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HAL Id: hal-01702143

https://hal.inria.fr/hal-01702143

Submitted on 6 Feb 2018

Effect of Social Media on Trust in Virtual Project Teams of Construction Sector in Middle East

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Abstract

Social media has greatly affected the way the virtual teams in construction sector of UAE collaborate and share information among each other. The social media is needed to support synchronicity, a shared pattern of coordinated behavior among individuals as they work together. Research shows that, although computer-supported collaborative work has increased, many distributed virtual teams are facing a number of issues in managing and controlling the teams which leads to distrust among the team members. Trust among virtual team members is considered to be one of the primary concerns that affect the performance of virtual teams in Construction Sector. This paper is a result of literature review of around 150 papers which dealt with positive and negative effect of social media interactions on trust among virtual team members. Through Literature review, it was found that conflict and cohesion within the team members greatly affects the role of communication on trust among virtual project team members.

Keywords: Collaborative tools, Middle East, Construction Sector, Virtual Teams, Trust, Performance, Social Media

1. Introduction

The United Arab Emirates (UAE) has become the destination for many multinational companies attracted by the massive development programme, especially that in construction. The continuing market pressure for construction industry to achieve reduction in costs, improvement in quality, and reduced time to market, is becoming a threat. With the latest technologies, regulations, global alliances and changing customer needs, many organizations have adopted global virtual project teams for their business activities [15].

Social media's effect on virtual teams' ability to interact and communicate is visible throughout all areas of society. It's been found that there has been a shift in the way project teams communicate, rather than face to face interaction, they prefer mediated communication. Various studies have shown that interactions on social media tend to be weak ties—that is, project team members don't feel as personally connected to each other as at the other end of communication as they do when they are face to face [32].

Due to the pressure from globalization, it is becoming necessary for construction organizations to adopt virtual project teams in order to deal with the challenges of the contemporary business environment [8]. Implementing virtual project teams successfully within the construction context requires an in-depth understanding of the unique challenges that are not necessarily akin to the challenges encountered in face-to-face teams [20]. Against this backdrop, construction literature has been criticized for the scarcity of studies conducted about virtual project teams [9] [20].

It has been found that the failure of virtual project team is directly related to the difficulties of building trust and positive relationships across the three boundaries of geographical distance, time zones, and cultural differences [25]. Trust increases the motivation of the team members which help them to share information among them which is needed for greater performance of the virtual team. Virtual project teams face particular challenges involving trust, communication, deadlines, and team cohesiveness [20]. The building of trust becomes even more critical because the virtual teams work in different geographical locations and rely on social media for their day to day operations. The communication between the virtual team members play very strong role in building trust in virtual team members. Therefore, this paper focuses on the role of communication in building trust in virtual teams of construction sector in Middle East after doing a comprehensive literature review.

Following this introduction, the remainder of this paper will be organized as follows: In section 2, we present the need of virtual project teams in construction sector along with its definition, types of virtual teams and layers of trust in virtual teams. Section 3 discusses about the challenges faced by the virtual project teams. The issue of trust in virtual teams is discussed in section 4. Section 5 deals with effect of communication on trust among virtual team members.

2.   Need of Virtual Teams

The construction industry has been facing continuously increasing and sophisticated demands, which call for most efficient use of resources [39]. Project life cycles are shrinking virtually in all areas. In response to this, the construction industry has evolved, with the fragmentation of the production responsibilities into many sub-processes split amongst many participants, who belong to different organizations with different policies, objectives and practices [4]. For this to happen, the construction industry has to rely on foreign skills and technologies leading to the evolution of virtual teams. Such teams are expected to comprise of capable individuals representing the relevant departments in the organization as shown in figure 1.

Figure 1: Concept of Virtual Project Teams in Construction Industry [Source: www.tes.com]

The following reasons are stated for the possible need of virtual project teams in any construction project [23]:

- The specific competence(s) needed is/are not available in the nearby area.
- Procurement of the projects design phase has resulted in the project involving participants that are geographically distributed.
- Material suppliers are non-local and their specific product influences the design of other disciplines.
- The client is non-local and is not represented locally by an agent.
- The project is a joint venture between different companies located in different geographical places.

