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DERIVATION OF CRITICAL FACTORS OF TRUST IN CONSTRUCTION MANAGEMENT

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Abstract

Research on critical factors in the area of project management has identified success factors but these tend to be either too general or rather specific, often concerning particular projects. This situation makes it difficult for project managers to assess or evaluate projects for successful completion. From the general literature on trust, critical factors for developing trust in client-contractor relationships in construction industry are derived using qualitative categorical analysis. The four super-categories or critical factors based on successful completion of projects were contract agreement, communication and coordination, reputation, and problem solving. These were deemed to be critical determinants for the success in any major industrial construction and management.

Keywords: Construction projects, trust, critical factors.

1. Introduction

Trust is an important dimension in relationships and is well recognized by researchers (Barber, 1983; Dawson, 2000; Luhmann, 1979; NEDC, 1991; Smyth. 2003: Cheung and Wong 2003). As (Barber, 1983) stressed over the importance of trust in human relations. In the area of construction management industry and project management only a few studies exist such as (Walid and Tukel 1996, Clarke 1999, Baker *et al.*, 1988, Kadefors, 2004 Pinto *et al.*, 1988 and Slevin 1989). These have focused on the identification of critical common factors affecting project success or failure of projects generating lists of critical success factors varying in its scope and purpose. The success factors listed are usually far too general or rather specific pertaining mostly to particular projects. This is not to say that researchers in recent times have not attempted to determine critical factors for developing trust but there appears to be a general paucity of literature on success in project management generally.

Due to promotion and beneficial executions of capital projects for owners, only few owners maintain the staff resources in order to get the timely success based upon "make or break "business principles. On ground knowledge of the real life projects in the construction industry suggest that little trust appears to exist between partners. Moreover, frequently projects lack capital causing lengthy delays and that such delays influences performance capabilities of those involved. Such issues are of major concern to the construction industry since it is costing both the client and contractor (Alkass *et al.*, 1995).

Success of business lies on the presence of trust in client contractor relationship (NEDC, 1991). Organization's trust in their employees appears to enhance its ability to create close business relationships with other parties. Dawson (2000) noted that most investing partners view trust systems within a company favorably and then use it as a basis to develop longer term relationships. Trust is an important factor may be a key dimension for reducing adversarial relations in project working environment.

The object of this paper examines the literature on trust upon various trust factors and presents a minimum super category of factors that develop trust and as such are critical determinants of successful completions of major

construction projects. A conceptual model is proposed to improve our understanding of the dynamics and parameters in construction projects. Such a model helps explore the critical factors and their degree of relationships to trust, successful completion, construction management, and partnering within the boundary of an enterprise across client-contractor interface.

2. Trust in the construction projects

In this section, a more detailed analysis of trust is considered pertaining to construction industry. Trust is an important dimension in the construction process as evidenced by questions often posed in the industry such as: What are the important factors influence that create trust in construction? How the level of trust can be assessed? Why trust is so hard to achieve or loses? Could it to be possible for an organization or group to regain trust once it has been lost? To answer any of these questions the definition of trust is explored and as expected many writers have defined trust. In the literature, various definitions of trust have been proposed the following analysis will focus on definitions that practically relate to the construction and project management industry.

Trust is derived from the word *trost***,** which comes from German language, it means comfort. It also carries the sense such as to assess character. It with an assessment of another's capabilities or character. As the Oxford dictionary provides the definition of trust as confidence in or reliance on some quality or attribute of a person or thing, It also includes the reliance upon the truth of statement. or the truth of a statement. Thus trust can be considered is more than a little confidence and less than blind faith. As a working definition of trust, Shaw (1997) said "we trust those who meet our positive expectations" (p. 21). (Doney *et al.*, 1998) defined trust to be the expectation of just running common and cooperative behavior mostly depending upon some common shared norms and values (Robinson, 1996). Trust can also be degree to which the trust or holds a positive attitude for the reality and good will in a risky situation where exchange takes place Das and Teng, (1998). Trust is regarded as a psychological state not behaviour and often understood to be equivalent to cooperation. However, as real life suggests cooperation does not necessarily require trust (Rousseau *et al.,* 1998). Mayer *et al.,* (1985) considered trust as one party's wish to be a vulnerable to actions of other party; but this willingness is developed from an expectation that the other will perform important activities without monitoring or control. Trust is a psychological construct and is the outcome of interactions with other's values of attitudes along with emotional moods (Jones and George, 1998). A somewhat simpler definition is having confidence that one's expectations will be realized (Luhmann, 1979).

