

Trust- The Missing Link in Construction

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Abstract

The lack of trust observed on contemporary construction organizations has been identified as one main cause of unsuccessful completion of projects. The aim of this paper is to identify why distrust has become the norm among construction players. The methodology used to investigate this issue will be through a comparative analysis of the construction model proposed by Peter Ducker, using it as a benchmark, in which the basic organization is (1) by homogeneous stages,(2) systematic organization of work groups, and (3) systematic training to perform work. This model will be compared with the work organization of contemporary construction organizations and variances towards trust will be discussed. Topics discussed in the paper are: trust concept, unique-product production, homogeneous stages, organizing work, training to perform work, analysis and discussion, conclusion and five recommendations are provided to replace distrust by trust on contemporary construction organizations.

Key words: trust, homogeneous stages, work organization, training, integrated teams, unique product production

1. Introduction

The lack of trust between construction project participants has been identified as one of the main factors that lead to unsuccessful completion of construction projects (Cheung et al 2011,Pinto, J.K. et al 2009, Wong et al 2008, Khalfan & Swan 2007, Zaghrou & Hartman 2003). Several techniques, for example partnering, team building and Total Quality Management (TQM) have been proposed aiming to improve the level of trust between project participants (Schaufelberger & Holm 2002). However, these techniques treat “trust” as a commodity that can be bought into the project by training, contracts, agreements and other motivational techniques designed to increase the level of trust among construction project participants. Trust cannot be treated as a commodity; it should be treated as a set of moral values that should be incorporated in the inner of a human being as main drivers to change distrust into trust among construction players.

At the construction industry, distrust between the participants of a project is expected and it is treated as norm during all phases of the contract negotiation and administration. One of the contemporary remedies used to overcome distrust in construction is the use of bonds. At the bid level a bid bond is required to warranty that bidders will honor their bids. At the execution of the contract the performance bonds and payment bonds are required to warranty that contractor will honor contract documents. Basic values like honesty, honor and integrity are challenged and enforced in such ways that those moral values are warranted by fear of financial penalties and not for the stand of a natural set of human being moral values.

At the time when construction was delivered by the Master Builder concept “trust” did the main ingredient among the construction projects participants and bond businessdoes not exist the scenario of a construction project? Honor, integrity and trust were the nom expected and enforced by the power of honor and the respect for the Builder integrity. For this reason the logical question to address is: what went wrong in the construction industry?

The objective of this paper is to identify why the level of trust diminished over time between the relationships of the construction participants. The methodology proposed for this investigation will be made by a comparative analysis in which the conceptual model for construction proposed by Peter Ducker (1973) will be used as a benchmark to be compared with the prevalent construction model practiced today. Since the Drucker model is heavily relied in trust, the level of compatibility between the two models will be analyzed and the variances related with trust will be discussed.

2. Trust concept

According to McKnight and Chervany (2001) it is very difficult to conceptualize trust and distrust due to a multitude of different definitions. Trust has been defined as both a noun and a verb and the term can be applied as a personality trait, a belief, a social structure, and as a behavioral intention. For the objective of this paper trust will be used as a noun defined by the Webster dictionary as: "Firm belief or confidence in the honesty, integrity, reliability, justice of another person or thing; faith; reliance."

After conducting 40 project interviews among main contractors, sub-contractors, clients, consultants and end users of the construction industry, aiming to identify what are the common understandings of the term "trust in construction," Khalfal and Swan (2007) finds indicate that trust is perceived and defined as : honest communication, reliance, and right outcomes.

This pragmatic way to perceive trust is correlated with the Webster definition of trust, where the term "honest communication" is perceived as a desired value in which "open and clear communication will beshared among the project participants."The term "reliance" is perceived as "the degree of reliability that one can have on another team member, "and the term "outcomes" is perceived as "degree level of the integrity one person has in delivering what is promised and agreed in the contract documents."

