

# A Review Of Developing Modified Trust Inventory For Risk Management

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**Abstract** - micro, small and medium sized enterprises are considered significantly important to the growth of any economy. However, these businesses are vulnerable to risks, such as business risk, finding, budgeting, etc. The scheme to prevent risks of small businesses, nevertheless, is not systematically developed and performed. construction industry is highly risk prone, with complex and dynamic project environments creating an atmosphere of high uncertainty and risk. The industry is vulnerable to various technical, sociopolitical and business risks. this paper generates insights into the establishment and maintenance of cooperative, trusting relationships in partnering projects between client and contractor organizations. For this purpose we first explore the concept of trust, and review the literature on trust in inter-organizational relationships. We describe how trust is related to risk, control and performance, and how initial conditions and expectations may lead to positive cycles of increasing trust or, in contrast, to negative cycles of decreasing trust.

**keywords** - risks, trust, maintenance, organizational, performance

## I. INTRODUCTION

Trust is central to every transaction that demands contributions from the parties involved. In construction, trust has been identified to be the key driver in fostering cooperation. By operationalizing a trust framework that includes system-based, cognition-based and affect-based trust, a trust inventory is proposed. The reliability and stability of the inventory were then validated through the test-retest methodology. Supporting view on the appropriateness of the trust framework and the potential uses of the trust inventory were obtained from a confirmatory qualitative study with two senior construction professionals.

Risk is ubiquitous and spreads through every issue of life. To business sectors, unforeseen situations create severe loss exposures. Furthermore, to small-medium enterprises and micro companies, where the capital background is not sufficiently strong, a catastrophe could likely lead to interruption in operational activities, financial loss, and bankruptcy. Therefore, managing risks to reduce and minimize the loss exposure is essential for every small business. Despite the necessity, many SMEs and micro companies rarely carry out detailed risk assessment and management strategies. It is due to the fact that engaging in risk assessment and management require a certain budget and human resource, which are limited in small enterprises. These companies' decision on how and what to invest in depends on the ongoing activities and on their financial status. Small scale businesses generally shift the process of risk management into project-based. It is questionable that whether a traditional risk management plan or a customized project risk management would help SMEs and micro companies to reduce the losses, or would negatively weigh on their budgets.

The literature on trust in construction has grown in recent years and there are some interesting studies investigating the roles of trust in the management of construction projects. Trust has been identified as one of the determining factors to bring about reduced cost of negotiation, decreased monitoring costs, and increased possibility for attaining mutually beneficial agreements. The significance of trust becomes notable when the possibilities of exit, betrayal and defection are real. Given the inherent asymmetries that characterize information exchange using construction project development, the practice of opportunism is potentially high and tempting. Building trust has been identified as one of the most effective means to suppress opportunism. Project team members should give every effort to develop and foster trust among them. This unidirectional dependence motive is however paradoxical in the development of trust in construction contracting. The construction industry has well-developed institutional arrangements between on tracing organizations that make reciprocating exchanges under risk-laden contracts. These exchanges are more likely based on fear and power rather than trust notwithstanding, some construction firms manage to surmount these institutionalized barriers against trust and successfully establish long-term business partnerships. These trusting relations are typically having enduring foundation germinated from trust-building mechanisms that are either planned, incidental or both. In principle, reciprocating trusting behaviors are expected as responses to effective trust building mechanisms. In this study, these trusting behaviors are termed as trust expectations to reflect the reciprocating nature. This study aims to enrich the literature of trust in the construction industry by demonstrating the contingent nature and importance of trust building mechanisms with reference to trust expectations.

## II. LITERATURE REVIEW

1. Ghada M. Gad, Jennifer S. Shane, et.al, "Rethinking Trust in Construction Contract Formation: Dispute Resolution Method Selection" J. Leg. Aff. Dispute Resolute. Eng. Constr, 2016.

Low trust negatively affects the efficiency, schedule performance, and administrative cost functions of construction project team. However, trust is seldom taken into consideration during contract formation; in particular, in the dispute resolution method (DRM) clauses. The objective of this paper is to investigate how trust influences contract terms and conditions related to the DRM clauses. Data from 27 construction projects were collected and 11 DRM experts participated in the study. The results show that although expert recommend the choice of DRMs based on the trust level between parties, the DRM really used on construction projects is not affected by the trust level between partners. Negotiation was the most recommended DRM for high-trust projects, but was the least used DRM in practice on such projects. The conclusion of this investigate is an incremental step to rethink social factors that are overlooked in construction management and that proved influential on how contracts are drafted.