Clearly, the definitions of trust highlight its various dimensions and particularly important is the psychological state aspect.. Trust can be thought of as a realized psychological state reached through experience of positive behaviours, expectations or intentions of another. This state involves acceptance of risks and vulnerability of the other. In this study, trust is thought to be a psychological phenomenon that is risky but based on faith, reliance, understanding, cooperation, positive expectations, and past experiences. As such trust has a number of aspects, components, factors, attributes, characteristics and features.

3. Trust factors in the construction projects.

Trust models range from one-dimensional to multidimensional Larzelere *et al.,* 1980; Rotter, (1980) Butler, (1986) but owing to lack of consensus on a common definition of a trust, many researchers have identified multiple combinations of factors different influence on truth relationship (Cheng, 2000). The project management researchers have identified factors that lead to project success (Baker *et al.,* 1988; Pinto *et al.,* 1989). In most cases, researchers have labeled them as factors that help develop trust in organizations (Clarke, 1999; Kadefors, 2004, Pinto and Slevin, 1989). In other cases, the authors have labeled attributes, characteristics or components instead of factors. What is nonetheless clear is that trust is an important aspect and a psychological phenomenon and as

such depends on different factors; and the factors themselves are dependent on number of attributes, features or characteristics.

Empirical studies aimed at determining success factors have developed theoretical frameworks or models listing factors related to project success seen critical (Walid and Tukel, 1996, Smyth. 2003). A comprehensive review of the literature was undertaken and Krippendorff (1980), (Pinto and Slevin 1989, Clarke 1999 and Cheng *et al.,* 2000, 2001, 2004, Cheung *et al.,* 2003, Peter *et al.,* 2004) attempts to dimensionalize trust were analyzed. A summary of this extensive analysis the factors identified are presented in **(Table 1 and 2)** as the research has progressed over time.

Table-1: Factors identified (1980-2000)

Krippendorff (1980)	**Pinto and Slevin (1989)**	**Clarke (1999)**	**Cheng *et al.*, (2000)**
Availability	Project Mission	Communication through the project	Adequate resources
Competence	Top management		Management support
Consistency	Support Project		Mutual trust
Discreetness	schedule/Plans	Clear objectives and goals	Long term commitment
Fairness	Client consultation		Coordination
Integrity	Personnel	Breaking the project into “bite sized chunks”	Creativity
Loyalty	Technical tasks		Effective communication
Openness	Client acceptance		Conflict resolution
Promise fulfillment	Monitoring and feedback	Using project plans as working documents	Perceived satisfaction of partners expectations
Receptivity	Communication		Compatible goals
	Trouble-shooting.		
	Characteristics of the project team		
	Leader		
	Power and Politics		
	Environmental Events		
	Urgency		

Table-2: Factors identified from (2001-2004)

Cheng *et al.,* (2001)	**Cheung *et al.,* (2003)**	**Peter *et al.,* (2004)**	**Cheng *et al.,* (2004)**
Adequate resources	Soft behaviour issues:	Competence of work	Four common factors
Top management - support	Trust	Problem solving	Top management support
Partnering agreement	Honesty/openness/integrity	Frequency and effectiveness communication	Open - communication
Team building	Communication	Openness and integrity of communication	Mutual trust
Joint problem solving	Relation cooperation	Alignment of effort and rewar	Effective - coordination
Facilitator	Job satisfaction	Effective and sufficient information flow	Four Functional success factors
Open communication		The sense of unity	Long term - commitment
Effective co-ordination	Hard issues:	Respect of appreciation of the system (respect)	Continuous - improvement
Creativity	Performance oriented	Compatibility	Open - communication
Long-term commitment	Programme	Long-term relationships	Effective - coordination
Mutual trust	Quality	Financial stability	
Continuous - improvement	Safety	Reputation	
Learning climate	Financial objective	Adoption of ADR techniques	
Partnering experience	Process oriented	Contracts and agreements	
	Resource commitment		
	Waste minimization		

Construction project management process is complex and it would be inappropriate to conclude that individual factors may be responsible for success or satisfactory completion of a particular project. Rather, all of the above factors identified appear interdependent and therefore, qualitative holistic approach or analysis would be appropriate for the determination of critical determinants (Dieckmann, 1996).

