
Building Trust within Virtual Projects ¹

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Abstract

The world is becoming more digitized and digitalized; thus more virtual projects. This paper explores and discusses some issues in building trust in virtual project teams, like cultural differences, geographical distance, language barriers, time zone and how that effects the creation and maintaining of trust in that type of project teams. Nevertheless, to what extent is trust needed in the building of virtual teams? Moreover, how can we define it in this situation, is it created or already existing? In addition, if it is created should we think about how to maintain it? And to what extent the virtual teams experience swift trust and how can that help to achieve the goals correctly or may affect negatively on the project success? We may also list some negative or positive effects of type of leadership on the building of the trust among the individuals of those teams. We should notice that these kinds of teams may have only electronic mediation between them, so what is the effect of virtual communication tools on them and how does that contribute in the trust building or maybe opposite case lead to trust shattering?

Furthermore, as the subject of virtual project is recent one from the academic perspective, how can we interpret that, is it something that existed before but now comes to the surface because most organizations are adopting it, or is it something that we created to be used in the nowadays organizations? However, let us focus more about trust in virtual projects and teams, its existence, and building and sustaining it.

To go a little deeper in this topic and explore those challenges, this work has been done based on some academic works, introducing some trust models and including some empirical findings found in some previous researches and publications.

Key words: virtual projects, virtual teams, building trust, swift trust, leadership, communication.

1. Introduction

Nowadays, information and communication technologies changed our life style in general, and particularly our professional life style. Many things have changed, in the way companies make their employees do the work; the existence of information and communication technologies lead global companies to adopt the virtual project teams as norm in their work. However, how can we explain that? Is it a choice, in the objective to make the outputs more efficient and the outcomes more effective, or is it by obligation due to the geographical distancing reason.

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Several new industrial paradigms have emerged in recent years as an answer to the fast changing socio-economic challenges, such as the virtual manufacturing, lean enterprise, agile manufacturing, Fractal Company, and holonic manufacturing. Introduction of these concepts in enterprises has made them face successive “waves of restructuring” during the last decades. Emergence of the virtual enterprise / virtual organization paradigm falls in the natural sequence of these restructuring processes, enabled by the “explosive” developments in the information and communication technologies. The need to remain competitive in the open market forces companies to seek “world class” status and therefore, to concentrate on their core competencies while searching for alliances when additional skills / resources are needed to fulfil business opportunities.

These ideas had a more evident impact with the booming of the “outsourcing” wave in the 1980s. Outsourcing became very attractive when managers had to reduce the organization overheads and eliminate the internal inefficient services, the so called lean manufacturing, as it transfers the problem to the outside, namely other efficient service providers. For many enterprises, outsourcing some services allows them to concentrate on their core competencies. For others, outside contractors simply provide complementary services for which the company lacks adequate internal resources or skills. (Luis and Hamideh, 2005).

So the existence of virtual organization is due to the existence of information and communication technologies which leads to the existence of virtual projects, and from their part lead to the existence of virtual teams.

The term “virtual organization” has been used and widely defined in the management literature since 1990. The major future of this organization is flexibility. Virtual teams are spinal coral of these organizations, which are considered as the most important type of virtual organization. (Kaboli *et al*, 2006).

Microsoft uses virtual teams to support major global corporate customer sales and post sales services as do other organizations that service global clients with interdependent customer needs crossing country boundaries (Tractinsky and Jarvenpaa, 1995).

Virtual teams promise the flexibility, responsiveness, lower costs, and improved resource utilization necessary to meet ever-changing task requirements in highly turbulent and dynamic global business environments (Mowshowitz, 1997).

From these statements, we can understand that the existence of virtual project teams is more about adding value to the organizations, which are adopting this concept in managing their projects. Nevertheless, to which extent that concept can function and give the desired outcome by the missing of the face-to-face interactions. Is there any secret to maintain effectiveness of these type of teams rather than the traditional teams.

In this paper, I will focus more on global virtual teams as illustrated in figure.1 in the next section, more or less on the virtual teams whose members are separated by location and/or culture and they are mediated by information and communication technologies. Nevertheless, I need take on consideration the language and the time zones. However, managing of global virtual teams

requires a rare combination of talents like great leadership skills and the ability to manage high degrees of complexity.

