trust is largely based on the partners' demonstrated skills, expertise, and ability to perform their roles effectively. This form of trust is fundamental in the early stages of the project when both parties are primarily concerned with the execution of tasks according to the agreed specifications. However, integrity trust, which is built on moral consistency, honesty, and ethical behavior, exhibits the most noticeable decline over time. This decline can be attributed to several factors inherent in the construction process. Interestingly, intuitive trust, is the only dimension that shows a recovery in the later stages of the project, especially after project delivery. This could be due to the evolving relationship between the owner and contractor over the course of the project. As the project nears completion, both parties have invested significant time, resources, and effort, which creates a foundation for a more personal and emotional connection.

Thus, the dynamic nature of these trust dimensions reflects the evolving priorities and challenges in the project lifecycle, with competence trust being foundational, integrity trust being fragile under pressure, and intuitive trust playing a key role in reestablishing positive relations after the project’s completion.

Based on trend graph analysis and regression analysis, recommendations are as follows:

*1) Strengthening Competence Trust in Early Project Phases*

Since competence trust remains consistently high throughout the project and is crucial in the negotiation and construction phases, it is recommended that project managers ensure clear and transparent communication of roles, responsibilities, and expectations. Early-stage competency assessments of contractors and project teams should be conducted to verify qualifications and track records. Additionally, ongoing training and skill development opportunities should be provided to maintain high standards of performance and capability, ensuring that all parties feel confident in each other's ability to deliver the project as planned. Establishing a robust monitoring and evaluation system can further enhance competence trust, enabling early detection and resolution of any performance-related issues.

2) *Mitigating Decline in Integrity Trust During the Construction Phase*

Given that integrity trust tends to decline during the construction phase due to unforeseen challenges, it is essential to implement transparent processes for managing and communicating project setbacks. Project managers should prioritize regular, honest updates about issues such as delays, cost overruns, or changes in scope. Establishing a conflict resolution mechanism that emphasizes ethical behavior, and fair decision-making can help maintain integrity trust even under pressure. Clear contractual terms,

reinforced by continuous ethical training for all involved, can also reduce instances of dishonesty or compromised decision-making. Furthermore, enhancing transparency in financial reporting, procurement decisions, and technical problem-solving can help prevent erosion of trust and ensure that all parties remain aligned on project goals and values.

3) *Rebuilding and Enhancing Intuitive Trust Post-Delivery*

The recovery of intuitive trust in the post-delivery phase highlights the importance of maintaining a positive, emotionally supportive relationship between the owner and contractor even after the project is completed. Project managers should focus on fostering long-term relationships by facilitating post-project debriefings and evaluations, allowing both parties to reflect on the successes and challenges faced throughout the project. These meetings can serve as a platform for sharing experiences, discussing lessons learned, and recognizing the emotional investments of both parties in achieving a successful outcome. Additionally, encouraging follow-up engagements and partnerships for future projects can strengthen emotional connections and build resilience in the relationship. Ensuring that the contractor's contributions to the project's success are acknowledged and celebrated can create goodwill and a foundation for continued cooperation.

## 6. Conclusion

Due to the complexity and dynamics of construction projects, the trust relationship between owners and contractors evolves throughout the project, influenced by the increasing interaction between the partners. This study examines the dynamic nature of trust in construction projects based on contractor's perspective. The trust dynamics follow a U-shaped curve, with overall trust decreasing during the construction phase and recovering after project delivery. Competence trust remains the highest throughout the project, while integrity trust exhibits the most noticeable decline over time. Notably, intuitive trust (emotional trust) is the only dimension that shows a recovery in the later stages, emphasizing its importance in sustaining long-term cooperation. Based on these findings, the study offers several recommendations for fostering trust throughout the project lifecycle such as strengthening competence trust in early project phases and rebuild intuitive trust post-delivery. Future research could extend the scope to include these stakeholders for a more comprehensive understanding of trust evolution. Second, the study focuses on the Chinese construction industry, suggesting that cross-cultural comparisons of trust dynamics could be a valuable direction for future studies. Lastly, the relatively small sample size may limit the generalizability of the findings, and future research could benefit from a larger, more diverse sample.

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