4. Super- categorization of factors

An in depth analysis of the factors identified in this paper together with descriptions and meanings attached allowed the present authors to use a qualitative methodology involving category analysis (Lee, 1999). The key goal in category analysis is to merge factors into a smaller number of super-factors (super-categories), which would be labeled a broader and more encompassing factor (a super-category); and considered a key determinant of successful completion usually representing a number of attributes or features identified. Essentially, the goal in the analysis is to reduce the more general factors to specifically critical factors for success. An in depth analysis of the definitions provided in the literature and categorization process that allowed the present authors to realize commonality in factors. This led to the derivation of four critical determinants of success in the construction project management; namely, contract agreement, communication and coordination, reputation and problem solving and each of these are discussed in further detail with aspects of the analysis described and justified.

(i) Contract Agreement

Contract agreement is a critically important factor in that it is vital to have initial clarity of goals and general directions well defined at the beginning of the project as pointed out by a number of researchers (Pinto and Slevin, 1989) Cheng *et al.*, (2001) stated that partnering agreement is associated with a list of objectives to be achieved by all agreed parties. Peter *et al.*, (2004) stated that equitable agreements or contracts terms help contracting parties establish trust and sustain cooperation as their perceived benefits are secured.

More specifically, contract agreement is an agreement between two or more persons, concerning something to be done, whereby both parties are bound to each other, or one is bound to the other. The agreement can be formal, informal, written, oral or just plain understood.

Within a contract agreement time limits for submission of documents, designing of project with clear and complete drawings and specifications that show the design, dimensions, sizes, structures, locations, provide necessary resources and material selections, contract provisions, project goals, delay notification and changed conditions, changed orders, bonuses and penalties, project completion time, payment process, unit prices/alternates/allowances, liquidated damages or other penalties, insurance, and worker's compensation, payroll and bonding requirements, etc. are all written clearly and accepted by partners.

(ii) Communication and coordination

A project team usually includes a number of agents such as clients, designers, constructors and other specialists as well as suppliers. If such a team is integrated in concert they heavily reduce waste, improve quality, and innovate to complete projects. In other words, successful projects require extensive communication and effective coordination that aid in organizing and integrating teams (client and supply team) to become committed to successful delivery. If team members can produce clear and accurate information that other members can rely on, then uncertainty is reduced. Uncertainty implies risk and if somehow uncertainty is reduced then outcomes can be more effectively ascertained. With better communication and coordination of risk, contingencies in costs and program may be reduced.

Communication and coordination is an important derivative and has been suggested in a number of statements such as "client communication, consultation and active listening appear critical for impacted parties in projects". Clarke (1999) argued that communication throughout the project is needed to improve the effectiveness of project management. Cheng, (2000, 2004) stated that coordination and effective communication was vital for construction partnering and trust. Cheng *et al.*, (2001) defined open communication and effective coordination for the development of trust. Peter *et al.*, (2004) identified communication and information flow as important factors.

Essentially, effective communication reduces time factors, avoids the risk of misunderstand-dings and develops positive relationships and encourages achieving common goals. Open communication and coordination creates an environment where all parties understand each other and tend to cooperate in a respectful manner to get the work done. The factors or attributes identified earlier by various authors can be merged into the communication and coordination super category.

(iii) Reputation

Many businesses have public relations departments for their reputation management. Some times some incidents occurs which damage a company's reputation for honesty or safety. Those can also effects finances and employee also effect reputation of company through their conduct. Every employee and agent related with the company plays an important part in maintenance of reputation leading to the highest ethical standards. Performed duties employees using impartial judgment in all matters affecting the company. For maintenance of reputation companies often demand employees to act with the highest degree of integrity. Peter *et al.*, (2004) stated financial reputation was critical for developing trust in the partnering. Companies with higher financial standing and reputation appear to be more trustworthy as they are seen as no wanting to lose their valuable assets. Generally reputation is the public opinion towards a person, a group of persons, or organizations. The influence ranges from competitive selling's such as the market influence relation to cooperative policy with firm organizations, institutions and communities can be derived from the assumptions, perceptions and beliefs about what an organization is, how it is run or what it stands for reputation of any company includes aspects of value, performance, reliability, quality and experience of communication with other agencies.