Many researches have been done on the limit of using virtual project teams and their contribution for the success of projects, most of them concluded that trust is one of the key successes factors that reduces the negative effect of the distancing and the cultural differences. Including to those two, finally yet importantly, the languages barriers and the asynchronous communication.

Trust is a significant key performance indicator for the collaborators and their reciprocities, positive expectation and foresight are base concepts so that all may feel secure when it comes to the risk of a negative consequence and vulnerability. The clear definition of the objectives, the emphasis in internal communication, the manager as an example and model, and the worthiness of the people become the main care and practice in order to obtain better trust in virtual teams (Nakayama *et al.*, 2006).

Finally, it does not mean if the project manager is highly experienced in the traditional projects, that he can also lead the virtual projects to the success. The complete change of the context and the environment must be taken into consideration and he/she should be aware about the interpersonal factors, where trust is one of the most important. The virtual project manager should know how to develop the existing trust or create it, depending on the situation and how to sustain it in those virtual teams.

2. Literature review

2.1. Virtual projects and virtual teams

Krill and Juell (1997) define virtual project as collaborative effort towards a specific goal or accomplishment which is based on a ‘collective yet remote’ performance.

The existence of the virtual teams is due to the existence of virtual projects, which is due to the existence of virtual organizations. That is why we should define the virtual teams, as it is the reason for the existence of the last. To describe virtual teams, we should refer to some issues, as identified by Peterson and Stohr (1999). Virtual teams are a group of individuals who work across time, space and organizational boundaries with links strengthened by webs of communication technology, they have complementary skills and are committed to a common purpose, have interdependent performance goals, and share an approach to work for which they hold themselves mutually accountable. They are defined also by Jarvenpaa and Leidner (1999), groups of geographically and organizationally dispersed knowledge works brought together across time and space through information and communication technologies on an as needed basis in response to specific customer needs or to complete unique projects. Virtual teams work across boundaries of time and space by utilizing modern computer-driven technologies. The term “virtual team” is used to cover a wide range of activities and forms of technology-supported working, as defined by Anderson *et al.* (2007). From the perspective of Leenders *et al.* (2003), 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.

Amongst the different definitions of the concept of a virtual team the following form is one of the most widely accepted by Powell *et al.* (2004), “virtual teams as groups of geographically, organizationally and or time dispersed workers brought together by information technologies to accomplish one or more organization tasks”. The degree of geographic dispersion within a virtual team can vary widely from having one member located in a different location than the rest of the team to having each member located in a different country (Staples and Zhao, 2006). From all the above definitions, we can extract some common points, which are time, space and communication links. Now, let us go back to the Kristof *et al.* (1995), and how Jarvenpaa *et al.* (1998) define them. We distinguish that there are 12 types of teams, depending on three dimension which are: the context where the individual are working in, like the location and cultural differences; the interface model dimension where we can differ between three criteria which are face to face communication, electronically mediated and last one is the mix between both; last dimension is the type of the group, is it permanent or temporary one. Nevertheless, when the three dimension intersect in there extremes respectively we will have global virtual teams. Following Kristof *et al.* (1995), a global virtual team defined to be a temporary, culturally diverse, geographically dispersed, electronically communicating work group (Figure 1). The notion of temporary in the definition describes teams where members may have never worked together before and who may not expect to work together again as a group (Jarvenpaa and Ives, 1994). The characterization of virtual teams as global implies culturally diverse and globally spanning members that can think and act in concert with the diversity of the global environment (DeSanctis and Poole, 1997). Finally, it is a heavy reliance on computer-mediated communication technology that allows members separated by time and space to engage in collaborative work.