For the construction industry, distributed teams could be defined as "groups of geographically, organizationally and/or time dispersed intelligent workers with different skills and in different positions of the hierarchy heavily relied on ICTs to accomplish engineering tasks which for all are held accountable" [20, p.1103]. From the perspective of [27], virtual teams are groups of individuals collaborating in the execution of a specific project while geographically and often temporally distributed, possibly anywhere within (and beyond) their parent organization.

2.1 Types of Virtual teams

Generally, the virtual project teams can be differentiated depending on the number of persons involved and the degree of interaction between them [15]. The different forms of virtual teams are clarified by classifying it with respect to two primary variables namely: the number of location (one or more) and the number of managers (one or more) [7] [29]. Therefore there are four categories of teams:

- Teleworkers: A single manager of a team at one location.
- Remote team: A single manager of a team distributed across multiple locations.
- Matrixes teleworkers: Multiple manager of a team at one location.
- Matrixes remote teams: Multiple managers across multiple locations.

Additionally, in their book 'Mastering Virtual Teams', the virtual teams have many different configurations and that they can be categorized into seven basic types of teams: project or product-development teams, which are the focus of this research, networked teams, parallel teams, work or production teams, service teams, management teams, and action teams [14, p 4].

Our focus in this research is virtual project development teams. These teams are geographically distributed and may operate from different time zones. Project development teams are mainly focused on creating new products, information systems or organizational processes for users or customers. For our purposes, vendors and customers are not included in the definition of a virtual project team. If one were to include these two categories of team members in the definition of a virtual project team, almost 100% of project teams would be distributed or virtual. Virtual project teams can be further characterized as having dispersed team members, knowledge, systems and workplaces, and as having a charter to make decisions [37, p 4]. In other words, a virtual project team can cross time, distance, and organizational boundaries and make decisions to meet task goals. Team members may rotate on and off a project as their expertise is needed. This is often done in order to reduce project costs and efficiently utilize employee time and skills across the organization [14, p 7].

2.2 Layers of trust in virtual teams

The trust is a multi-dimensional concept that originates from different routes. Trust is developed at many levels [48] from societal to industrial, organizational, project and inter-personal. The development of inter-personal trust [35] between key team members [41], but contextual data and other studies showed that there were a variety of contexts that impacted the levels of trust in inter-personal context.

- The Organizational trust context is driven by the norms and values of the organization. Trusting organizations are those that trust their own staff [53], supporting a no-blame culture [58]. Individuals within these types of organization have the authority to act and respond flexibly to partners in the project context, key issue for the development of trust [5].
- The Inter-personal is a trust that occur between two individuals. Inter-personal trust between individual can be seen to start from two aspects of trust: global trust [10], which may be considered an individual's propensity to trust generated from wide variety of factors, and emotive trust [13], which is an individual's non- cognitive assessment of another individual on initial meeting.

In the light of the literature review on trust, it is proposed that trust be categorized into System-based, Cognition-based and Affect-based [59]. The formation and maintenance of trust in virtual teams are often temporary, depending more on the cognitive element than the affective element [33].

3. Challenges faced by virtual project teams

While there are great advantages that come with the adoption of the virtual teams, new challenges rise with them [44]. Evidence has demonstrated that overlooking the challenges facing distributed teams and failure in tackling such challenges would end up in disappointing results with distributed teams [38]. Virtual team may allow people to collaborate more productivity at a distance, but the trip to coffee corner or across the hallway to a trusted colleague is still the most reliable and effective way to review and

revise a new idea [17]. Some of the problems that virtual project teams experience include the following: time delays in replies, lack of synergy among cross-cultural team members, communications breakdowns due to cultural variances, unresolved conflicts among culturally different members, different holidays [55]. The key findings reported by [54] were the challenge of leadership, managing virtual aspects of communication and developing trust. Further to this, it is understood by the literature that virtual teams face particular challenges involving trust, communication, deadlines, and team cohesiveness [20].