(iv) Problem Solving

Finally, the ability to deal with uncertainty, risk or stress situations is a vital of developing trust amongst mutual partners. Pinto and Slevin (1989) identified trouble shooting as

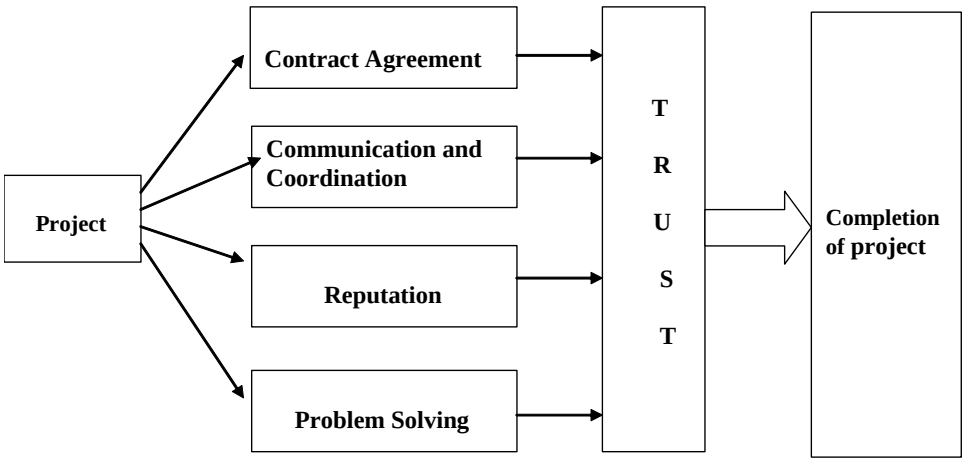
a factor important to trust; the ability to manage foreseen or unexpected crisis and deviations from plan. Cheng *et al.,* (2000) identified conflict resolution citing techniques such as joint problem solving or out side arbitration to solve conflicts as necessary aspects available to partners for trust to develop. Cheng *et al.,* (2001) argued that joint problem solving is a key aspect in which collective decision making is made regarding alternatives when faced with problems, conflicts, disputes and claims. Peter *et al.,* (2004) also identified problem solving together with a technique known as alternative dispute resolution ADR. They noted that problem solving ability was essential for the building trust. For example, the use of ADR technique before litigation (as stated in the contract) often gains trust of other parties. The contracting parties feel their partners are seeking a sincere win/win resolution through cooperation and harmony. Egan Sir John, (1998) argued that whether problems faced are small, large or complex, all need to be solved in a satisfactory way. The development of a positive attitude toward problems transforms partners into more confident companies and partnerships.

Problem solving is the process of selecting an alternative course of action that will solve a problem. Given the construction management is such a complex process and filled with activities occurring concurrently, problem-solving aspect is vital attribute for the maintenance, development and success of the project. In joint problem solving sessions, parties gather and share views regarding conflict issues and often pose high quality resolving tactics. A high level of participation among parties creates trust and thus commitment to pursue mutually agreed solutions.

5. Trust Model

The interdependence of each and to trust can now be studied in a less daunting manner in a succinct smaller number is considered rather than that described in the literature **(Fig. 1).** The dependencies and dynamics of each and in the development of trust can be explored in more detail using the model.

Fig. 1. Trust model using super-categories



6. Summary and Conclusion

The object of this paper is to derive critical factors for developing trust in client-contractor relationships that fit for all phases in the construction industry. The critical trust factors are particularly useful for project managers and partners as they strive to achieve a high degree of successful completions of major industrial projects. The importance of the four identified determinants/factors should not be surprising to many project managers. Nevertheless, the factors help focus the industry and allow them to consider approaches, methods and activities that improve effectiveness in project management. Focusing attention to the critical factors allows the project manager to be

in a better position to actively monitor and steer future projects towards a successful conclusions. Indeed, the super-categories derived are the outcome of suggestions made in the literature particularly those considered important for developing trust in construction. These categories/factors have important implications for project managers/researchers in the project management field as more work can now be directed to study the implications of the model proposed.

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