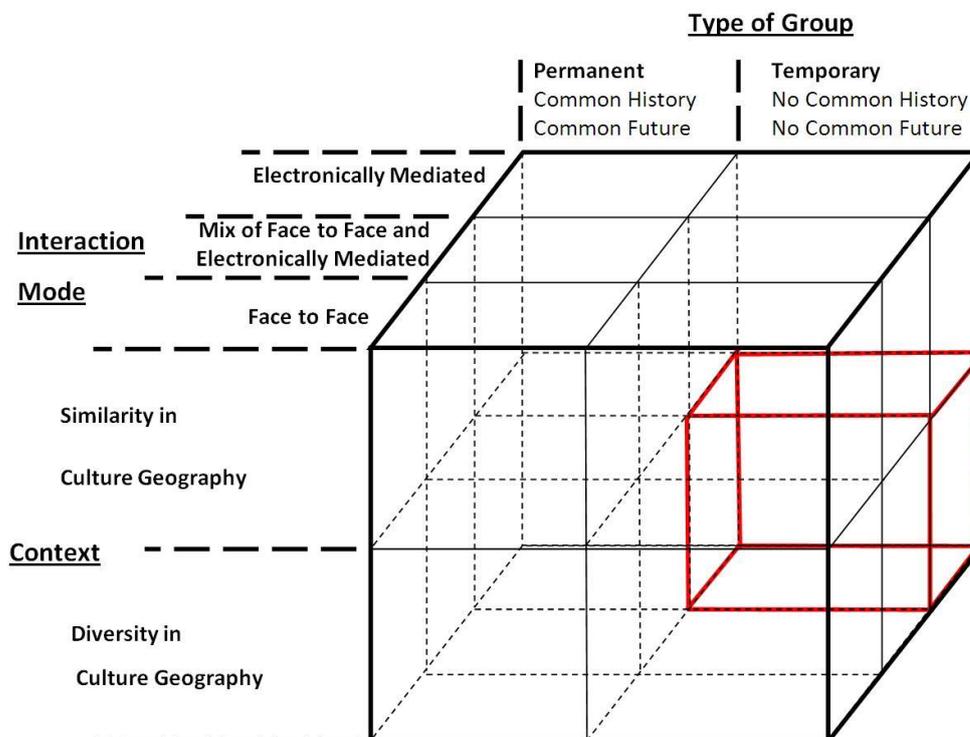


Figure 1 Global Virtual Team (Jarvenpaa et al, 1998)

2.2. Trust

“Trust is a peculiar resource; it is built rather than depleted by use.” Anonymous

Trust comes from the German word “*trost*”, which suggests comfort. The concept of trust has recently received significant attention from management researchers (e.g. Tyler, 1996; Rousseau *et al.*, 1998). The importance of trust and understanding how trust shapes social relationships have long been a central focus for sociologists (eg. Misztal, 1996), political scientists (Barber, 1983) and anthropologists (Ekeh, 1974). Researchers view trust as a foundation for social order. Many researchers however see the notion of trust as the most difficult concept to handle in empirical research because of the diverse definitions of trust used in each discipline and the multitude of functions it performs in the society (Misztal 1996). Early research defines trust in terms of individuals’ expression of confidence in others’ intention and motives (Deutsch, 1958). More recently, researchers perceive trust in terms of optimistic expectation of behavior of another (Mayer *et al.*, 1995), rather than in terms of intentions and motives of early research. Giddens (1990) defines trust as “confidence in the reality of a person or system, regarding a given set of outcomes or event”. Nonetheless, Rousseau *et al.* (1998) claim that there is no universally accepted scholarly definition of trust.

Sociologists claim that trust performs a multitude of functions. For example, it can be a silent background, sustaining a smooth running of cooperative relations (Misztal, 1996). It can help individuals to reconcile their own interests with those of others. Trust is therefore seen as fundamental to all aspects of social life. On the other hand, Giddens (1990) argues that with globalization and the restructuring interactions across undefined spans of time-space, trust that is traditionally secured by community, tradition and kinship is increasingly vested in abstract capacities characteristic of modern institutions. Trust within organizational groups and teams is a much more complex phenomenon as teams involve multiple, interdependent actors. It is because of this interdependency in team interaction, that some element of trust has to be present for its effective functioning. Rousseau *et al.* (1998) claim that there are different forms of trust. They argue that the various forms trust can take and the possibility that trust in a particular situation can mix several forms together, account for some of the apparent confusion among scholars.

2.3. Swift trust

Swift Trust is one concept worth digging into to help answer the question of differentiation.

Trust applies to all teams. Teams lacking trust do not function effectively; they hoard information, seek self-serving interests over the good of the many, and end up in defeat. Teams with trust, however, rise above challenges, they build each other up, and contrary to many, and they can be extremely successful.

Trust is needed in both virtual and in-person teams but what is different for virtual teams is the concept of swift trust. That is, you afford someone trust on a limited basis, with whom you have not met in person. Basically, allowing them the ‘benefit of the doubt’ until that trust is breached. Trust is built through consistent behavior and delivery. For virtual teams, trust that begins ‘swiftly’ needs consistent nurturing (Kohrell, 2011).