Pinto et al (2009) states that trust has different meanings for contractors and owners, Macfarlane (2009) results for measuring the level trust of the general public among different professions shows that 67% of the general public does not trust construction trades providers. According to that author the expected outcomes of trust from a group should be that they will be fair, honest, and straightforward in their dealings with others, not take advantage or mislead others in anyway.

According to Handy (1995) it is necessary to rediscover how to run organizations based more on trust than in control. He suggests that there are seven cardinal principles of trust, which need to be fulfilled in a trust environment. They are: [1] trust is not blind. It is unwise to trust people whom you do not know well, whom you have not observed in action over time, and whom are not committed to the same goals.[2] Trust needs boundaries. Trust-based organizations need to reengineer their work, pulling back from the old reductionist models of organization, in which everything was divided into its component parts or functions. [3]Trust demands learning. Groups must always be flexible enough to change when times and costumers demand it.[4] Trust is tough. When trust proves to be misplaced because people do not live up to expectations or cannot be relied on to what is needed, these people have to go. [5]Trust needs bonding. Self-contained units responsible for delivering specific results are the necessary building blocks of an organization based on trust. [6] Trust needs touch. A shared commitment still requires personal contact to make it real. [7] Trust requires a leader. At their best, the units in good trust-based organizations hardly have to be managed, but they do need a multiplicity of leaders.

Trust is the result of healthy relationships among people. The quality of interaction between people among the different participants of a project will determine the ultimate type of trust a specific project will be exposed. A famous quote from Tomas J. Watson, former IBM president, states that: "The toughest thing about the power of trust is that it's very difficult to build and very easy to destroy."

Ralph James (2002), after 20-plus years working as a consultant to the construction industry, discovered that trust is a direct result of integrity which is defined as being trustworthy, reliable, honest, and morally sound. The finds of Ralph James indicates that once trust is achieved, it will be the link for repeated business and consequently profitability.

3. Unique-product construction

The construction industry is classified as a unique-product production based on its main objective to deliver a unique product at the time, at a specific geographic location in which materials, labor, equipment, and management are required to be transported to a point, known as a construction site. This industry is heavily dependent on labor with different skills, a multitude of materials to be selected, customized objectives and functions to be accomplished, in which management is exposed to complex systems to be managed with variables related with budget, contracts, design, procurement, labor, material, subcontractors, equipment, quality, cost, scheduling, safety, communications, productivity, codes, inspections, weather, transportation, types of soils and specialty services in accordance with the requirements and specifications of the project.

Peter Drucker (1973) in his classic work “Management Tasks Responsibilities Practices” classifies the construction industry in relation to its production as “Unique-Product Production” in which its basic organization is by homogeneous stages. He envisioned three stages to accomplish the production phase of a construction project. They are:

1-division of the work into homogenous stages; 2-The systematic organization of the work group for the specific requirements of each stage; and 3- Systematic training of a large number of people to do all the work required within one stage. The heart of this concept relies in the determination of the required homogeneous stage in which the work is organized to meet specifications, and people are trained to perform the work of this stage as shown on Figure 1.

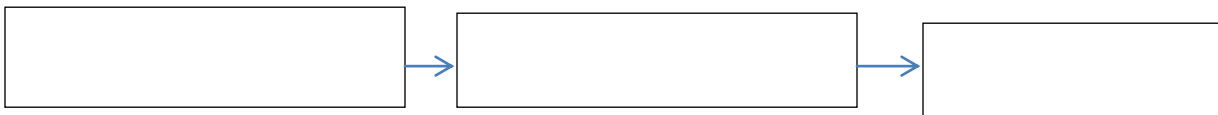


Figure 1- Drucker’s conceptual model for unique-product production organizations

Each of the three production stages proposed by Drucker will be used as a benchmark to discuss their compatibility with the actual prevalent construction industry production practices.

4. Homogeneous stages

The term “homogeneous stages” proposed by Drucker (1973) means that the construction process should be divided in phases in which each phase has a team of workers qualified and trained to perform any task required to complete that phase. He offers, as an example, the construction of a traditional single-family house in which the construction process is divided into four stages as: (1) foundations (2) erecting frame and roof (3) installing plumbing and wiring in the walls (4) interior finish as shown at (Figure 2).