From the literature, the researcher has understood that there are social, technical and structural issues involved in the operation of the virtual teams which are discussed as follows:

- **Trust:** The issue of trust is very important particularly in the context of virtual teams because virtual team members are "geographically dispersed" and lack "shared social-context" and "face-to-face encounter" that are considered by many researchers as irreplaceable for building trust and repairing shattered trust [30]. Trust development in virtual teams presents significant challenges because it is difficult to assess teammates' trustworthiness without ever having met them [36]. Moreover, as the life of many virtual teams is relatively limited, trust must quickly develop [30].
- **Communication:** Because of the distributed nature of their work unit, virtual team members have to rely heavily on information and communication technologies [50]. The selection of the right technology is considered very important for most effective communication in virtual teams. As noted by [21], "if technology is the foundation of the virtual business relationship, communication is the cement" [21, p. 33].
- **Team Cohesiveness:** Cohesion is an important aspect of the virtual team. When compared to traditional team members, virtual team members generally report weaker relational links to teammates [36] [56]. These results are attributed to the significant reliance of virtual teams on electronic communication and the difficulties associated with such communication modes [52].
- **Diversity or Group Heterogeneity:** Virtual teams cut across organizational culture, national cultures, and functional areas. These all add to diversity or group heterogeneity, which may result in increased conflict among team members and less effective performance of the team [42]. One key reason for the use of functionally diverse teams may be because of external knowledge sharing. Team members who exchange information, technical knowledge, and feedback with those outside the team may be able to enhance the performance of the team [12]. Empirical research, however, has shown that diversity can be either a positive or a negative force on a team, both by helping and hindering team processes and performance [34] [57].
- **Leadership:** Managing the virtual team is a task in itself. Team leaders and supervisors must be aware of particular issues in order to avoid any potential problems [8]. In building the virtual corporations, the managers must be able to understand the diversity in international cultures so that understanding the trait is a success [40]. In addition, ineffective leadership [24] and cultural differences [24] [49] have been found to negatively impact communication effectiveness.

4. Issue of Trust in virtual teams

The Middle East is a multicultural region with people coming from various backgrounds and different countries to work on various kinds of projects, and hence, it's very important to understand the phenomenon of these groups who relate across multiple cultures. Trust between project participants is clearly an important ingredient when working in a virtual project team. It is considered as one of the primary concerns that affect the performance of virtual teams. A great deal of literature has pointed to the importance of trust as a facilitator of positive relationships among project stakeholders. It is generally assumed that a critical factor in the successful completion of a project is trust in fellow team members to deliver their share of the work on time and with sufficient quality [22]. Trust has become a key research area within construction management, as well as in the wider business and management literature. In construction industry, the challenge of building trust, team identity and team cohesiveness has to be critically evaluated in order for the successful operations of virtual project team [8].

Trust has been defined as the "willingness of a party to be vulnerable to the actions of another party, based on the expectation that the other will perform a particular action important to the person in whom trust is placed, irrespective of the ability to monitor or control that other party" [33]. Trust is defined in terms of the faith and belief in another individual or group that the relevant party will fulfill expectations in the future [32]. Trust is the most difficult issue associated with virtual teams [18]. Trust can depend on situations and have its limitations. In some relationships, trust is only dependent on simple basic variables but as relationships mature and members get to know each other, individuals learn to trust or distrust the team members according to their characteristics [28]. Building trust is not an easy task. It is probably the most complicated issue in forming a successful and effective team [60]. With distance between team members, trust must be earned in order for the team to work. Trust and relationships between group members' increases creativity and critical thinking, as well as creating a more positive environment [45]. Trust encourages members to devote time to projects, keep their focus on joint objectives, help each other, and work harder [26].

Trust is especially important in cross-disciplinary work setups, as those during the design phase of a construction project. This due to that many sub-tasks are interdependent of each other and the team members are then forced to trust the other team members' competence to perform the interdependent tasks in such a way that the final product meets the expectations of the client [61]. Studies by [30] suggests that trust in geographically distributed virtual project teams are very fragile compared to the trust between members of co-located teams. Virtual team failure is directly related to the difficulties of building trust and positive relationships across the three boundaries of geographical distance, time zones, and cultural differences [25].

5. Effect of Communication on trust among virtual teams

The virtual environment presents considerable challenges to effective communication including time delays in sending feedback, lack of a common frame of reference

for all members, differences in interpretation of written text, and assurance of participation from remote team members [11]. Thus, teams operating in the virtual environment face greater obstacles to orderly and efficient information exchange than their counterparts in the traditional context, a difficulty that is compounded when the virtual team is global in nature.

Team member communication was analyzed on the effectiveness of virtual teams and indicated that the most satisfied team members were in virtual teams with effective coordination and communication [43]. It is also indicated that teams performed more effectively when members developed effective communication norms, communication technology usage norms, and the like. The communication among virtual team members can be either Synchronous (Chat, Net meeting) or Asynchronous (email, electronic bulletin boards). As per studies by [6], there are mainly three barriers to communication in a project. These are (1) difference in language between business and systems, (2) difference in perception and (3) lack of a project communication plan. Controlling these aspects of communications is of utmost importance for project managers for successful completion of the project.