Swift trust is a concept relating to temporary teams whose existence is formed around a clear purpose and common task with a finite life span. Its elements include a willingness to suspend doubt about whether others who are "strangers" can be counted on in order to get to work on the group's task and a positive expectation that the group activity will be beneficial. It is built and maintained by a high level of activity and responsiveness.

Swift trust occurs when a diverse group of experts are brought together in a temporary organization such as a virtual team created for an urgent project. It is especially prevalent when the team is required to deliver a result that requires interdependent working and there are significant external pressures. The team has to work out their differences on the fly and "blindly" trust one another to do their jobs simply because there is no alternative. In these circumstances, team members tend to exhibit behaviors that presuppose trust. Each person knows they are trustworthy and assumes they can trust the others. Therefore, the team simply acts as if trust is present even though there has been no opportunity to develop the more traditional forms of trust. This is swift trust, and although it can be a powerful force, it is fragile and easily broken. Activity contributing to the team's common goal, professional behavior and an effective team leader allow swift trust to develop. However, it will only last as long as everyone behaves in a trustworthy way. One aspect of developing swift trust is the presence of recognized expertise. We tend to trust modern medicine and therefore tend to trust doctors. Very few people when rushed into hospital in an emergency want to check the credentials and the doctors' records of accomplishments, those working to save their lives. They trust the hospital to provide competent doctors to provide the needed care. Another aspect is a clearly defined objectives and clearly defined roles and responsibilities. The key to developing swift trust is interdependent work focused on a common objective. Each member of the team needs the other's particular expertise for the team as a whole to be successful. Swift trust is not a random occurrence. By understanding the criteria that encourage its development, a manager can create a favorable environment. Then the act of trusting tends to become a self-fulfilling prophecy. By trusting others, we encourage both trustworthy behaviors and engender trust in return. However, as with traditional trust, swift trust can easily be destroyed by untrustworthy behavior. It needs nurturing and support (Bourne, 2010).

Swift trust is an outcome of an ad-hoc or temporary teams that collaborate on important and complex tasks (Meyerson *et al.*, 1996). Trust in this form cannot be developed at a normal pace since the length of time may vary. According to Adler (2007), swift trust normally takes place at the inception stage. Yet it is challenging to do so, because the team members lack the historical backgrounds; composes of culturally diverse memberships, and operates on a complex, task non-routineness and interdependence projects. It is further suggested however that swift trust will enable members to initially look for external sources and perhaps a conducive condition for working together at a distance if the project needs to be completed in a rather short time (Greenberg *et al.*, 2007)

2.4. Trust models

2.4.1. Mayer et al (1995) trust model

Mayer *et al.* (1995) proposes a model of trust (Figure 2) which combines the trustor’s propensity to trust with three antecedents – integrity, ability and benevolence - that are required before trust can exist between two parties.

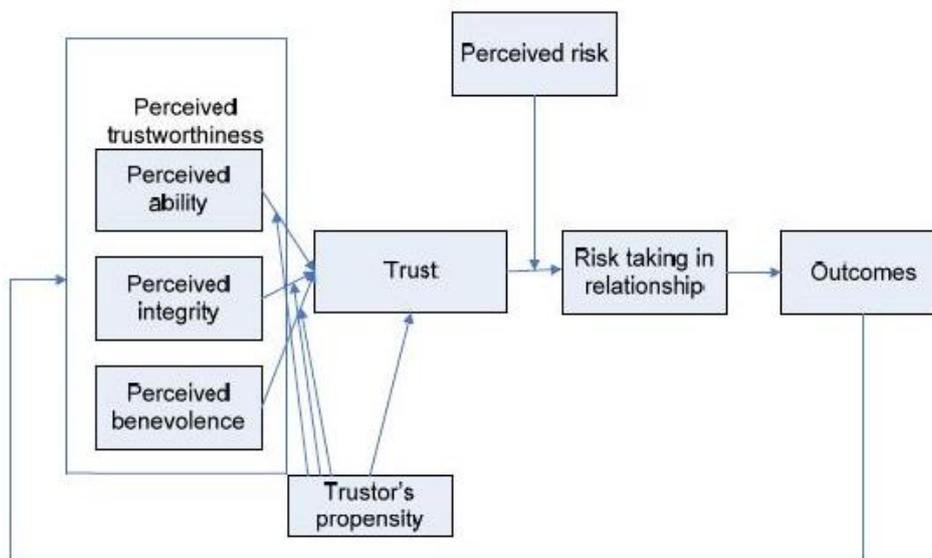


Figure 2 Proposed model of Trust (Mayer *et al.*, 1995)

Ability: The possession of skills or expertise to carry out a task will not only affect other’s perception of trust, will also tend to limit in which domains an individual can be trusted (Mayer *et al.*, 1995).

