

# LITERATURE REVIEW ON TRUST AND CURRENT CONSTRUCTION INDUSTRY TRENDS

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## ABSTRACT

There is a growing body of evidence supporting the theory that project performance can be assisted by increased levels of trust. Trust in construction has received some academic attention but warrants more. This research provides additional rationale and foundational support for the advancement of knowledge regarding trust in construction. Specifically, we emphasize the role of chosen project delivery method and its impact on trust levels. We conducted an extensive literature review on trust and pertinent concepts were collected for application to the construction industry.

Extant literature indicates a high level of relevance and applicability of trust research to construction issues. It seems probable that the chosen project delivery method plays a major role in the resultant levels of trust between project participants. Recent evolutions in project delivery methods and support systems, such as Integrated Project Delivery and Lean Construction are argued by their supporters to be more effective at maintaining high levels of trust than traditional methods. Results from this research suggest that academicians and industry practitioners alike who value trust should consider the ramifications of their current practices on the subject. Further research is required to determine if IPD, relational contracting, and lean construction are capable of systemically supporting higher levels of trust than traditional methods.

## KEYWORDS

Trust, Integrated Project Delivery (IPD), project delivery, construction industry trends, relational contracting

## INTRODUCTION

Researchers have identified a variety of problems faced by Architecture, Engineering and Construction (AEC) industry participants ranging from its adversarial nature to its comparatively low level of productivity (Hinze 1993, Mitropoulos and Tatum 2000, Latham 1994, Schwegler et al. 2001, Lichtig 2006). Perhaps most prominent of these weaknesses to the average owner or industry observer would be the intense lack of trust existing in, and between, the various project participants. Are AEC participants inherently less trustworthy than members of other industries? Is trust a

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luxury that cannot be afforded in the high risk/high reward climate of the construction industry? Or do our current practices simply negate the need for trust?

### **TRUST IN CONSTRUCTION**

In light of the claim that the alternative to trust is “chaos and paralyzing fear” (Luhmann 1979), it is surprising that trust in construction has received comparatively little academic attention. Researchers in psychology, organizational behaviour, and sociology have shown that trust can have a positive effect on performance. Zaheer et al. (1998) found that “firms in exchange relationships may derive competitive advantage from relationships imbued with high levels of inter-organizational trust”. Dirks (1999) found trust to have a positive influence, albeit indirect, on group performance. Kirshnan et al. (2006) found that firms can benefit from an increased focus on trust when “behavioural uncertainty” is present by “reducing the likelihood of negative interpretations of partner actions by allowing for the benefit of the doubt”. Trust has been recognized as the cornerstone of strategic partnering (Spekman 1988), and a lack of trust was found to be the single biggest stumbling block to the success of alliances (Sherman 1992). More specific to the AEC industry, the research of Latham (1994), Egan (1998), and Swan (2002) each supported the idea that trust is critical to the success or failure of construction projects.

The 90’s and early 21st century saw many construction firms adopting partnering in an effort to take advantage of the benefits described by this new information. As with most initial efforts, both successes and failures in partnering have since been documented (Bresnen and Marshall 2000, Howlett 2002,). A number of publications were devoted to gaining a better understanding of trust in the context of construction partnering (Black et al. 2000, Harback et al. 1994, Wong and Cheung 2004, Wong et al. 2008). One study claimed that the most critical factor for success in construction partnering was the development of trust (Larson and Drexler 1997). Partnering is just one example of how project delivery methods have evolved to account for advances in our understanding of trust and its impact.

### **CONSTRUCTION PROJECT DELIVERY**

Alternative project delivery methods have been a focal point for researchers over the past 25 years. As methods have evolved, their various impacts have been measured and analysed to allow for improved decision making by the project players. Newer, more collaborative models such as Design-Build (DB) and Construction Management (CM) have seen increased use while the traditional method of Design-Bid-Build (DBB) is on a downward trend (Jackson 2010). More recently, Integrated Project Delivery (IPD) has been introduced and tested. Proponents of IPD claim that projects completed under this system are more conducive to increased levels of trust between the project shareholders (Pressman 2007). IPD is recognized as an example of “relational project delivery arrangements” (Lahpendera 2012) along with Project Alliancing (PA) and to a lesser extent, Project Partnering (PP) (Rahman and Kumaraswamy 2002, Rowlinson and Cheung 2004). IPD is generally recognized as being unique from other relational project delivery arrangements due to the inclusion of a contract between a minimum of the owner, the design professional, and the builder. This contract shares project risk and reward between each of the core team

members (Cohen 2010). In this way, IPD attempts to integrate the construction process more fully by combining the lessons learned from PP and PA, with the philosophy of relational contracting as proposed by Ian Macneil (1973, 1985).