**2. Emmanuel Manu, Nil Ankrah, et.al “Trust Influencing Factors In Main Contractor and Subcontractor Relationships during Projects” International Journal of Project Management, 2015.**

Trust is crucial for achieving optimum benefits from supply chain integration and collaboration in the construction sector. Yet relationships between main contractors and subcontractors keep on to be influenced by issues that promote vicious circles of distrust. This research investigates the trust influencing factors in main contractor–subcontractor relationships on projects. Empirical data was gathered from across four case studies through semi-structured interviews, non-participant observations and document reviews, and analysed using thematic analysis. Findings revealed that the change management process, economic climate, payment practices, perceptions of future work opportunities, job performance and the project-specific context influence trustfulness and trustworthiness of the different parties. The findings also imply that stronger trust in the main contractor's supply chain can only be realised and sustained through help of trustworthiness-induced rather than benefit-induced trustfulness.

**3. Pui Ting Chow, Sai on Cheung & Ka Ying Chan, “Trust-Building in Construction Contracting: Mechanism and Expectation” International Journal of Project Management, Vol - 30, Pg. No -927-937, 2012.**

Trust is defined as the willingness of a trust or to become vulnerable to a trustee whose behavior is beyond his control. The efficiency of a project team can be enhanced should its members trust each other. There have been notable efforts in promoting trust in the construction industry through the use of a variety of trust building mechanisms. However, the reciprocating trusting behaviors that could be expected has not been elaborated. This study aims to investigate such relationships. For this, trust building mechanisms and trust expectations are identified and then operational zed for the development of their respective measurement scales. With data collected from practitioners, four and three taxonomies of trust-building mechanisms and trust expectations are developed respectively through the use of principal component factor analysis. The former include: networking, procedural measure, credit rating and calculativeness. The latter consists of self-awareness, responsiveness and value congruence. Their inter-relationships were then examined by structural equation modeling. Networking and calculativeness generally relate positively to most types of trust expectations. Nevertheless, trust-building mechanisms like procedural measure and credit rating are not so related to trust expectations and may even lead to trust deterioration. The findings prompt to further research on the versatility of or the conditions conducive for certain trust-building mechanisms in terms of the trusting behaviors that can be reciprocated.

**4. Albertus Laan and Niels Noorder haven, et.al “Building Trust in Construction Partnering Projects: an Exploratory Case-Study” Journal of Purchasing & Supply Management, Vol- 17, Pg. No -98-108, 2011.**

This paper generates insights into the establishment and maintenance of cooperative, trusting relation- ships in partnering projects between client and contractor organizations. For this purpose we first explore the concept of trust, and review the literature on trust in inter-organizational relationships. We describe how trust is related to risk, control and performance, and how initial conditions and expectations may lead to positive cycles of increasing trust or, in contrast, to negative cycles of falling trust. We confront this stylized theoretical description of inter-organizational trust dynamics with rich data from a project alliance in railroad construction in the Netherlands. We conclude that the initial conditions of this project alliance were conducive to trust, both in terms of opportunities and incentives. However, virtuous trust dynamics do not develop mechanically, in particular in the construction industry that has a heritage of adversarial relationships between clients and contractors. The organizations in our case study took some deliberate actions to overcome these adversarial relations, like selection of key employees, increasing informal interactions between these employees and stimulating openness and transparency.

**5. Sai on Cheung, Wei Kei Wong, et.al. “Developing A Trust Inventory For Construction Contracting” International Journal of Project Management, Vol - 29, Pg. No -184-196, 2011**

Trust is central to every transaction that demands contributions from the parties involved. In construction, trust has been identified to be the key driver in fostering cooperation. By operational zing a trust framework that includes system-based, cognition-based and affect-based trust, a trust inventory is proposed. The reliability and stability of the inventory were then validated through the test–retest methodology. The proposed trust inventory can be used to assess trust pattern akin to the assessment of conflict conduct style and the measurement of depression through the use of the Rahim’s Organizational Conflict Inventory and the Inventory of Measuring Depression respectively. Supporting view on the appropriateness of the trust framework and the potential uses of the trust inventory were obtained from a confirmatory qualitative study with two senior construction professionals.

**6. Lars-Erik Gadde and Anna Dubois “Partnering In the Construction Industry - Problems and Opportunities” Journal of Purchasing & Supply Management, Vol- 16, Pg No-254-263, 2010.**

During recent years partnering has been on the top of the management agenda in the construction industry. Despite this attention there is limited and partly contradicting evidence of the impact of these efforts. The objective of this literature-based paper is to explore why it has been difficult to realize potential partnering benefits on the strategic level, while partnering in individual projects has better construction performance. The analysis builds on a comparison of the features of business relationships in construction with the characteristics of so called 'high-involvement relationships' based on close cooperation. It is concluded that prevailing provide arrangements established to handle the particular conditions in the construction industry makes it unlikely for partnering to reach outside the individual project. Taking the step to strategic partnerships would require modification of some of the basic assumptions and norms of industry efficiency. On the basis of this analysis we explore potential consequences of modifications of current behaviour with respect to decentralization and competitive tendering. The paper is finalized with a suggestion for a differentiated approach to partnering.