Benevolence: “Benevolence is the extent to which a trustee is believed to want to do good to the trustor, aside from an egocentric profit motive.” (Mayer *et al.*, 1995).

Situational Strength: The question of “how trust affects organizational performance?” is considered by Dirks and Ferrin (2001); who argue that alongside the traditional “Main Effect” model where trust has a direct effect on organizational processes, a second model of Trust as a Moderator.

It is important to note that trust itself is based on perceptions. While the trustee can build trust, they do not do so directly, but may build trustworthiness by aligning their actions with these antecedents.

2.4.2. Jarvenpaa and Leidner (1999) trust model

Jarvenpaa *et al.* (1999) proposed and tested the model of trust for global virtual teams shown in Figure 3.

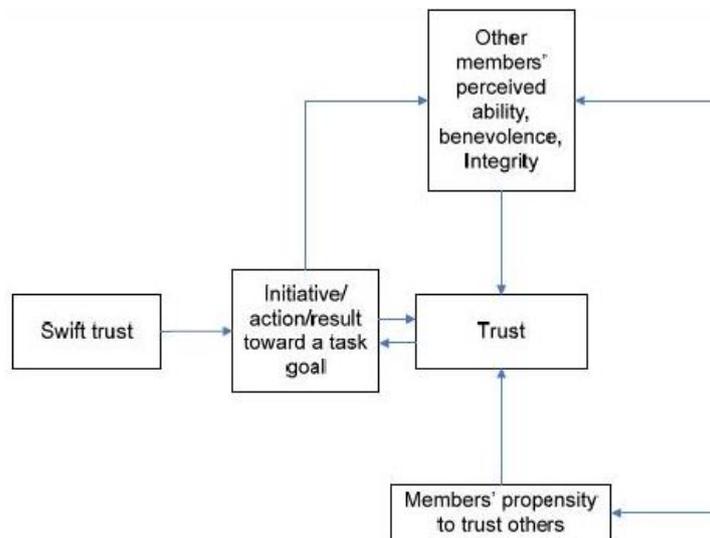


Figure 3 Proposed model of trust (Jarvenpaa and Leidner, 1999)

This model incorporates the concept of swift trust to explain how trust may develop in virtual teams. Swift trust is included as a precursor to an action and results orientation to achieve task goals. The action results oriented as in indirect route to achieve trust within the team. Trust is proposed to be reliant on member's propensity to trust and the perceptions of other member's ability, benevolence and integrity. The evaluation of their model demonstrates distinct differences between high and low trust teams.

2.4.3. Galvin (2000) virtual trust model

Galvin (2000) developed an empirically tested model (figure 4) to study the effects of individual trust on the individual's corporation with other virtual team members.