Academics and practitioners alike have searched for evidence supporting the use of one project delivery method over the other. Most agree that there is not a universally perfect delivery method (AGC 2004, Gordon 1994). However, depending on a project's goals, some methods have shown better results in specific aspects of the construction process. Bennett et al. (1996) compared and correlated the cost, schedule, and quality components of over 300 construction projects with their chosen project delivery method. Konchar and Sanvido included Bennett's results with a collection of other research to allow for additional data comparison and increased reliability (Konchar and Sanvido 1998). In related research, the Construction Industry Institute (CII) utilized a task force to analyse the relationship between cost and trust. They found that data from 262 projects supported the "intuitive notion that mutual trust and project cost are correlated" (CII 1993). However, there still exists a need to explore the relationship between project delivery method and the level of trust existing between project stakeholders. This research attempts to provide rationale and additional foundational support for the continued exploration of chosen project delivery method's impact on trust levels. We accomplish this by reviewing how trust relates to current construction industry trends, and what we know about trust beyond the scope of construction.

## **CONSTRUCTION INDUSTRY TRENDS**

Construction project delivery methods have been evolving since the master builder model of Ancient Greece (Jackson 2010). Current trends show the increased use of models more conducive to collaboration and integration of project participants.

### **PROJECT DELIVERY TRENDS**

Construction project delivery has been defined as the "comprehensive process of assigning the contractual responsibilities for designing and constructing a project" (AGC 2004). A project's chosen delivery method creates the framework around which the participants, processes, and practices will be organized. While alternative methods and various hybrids exist, Konchar and Sanvido (1998) claim that current practices are dominated by the following three delivery methods:

1. Design-Bid-Build (DBB)
2. Design-Build (DB)
3. Construction Management at Risk (CMAR)

Data available through 2005 shows non-residential design and construction trending away from the use of DBB and towards the more collaborative model of DB (Jackson 2010). This shift appears to be a result of the inability of DBB to manage emerging industry trends, and to resolve systemic problems that industry practitioners have consistently faced.

### **GENERAL TRENDS**

Project delivery methods appear to evolve in answer to industry trends. As technology and management philosophies evolve, processes, practices, and systems

adjust. Design software leader, Autodesk Inc., published a whitepaper in 2008 suggesting that a “convergence of forces” is hitting the industry. Similarly, the National Association of State Facilities Administrators (NASFA), the Construction Owners Association of America (COAA), the Association of Higher Education Facilities Officers (APPA), the Associated General Contractors of America (AGC), and the American Institute of Architects (AIA) jointly sponsored a report in 2010 listing industry trends that are challenging existing project delivery practices and driving change (NASFA 2010). Listed trends from both publications include:

- Globalized work processes
- Need for increased productivity
- Demand for sustainability
- Increased complexity of buildings
- Technological evolution (BIM)

The convergence of these forces is pushing the AEC industry in the direction of integration and collaboration (Autodesk 2008). We believe this a natural correction for an extended period of over-emphasis on specialization and separation of roles between architects, engineers, and contractors. These lines of demarcation between a project’s “team players” have been reinforced by traditional delivery methods and cemented in place by a fear of liability (prompted by an increasingly litigious society). This emphasis on roles may create clear silos of responsibility, but it hurts our ability to collaborate. Literature suggests that in order to stay competitive, project players will no longer be able to operate as isolated, and often competing, entities. McKinsey & Co. strategists stated that, “For most global businesses, the days of flat-out, predatory competition are over... In place of predation, many multinational companies are learning that they must collaborate to compete” (Bleeke and Ernst 1993). Successful collaboration requires a high level of trust (Hattori and Lapidus 2004). Companies are learning to step outside of their comfort zones in an effort to take advantage of the efficiencies available to those organizations able to collaborate and sustain high levels of trust.

As is suggested by both the Autodesk and NASFA documents, these trends are fuelling interest in IPD for its purported ability to integrate “people, systems, business structures and practices into a process that collaboratively harnesses the talents and insights of all participants to optimize project results, increase value to the owner, reduce waste, and maximize efficiency through all phases of design, fabrication, and construction” (AIA 2007). IPD is said to be “built on collaboration, which in turn is built on trust” (AIA 2007).

The perception that you cannot trust anyone has permeated the construction industry. The days of business on a handshake are gone, viewed by many as a virtual impossibility in today’s market. The good old days are just that; good and *old*. Can a climate of trust be restored to the AEC industry? We believe the answer is yes.

## **WHAT DO WE KNOW ABOUT TRUST?**

Trust has been the focus of substantial academic attention and is viewed as an integral part of many fields. Psychology, sociology, organizational behavior, economics, business management, and ethics all boast substantial bodies of knowledge on trust. There are likely as many definitions for trust as there are people who have defined it.

We agree with the view that trust is “inherently an individual-level phenomenon” (Zaheer, et al. 1998) and therefore would never claim that another’s definition is incorrect or inadequate. However, for the purposes of this paper we will use the definition increasingly adopted by organizational researchers which was proposed by Rousseau, Burt, Sitkin, and Camerer:

‘Trust is a psychological state comprising the intention to accept *vulnerability* based upon *positive expectations* of the intentions or behaviors of another.’ (Rousseau et al. 1998, emphasis added)

Table 2 is a collection of 15 characteristics of trust according to the literature. This list is not all-inclusive, but designed to provide a common ground from which to expand into future research on trust in construction. The items in this table might also provide some direction for how we, as individuals, and the organizations that we are part of can start focusing on the role of trust in our various responsibilities.