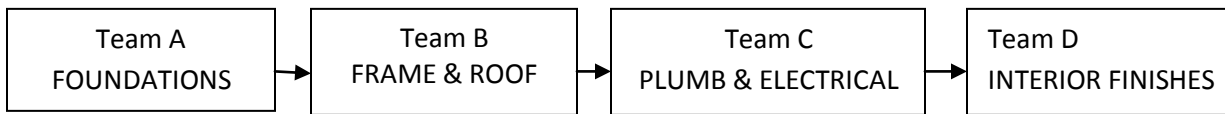


Figure 2-Drucker’s four stages for construction of a single-family house

As can be observed each stage will require a team that will be able to perform the plurality of skills required to accomplish success at each stage. Each member of the team should be able to perform any task required in that stage. The model proposed by Drucker for each team member is called the telephone installation man who, without being a skilled electrician, carpenter, plumber or roofer, installs electrical wiring, saws through boards, makes a ground connection, and can take up a roof shingle and replace it. Once one stage is accomplished, the team is replaced by the next team of poly-skilled members to start the next stage. Under this concept work in construction should be organized by stage skill, and not by craft skill. The work in construction today is organized by craft skills. The prevailing concept is that the more one can subdivide work by crafts better results will be accomplished, which is opposite from the model that is proposed by Deming. Under the organization of work by stage skills one task, foundations can be accomplished by just one integrated team.

At the same time if the labor for this same task is organized by craft skills it will require at least six different teams, each one selected by its degree of specialization as (1) excavation of the foundations, (2) formwork fabrication and reinforcing steel placement, (3) pouring concrete, (4) finishing concrete, (5) removing formwork, (6) and compacting soil. The plurality of different entities performing specific tasks poses the disadvantage to have different teams working together in which the level of communication and cooperation between the teams is low when compared with one homogeneous team trained to work together to accomplish one specific construction work.

5. Organizing work

On Ducker's model once each homogenous stage is defined, the next step is to create a systematic organization of the work group to meet designed specifications required to accomplish each homogeneous stage. The designed specifications of each project will define in detail the processes, the material and the required training to successfully accomplish the work.

Contemporary construction organizations organize the work by crafts following the divisions of crafts proposed by the Construction Specifications Institute (CSI) through its CSI Master format™ 2010. It offers to the industry 50 divisions based on relationships of the activities in different typical construction process. The work at each division is broken down in levels in such way that each activity can be indicated by six digits arranged into three sets of paired numbers. For example, If one needs to reinforce a concrete using galvanized reinforcement steel bars the notation used by CSI Masterformat™ is 03 21 13 in which 03 refers to the concrete division, 21 refers for reinforcing bars, and 13 refers to the type of reinforcing that is galvanized steel bars. The CSI Master format is an excellent tool to develop the WBS aiming to find the total cost of all activities required in a project. However it is a big promoter of disintegration of work if it is used to organized work by skills. For example, under Ducker's model one can establish a stage called "Concrete" and it will be delivered by one sole work unit. Under the CSI Division 03 (concrete) is subdivided in 8 main subdivisions with the generation of possibly 142 activities. If the organization of work is made by craft skills adopting the divisions of CSI Masterformat™ 2010 as stages of a project, the number of stages will be larger when compared with the number of stages generated when work is organized by stage skills, increasing the level of difficulty to manage them. In organizing the work by stage skills for the construction of a single- family house Drucker suggests the formation of 4 homogenous stages. Using the organization of work by craft skills in with each craft is defined using the CSI Masterformat™ 2010, the accomplishment of the same project will have at least 14 stages, considering a typical single house to be constructed. These stages are shown on Table 1.