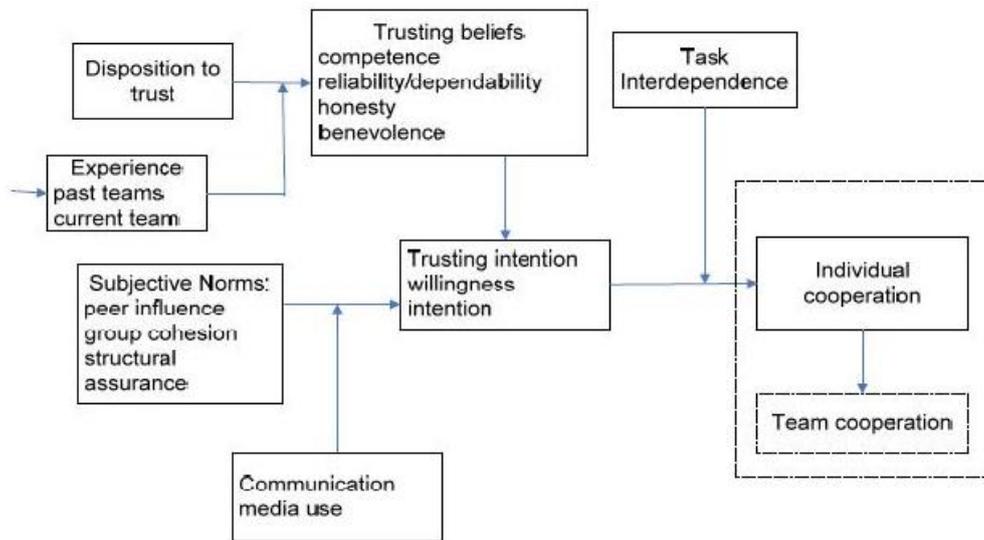


Figure 4 Proposed model of trust (Galvin, 2000)

The model was based on the theory of Reasoned Action “TRA” (Ajzen, 1988), with additional constructs that were considered relevant to virtual teams. The results of studies made Galvin (2000) indicate that trust-related behaviors are more likely to be exhibited when an individual possesses a high level of trusting beliefs and trusting intentions towards other team members. The results also demonstrated that beliefs and intentions could be influenced by personality traits and situational factors.

His model provides support for positive relationships between institutional-based trust and the individual’s trusting intention. The model also provides strong support for the relationship between trusting beliefs and trusting intentions.

3. Discussion

Let us start our discussion with Jarvenpaa *et al.* (1998a) model to illustrate global virtual teams. From the figure 1, we can see that there are three dimensions, type of group (permanent or temporary), the interaction mode (face to face, electronically mediated, mix of both) and the third is the context (similarity in culture geography, diversity in culture geography). Intersecting the three dimensions, we will have twelve types of teams with different levels of virtuality. The point is that the model considers the difference in culture and location as one component. Nevertheless, let us take an example of an organization from country “Y” implementing a project in country “Z”, using individuals from country “Y” but in different locations in country “Z” who will cooperate also with members from country “Y”. Therefore, we have a virtual team with a temporary mission since it is a project, and electronically mediated, since all members are dispersed. However, it is a homogenous team since all members are from the same cultural background but they are in different locations. If we go to the model in figure 1, we will not be able to find such a category of teams that is why I suggest a new model to represent all types of teams as shown in figure 5. Where the difference with the model in figure 1 is to separate the cultural differences from the geographical location in the context dimension, it will give four dimensions with twenty-four types of team.