Table 2: 15 Characteristics of Trust Relevant to Construction

	Description	Reference	Discussion
1	Trust is a social necessity	Rotter 1967 Lewis & Weigert 1985 Fukuyama 1996	“One of the most salient factors in the effectiveness of our present complex social organization is the willingness of one or more individuals in a social unit to trust others. The efficiency, adjustment, and even survival of any social group depend upon the presence or absence of such trust.” (Rotter p 651)
2	Too much trust can be as bad as too little trust	Wicks et al. 1999 Jeffries & Reed 2000 Elangovan & Shapiro 1998 March and Simon 1958	“Optimal trust” exists when we create and maintain cautious relationships influenced by a willingness to trust. Trust is not a panacea, and excessive trust can lead to negative outcomes. For example high levels of trust can lead to a desire to resolve issues quickly, accepting the first viable solution instead of searching for the best answer.
3	Trust involves risk	McEvily & Tortoriello 2011 Rotter 1967	Most definitions of trust include an acceptance of risk by the trustor related to the performance of the trustee. In fact, the trust is only truly necessary when risk is present. It is argued that to trust is a risk, but not to trust is also a risk.
4	Willingness to risk is NOT equal to willingness to trust	Bohnet & Zeckhauser 2004 Ashraf et al. 2004	“It is fundamentally different to rely on another person (trust) than to rely on a random device that offers the same potential outcomes. This is because people are averse to being betrayed.” (Bohnet p 470)

5	Trust and distrust are different	McKnight & Chervany 2001 Lewicki et al. 1998	Trust and distrust are two separate constructs that operate simultaneously. Additionally, low trust is seen as being different than distrust.
6	Trust is dynamic	Lewicki et al. 1998	Decisions on whether to trust or not are continuously revised based on the most recent interactions and the latest information.
7	Trusting someone can lead to trustworthy behaviour	Baier 1994 Merton 1948	Trusting, or distrusting, can be a self-fulfilling prophecy. People will often act the way that they perceive they are being treated.
8	Trust can be impacted by systems	Heide and Miner 1992	Systems, structures, and processes create a context within which trust can develop or decrease.
9	Trust contributes to economic growth	Zak and Knack 2001 Miztal 1996 Fukuyama 1996	Trust is considered to be a basis for social solidarity and integral to the creation of prosperity.
10	There are different kinds of trust	Jeffries and Reed 2000 Zaheer et al. 1998	Interpersonal vs. inter-organizational trust (i.e. trust between individuals vs. trust between organizations); Cognitive trust vs. affect-based trust (i.e. trust based on competency vs. trust based on emotional attachment); Relational vs. dispositional trust (i.e. trust pertaining specifically to the counterpart in a dyad vs. an individual trait reflecting expectancies about the trustworthiness of others in general)
11	Trust is domain specific	Lewicki et al. 1998	Trust is tied to both people and circumstances. We might trust someone in some situations but not in others.
12	Trust can be measured	McEvily & Tortoriello 2011	A number of trust measurement tools exist that have been replicated and statistically verified for internal consistency and reliability.
13	Morality hinges on trust	Nowak & Sigmund 2000	Trust and reciprocity are “the basis of all human systems of morality”. This implies that when we replace trust with alternatives, our morality is weakened.
14	Trust is a competency	Covey 2006	Trust is something that we can work on and improve. We can do things to build trust just as we can do things to damage it. Recognizing and understanding the things we can do to build trust will allow us to get better at it.

15	Contractor as trust initiator	Wong et al. 2005	"If trusting moves are initiated by the contractor, there is a good chance that reciprocal trusting moves from the client will be returned." (Wong p 1052)
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NOTE: As trust's impact on performance was mentioned in some detail previously, it has been left off of this list. However, it is equally pertinent and deserving of a spot above.

Researchers have applied and analysed a few of the characteristics listed in Table 2 directly to the construction industry (particularly items 3, 6, 8, 10, and 15). Despite this, we feel that there is still opportunity for further development in all 15 areas. Specifically, the construction industry stands to benefit greatly from additional research into items 2, 4, 7, 8, 13, and 14.

## CONCLUSION

This paper has shown that trust plays a role in current industry trends. We have discussed how delivery method may be a good starting point for increasing trust on a project. We have also detailed some areas of existing trust literature from the social sciences that could be beneficially applied to the construction industry. Specifically we recommend that additional research is required to determine if IPD, relational contracting, and lean construction are capable of systemically supporting higher levels of trust than traditional methods.

We suggest that construction, perhaps more so than many industries, warrants an infusion of trust-related research. Lazar (2000) and Bresnen and Marshall (2000) made this recommendation over a decade ago, and it would seem that the industry is trending in the right direction, albeit slowly. Industry practitioners seem to agree that trust is important, while simultaneously viewing it as next to impossible. "Trust in construction" is like a punch line without a joke. Everyone laughs when they hear it, but no one really knows why.

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