CSI Division	Description
1	General Requirements
2	Existing Conditions
3	Concrete
4	Masonry
5	Metals
6	Wood, Plastic & composites
7	Thermal and Moisture Protection
8	Openings
9	Finishes
12	Furnishings
22	Plumbing
23	Heating, Ventilating and Air conditioning
26	Electrical
27	Communications

Table 1- CSI Masterformat™ 2010 Divisions by crafts

The organization of work by craft skills generates a multiplicity of teams that are not focused in the homogeneity of the project. Their focuses are to finish part of the work for which it was contracted to perform; their interaction and level of communication with other crafts are low, generating the need for more management to aggregate the pieces of work contracted.

6-Training to perform work

The proposed constructive model proposed for Drucker calls for the formation of homogenous stages that will be populated with team members in which each member will be capacitated to perform any task required by the homogeneous stage with the level of excellence required by the project specifications. The key point here is the training to perform work as a cooperative team. An example of this concept is the training of football players that are trained to perform any movement that is required to make a touchdown regardless of their “official” position in the team.

Training at the construction industry is a very controversial issue. In the past, labor unions assumed the task to training laborers for the construction industry. This was a real benefit for the construction industry. However, as soon as labor unions started to use their power as a political weapon to reach labor agreements the construction industry developed new ways to use nonunion labors in their constructive process.

The retention level of workers in the construction industry is low when compared with other industries. The concept of subbing out the majority of the work in a project leads general contractors to transfer the responsibility of training to third parties. When subcontractors face a lack of continuous availability of work and for economic reasons they are not able to retain their workforce, all training accumulated by the workforce is destroyed if workers are dismissed. This vicious cycle creates a sense of lost investment in the minds of contractors, and the fear that all training delivered by his company will be transferred to another one. It is common to listen from contractors the following rational, “If I invest in training and my employee goes to another contractor, I am helping my competitor, and for this reason I prefer to hire someone that is already trained.”

Fernie et al (2006) cites that reviews in the last 60 years indicates that the construction industry has a poor performance rate and high resistance to change. Love et al (2000) indicates that the one way to improve performance in the construction industry is through training, and Bresnen et al (2005) suggests that training construction workers to understand knowledge diffusion in their organizations is one effective way to reduce resistance to change.

7. Analysis and discussion

Drucker’s conceptual model for construction is based on the construction of integrated teams that are trained to accomplish the requirements of specific phases of a construction project. Each team has a diversification of trades unified as an integral body trained to perform all tasks required by project specifications to successfully accomplish the assigned phase. Work is organized by the collective contributions of different skills delivered by one team to reach one goal, which is the opposite of the today’s current work organization in construction enterprises that are organized by a contribution of several isolated teams, each with specific skills, working to reach part of the overall goal. At the same time that work when organized by stage skill brings integration and a high level of communication between the team members, the work organized by craft skills brings disintegration and low level of communication between trades.

If there are disadvantages in organizing work by craft skills, why does the construction industry prefer to use this type of organization? In my opinion the main reason relies on the need to control, and the need to control leads to distrust. The evidence that control is the main issue in organizing the work in construction is provided by the comparative analysis of the attributes of organizations based more in trust with the ones based in control, described by Handy (1995). As can be observed on Table 2, construction organizations are more compatible with the attributes of control.

Table 2- Comparative attributes of organizations based on trust and control

Trust attributes (Handy 1995)	Control attributes
Workers knew one another well (integrated team)	Workers do not one another well (different trades)
Integrated parts and function	Everything is subdivided in parts and functions
Change when time and costumers demand	High resistance to change
Follow the leader (inspiration)	Follow the foreman (perspiration)

Other evidence that control is the preferred attribute in construction organizations emerges when a comparative analysis is made between the Drucker conceptual model and the actual prevalent model of construction organizations. The organization of work by homogeneous stages proposed by Drucker resembles the same work organization of a basic unit of a living organism, as for example one biological cell. Besides the fact the cell is one single biological unit there are multiple subsystems inside the cell totally integrated to perform the cell task. In the same way, the homogeneous stage defined by Drucker states the goal is achieved by the collaboration of different types of skills that are integrated to perform different tasks required on the homogeneous stage. The same principle of collaboration and integration existing in the living organisms are observed in the performance delivered by homogeneous stages. Trust is a natural outcome under the organization of work by stage skills once all team members are trained together before delivering the work. The level of knowledge between team members will always increase due to the repetition of the same stage, and increase collaboration between the team members.