**7. Michael J. Horman and H. Randolph Thomas, "Role of Inventory Buffers in Construction Labor Performance", J. Constr. Eng. Manage. Vol. 131, Pp. No. 834-843, 2005.**

Buffers of material stockpile ~inventory! Are formed at the work level in construction to help manage production. The size of material stockpiles often has an important bearing on construction project performance. In construction projects, where conditions are often uncertain and variable, some have suggested that buffers be sized and located according to the conditions. New management thinking like lean construction and theory of constraints suggests that the size of buffers needs to be managed carefully, because when oversized, buffers are wasteful, impede workflow, and hinder performance. Research has shown that project variability can be affected with the careful deployment of buffers but has not really evaluated the impact on construction labor performance. This paper reports an exploratory analysis of the relationship between inventory buffers and construction labor performance with data collected from three commercial projects in Brazil. In this study, the size of the buffer between rebar fabrication and installation in the construction of a structural system is compared to the labor performance of the fabrication and installation crews. The results show that some buffer helps achieve the best labor performance in the construction operations studied.

**8. Kenneth D. Walsh, et.al. "Strategic Positioning of Inventory to Match Demand in a Capital Projects Supply Chain", Journal of Construction Engineering And Management, 2004.**

Industrial buyers of capital facilities have experienced and continue to experience pressure to reduce facility design and construction lead time. This pressure arises both internally (due to successes in manufacturing lead time reductions) and externally (due to competitive forces including narrowing product delivery windows). This paper presents a case study detailing one owner's efforts to reduce the length and variability of delivery time for long-lead construction materials in order to improve overall project lead time. The owner adopted a long-term multi project perspective, procuring material in advance of specific projects and holding it at a position in the supply chain selected to allow flexibility for customization. Reduction in lead time of 75% from order to delivery of the material resulted for individual projects within the owner's capital plan. As a result, the material was available at the construction site well in advance of its need for erection. To study if holding material at alternative locations in the supply chain could provide a better match between delivery quantities and the demand for erection, the supply chain was simulated. In this case study, demand information was imprecise, allowing only the quantity of material delivered to be considered rather than matching specific items to specific locations. Nonetheless, the results demonstrate the utility of simulation in the capital projects supply chain and the value of improving demand forecasts.

**9. David M. Spatz "Team-Building in Construction" Practice Periodical on Structural Design and Construction, Pg.No-93-105, 2000.**

The way people interact, collaborate, learn, and improve can have a profound impact on an organization's efficiency, performance, productivity, and return on investment. This is the motive behind corporate efforts today to replace traditional hierarchical structures with team-oriented organization. Teamwork is an integral part of the construction process, and construction companies have pioneered "partnering" and subcontracting as a standard way of doing business. Still, the typical construction company today adheres to hierarchical management approaches that inhibit open communication, trust, collaboration, and the rapid response to change that is necessary to sustain a competitive advantage. Transforming hierarchical management structures into efficient, process-oriented organizations can be implemented through thoughtful, well-planned reorganizational strategies, beginning with (1) a commitment to change; (2) companywide adoption of mutual values and agreed behaviors; (3) a team-building strategy; (4) commitment to learning and knowledge transfer; and (5) training to improve technical breadth, teamwork, and leadership skills. The ultimate goal is a dynamic team culture where manager and employee grow and prosper together.

**10. Kenneth R. Maser, "Inventory, Condition, and Performance Assessment In Infrastructure Facilities Management", J. Prof. Issues in Engg. Vol. 114, Pp. No. 271-280, 1988.**

Inventory, condition, and performance data describing facilities and components is a primary information source supporting maintenance and rehabilitation (M and R) decisions. At present, this data, which serves as the basis of billions of M and R expenditure dollars, is incomplete, inaccessible, or nonexistent. This condition leads to costly reactive maintenance and project overruns, and prevents organizations from implementing rational M and R programs. In contrast, the recent revolution in sensors, electronics, and computers has made technology available that can rapidly collect this physical data and automatically enter it into the management database. The full exploitation of this knowledge has been limited by the lack of a profit motive, the need to adapt traditional management methods to the new information capabilities, and the lack of a clear-cut rationale for technological

performance specifications. These limitations can be beat through the initiation of educational and research programs, which integrate the disciplines of physical science, electronic sensing, and facilities management. Such programs will produce researchers and practitioners with the perspective wanted to address these and other complex issues in infrastructure management.

### III. CONCLUSION

Trust is important in building contracting as a means to suppress the practice of opportunism arising from the inherent of risk and in sequence asymmetries in the delivering of construction projects. Trust facilitates collaboration in project teams in which members are having opposing interests although a great deal of interest in trust has been expressed, developing trust remains a kind of lip-service in the construction industry where confrontational and controversial culture prevails. The study extends the study of trust in construction in examining the inter-relationships among trust building mechanisms and trust expectations. In this connection, the attributes of trust-building mechanisms and conviction expectations are identified.

The study also finds that excessive use of procedural measure and credit rating would lead to trust deterioration. The findings prompt to further research on the versatility of or the conditions that are conducive for certain trust-building mechanism to bring about the expected trusting behaviors.

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