The development of trust is linked to increased communication among members [22]. The communication aspect of team members consists of communication tool and type used by the team members. It also deals with variation in time difference and holidays for the geographically dispersed teams and requirement of training by the team members of the virtual project teams. Managers can send employee for training to acquire skills and experiences that will make them good team players [2]. The training could allow employees to experience the satisfaction that teamwork can provide. The training could be in the form of workshop to help employees improve their problem solving, communication, negotiation, conflict management, and coaching skills.

The effective use of communication, especially during the early stages of the team's development, plays an equally important role in gaining and maintaining trust [3]. Communication is an ongoing challenge in virtual teams, difficulties are intensified when the team members are globally distributed [36]. Furthermore, mutual understanding within the team diminishes and overall understanding is hampered when a shared language is lacking among members, and communication becomes more strained when some members are co-located while others are geographically distributed [11]. Virtual teams that send more social communication achieve higher trust [30] and better social and emotional relationships [46]. Trusting team members where there is little to no relationship can be difficult [47]. Compared with face- to-face teams, distributed teams exhibit weaker relational links among team members [56]. Researchers attribute the weaker relationships to the significant reliance on communication tools and technologies and the difficulties of communicating with team members across time and space [43]. The high reliance on technology to communicate also contributes to lack of cohesion among team members [56]. However, greater cohesiveness may be achieved over time and as more social cues are exchanged among team members [8]. Research also indicates that as teams become more efficacious with the communication technologies, higher levels of trust tend to develop among members [22].

Dispersed members often assume that co-located team members are talking and sharing information that is not communicated to them and private exchanges has been identified as the cause of friction between team members [11] [49] which results in conflicts among virtual team members. The characteristics of communication technology, especially in a virtual team, may contribute to team conflict [1]. Thus, the very nature of the electronic exchanges within virtual teams may be a source of conflict; when the level of information richness is low because of a lean medium of communication. The end result may be confusion, differing interpretations, and ultimately conflicting points of view. The "richer" means of communication such as face-to- face interaction are more effective in task and conflict resolution, as compared to 'leaner' means of communication as in virtual teams where merely exchange of written words or only vocal exchange of information is possible [51].

Therefore, this study through the above discussion and extensive literature review concludes the following points containing the effect of communication on trust:
- *Conflict among team members of virtual team decreases the positive effect of communication on trust in virtual project teams.*
- *Cohesion among team members of virtual team mediates the positive effect of communication on trust in virtual project teams.*

Conclusion

Strong business and social pressures are driving the adoption of virtual team working. Though virtual teams offer many benefits to organizations striving to handle a more demanding work environment, they also present many challenges and potential pitfalls. While awareness of these issues can result in improved coordination, distributed work introduces huge coordination overheads. Cross-functional cooperation and effective teamwork are some of the crucial ingredients for making these virtual teams work. Trust among virtual team members is considered to be one of the primary concerns that affect the performance of virtual teams.

One of the main contributor in developing trust among virtual teams is role played by social media. The kind of communication tool and its frequency greatly effects the trust among team members of virtual teams. This paper discusses the challenges faced by the virtual project teams focusing on the trust, which greatly affects the performance of the virtual team. Further, this paper yields the result of comprehensive literature review of technical papers, on the effect of communication on trust among team members of virtual teams of construction sector in the context of Middle East and proposes the two hypothesis showing the effect of cohesion and conflict on the role of communication on trust among virtual project teams.

Limitations and Future Scope

The limitation of this study is that we have identified the various factors effecting the trust in virtual teams through extensive literature review and pilot study needs to verify the actual factors. The conceptual model developed in this research is based on the

variables extracted from the literature further improvement in the proposed model would include:

- Data collection through online survey and quantitative analysis of data through SPSS software.
- Development of Trust model by using Structural Equation Modeling (SEM) using AMOS Version22 software.
- Developing a hierarchy system by using Interpretive Structural Modeling (ISM) and Interpretive Ranking Process (IRP) to see the relative importance of the factors needed for building trust in virtual teams.

It is our belief that these findings will provide an important step in studying how trust in virtual team members can be enhanced which will lead to increase in the performance of virtual project teams.

Acknowledgements

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