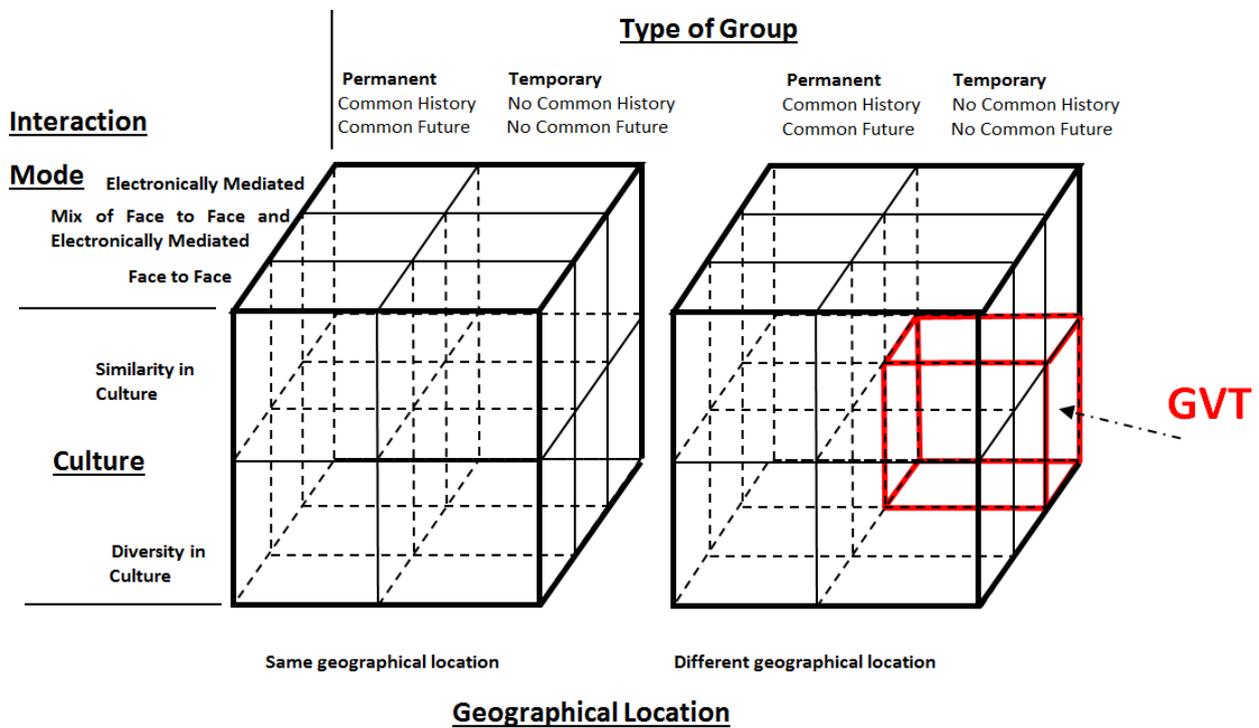


Figure 5 Global Virtual Team (GVT)

Virtual teams fail when they do not have trust. Think of it like this, what if you work on a team where no one has ever met each other, went to lunch with each other, or knew much about each other’s families? For most of the people, they would feel it challenging to have engaged trust. If they were supposed to rely on this “far away person” to help them, they would have to have a leap of faith. Still they may trust him/her, that help to decrease transaction costs of relationships, because people they have to engage in less self-protection actions in preparation for the possibility of others’ opportunistic behavior. It means, if you trust that enables you to take risks, or maybe you may consider that as moral duty, the individual will help you because he/she feels it is the morally appropriate action. There are many definitions of trust, we have given some in the literature section, but in this paper and in the discussion, I will focus more in terms of interpersonal relations.

Before answering my previous asked questions, it will be better to give them representation as shown in figure 6, to reflect more the idea and the aim of this paper.

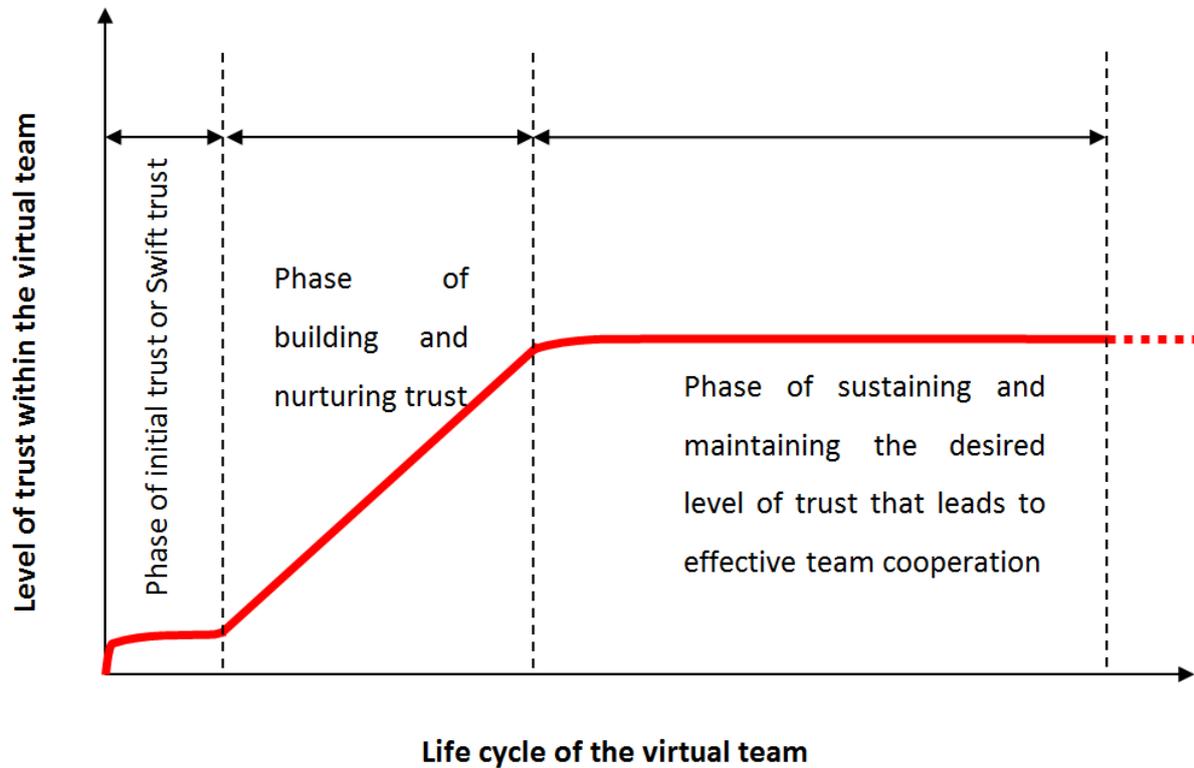


Figure 6 Level of trust in the life cycle of virtual team in ideal case.