On the other hand, in the contemporary model of construction organizations work is organized by compartmentalization of specific skills. That means that all or part of the skills required by one project will be contracted by specialized trades. For example if a prime contractor decides to self- perform 20 % of all work required in a project, that means that 80% of the work will be divided between different trades. For the sake of visualization let's assume that each trade is selected under a criteria that the winner set of trades will be required to work collaboratively among them without ever having worked together before. Since each trade is an autonomous business unit with specific agendas and interests towards a specific scope of work to perform, they do not have any motivation for a cooperative work between trades. Each trade is designed to deliver specific and specialized functions and parts, and for these reasons the willingness to change their way to deliver work will be minimum, and they will do their best to secure profit for themselves. Under these circumstances these types of organizations are organized more towards the need to control, in which trust is not a prevalent attribute.

Another discrepancy observed between the two models in question is related with the degree of training delivered by each model. On Druckers model, training is delivered for a group of different trades focusing integration and collaboration of all parts to accomplish successfully one stage of the project.

Trust is naturally built into these teams due to inter-relationship between different skills in which all members know one another. On the contemporary construction business model, training is delivered specifically towards one specific skill of one specific trade, and then different trades are challenged to work collaboratively to delivery work towards one stage of the project. Distrust is naturally built in this model of organization once different trades that do not know one another are required to work together.

The level of trust of the general public towards construction trades shows a consistent trend to be low among the years. As discussed before, the lack of integrity displayed by construction players seems to be the main reason for this perception. Integrity in construction has the meaning to perform what has been promised, in terms of excellence in quality, delivery time and above all a fair price. Promises that cannot be delivered should never be made, the level of clarity and honesty in discussing all problems (good news and bad news) should be a standard in a construction organization, treat the client as you would treat your mother by adding value in your final product is an excellent way to build trust in the relationship of constructors/clients. Honesty in dealing with all actors of the construction business should be a norm, not an exception in all phases of the construction process.

8. Conclusion and recommendations

The results of the comparative analysis between the two construction models shows that contemporary construction organizations are not designed to build trust due to the nature of their work organization. The work is usually divided in parts and the utilization of integrated teams to perform the stages of the constructive process is not prioritized. The level of training of the work force towards excellence, integration and moral values is low. The level of integrity of contemporary organizations is low when compared with other organizations. In order to replace distrust with trust among construction players the following recommendations are suggested:

1. When the work is organized by stage skills it leads to the formation of integrated teams populated with multi-tasks skill members trained to perform the same work. The learning curve is reached more rapidly and trust will be built naturally due to the observation of each team player in action committed to reach the same goal. For this reason organization of work by stage skills should be selected if an organization desires to implement trust among workers.
2. As mentioned by Handy (1995) trust based organizations need to reengineer their work by avoiding the division of work in parts. The use of homogenous stages brings the advantage to incorporate different trades required to accomplish one specific benchmark in the construction process. For this reason trust can be naturally implemented by working with integrated trades incorporated into one team where work is organized as a whole, versus the use of several different trades working independently, in which work is divided into parts.
3. Organizations based on trust need to learn how to be flexible in response to the society changes. Flexibility is one of the attributes of building trust in an organization, and for this reason contemporary construction organization will need to reverse the identified existing trend of high resistance to change.
4. Training the work force to reach integrity in their day-by-day activities is a mandatory action to improve and establish trust among all construction players of a trust organization. For this reason a moral set of values should be incorporated in the traditional core of training.
5. Integration of different trades should be under the same umbrella of a construction organization sharing the same moral and technical values to increase trust internally and externally by their actions.

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