Just to mention that the most of the researches and publications combine the phase of building and the phase of maintaining of trust, that is why in further discussion, it is combined in this paper due to the lack of relevant materials, which are taking each phase separately.

3.1. Trust existence in virtual team

Back to our question related to the necessity and the existence of trust in virtual team. If we have global virtual team (Figure 1), should we care about the trust existence among the members of the team or should we consider it as secondary performance indicator in the team building, and care more about other indicators. Trusting others during virtual collaboration provides a new reality for global virtual teams, teams those are engaged in distributed and globally working environment. Trust takes a new perspective because teams need to develop ‘swift trust’ in order to enhance cross-organizational team performance and management with reduced transaction costs and short time, geographical distance, and space. Jarvenpaa *et al.* (1998b), in their case study of the communication behavior and the existing of trust among global virtual teams. they classified the global virtual teams, based on trust, into four categories, high-high, high-low, low-high and low-low teams. High or low represents the level of trust in the beginning of the collaboration and/or at the end of the collaboration; their findings were based on the analysis of these teams.

On one hand, the teams that reported high levels of trust in the beginning and at the end appeared to be more capable of managing the uncertainty, complexity, and expectations of the virtual environment than the teams those reported low levels of trust in the beginning and/or at the end.

On the other hand, the communication archives contained little evidence of the depth of socialization, courtship, and social identification that is traditionally associated with interpersonal or socially based trust. Trust in the high-high and possibly in low-high teams may have taken the form of swift, depersonalized, action-based trust. Trusting behavior may itself have provided the cognitive and emotional basis for the trust that was then captured by self-report on trust, First column in Table 1 resumes the four reasons from communication behavior point of you that helped the existence of trust in early stage.

Table 1 Trust Facilitating Communication Behaviors and Member Actions (Jarvenpaa *et al.*, 1998b)

Communication Behaviors that facilitated trust early in a group's life	Communication Behaviors that helped maintain trust later in a group's life
Social communication	Predictable communication
Communication of enthusiasm	Substantial and timely responses
Member Actions that facilitated trust early in a group's life	Member Actions that helped maintain trust later in a group's life
Coping with technical uncertainty	Successful transition from social to procedural to task focus
Individual initiative	Positive leadership
	Phlegmatic response to crises

But also we should consider that this case study has some limitations, like the leadership, individual personality, group behavior, cultural dimension and more, and their impact on the existing of trust in this type of teams. The traditional conceptualization of trust assumes that trust resides in personal relationships and past or future memberships in common social networks that define the shared norms of obligation and responsibility (Powell *et al.*, 1990; Jarvenpaa *et al.*, 1996). The lack of past and future association decreases the potential existence of trust. The diversity in cultural and geographic backgrounds should similarly challenge the potential existence of trust (Mayer *et al.*, 1995). Finally, Handy (1995) argues that trust needs physical touch, which the current technological context also eliminated.

Individuals from different cultures vary in terms of their communication and group behaviors including the motivation to seek and disclose individuating information and in the need to engage in self-categorization (Gudykunst, 1997). If we first start by defining the concept of in-group versus out-group, they can be contextualized in respect to the cultural values such as individualism versus collectivism (Hofstede, 1980). For collectivistic people, the concept of 'in-group' includes memberships belonging to families and friendship. For those members who are out of the circles

mentioned above, the concept of ‘out-group’ includes strangers and acquaintances. Triandis *et al.* (1988) assert that the relationship between members is normally stable and consistent over time for in-group membership. For individualistic people, they belong to many in-group memberships without discrimination between the in-group and out-group. It was noted that findings from Gómez *et al.* (2000) have confirmed that when a team member is perceived as in-group, the collectivists gave evaluation to the members more generously as compared to individualistic. Moreover, the collectivistic value highly contributions that lead to relationship maintenance while individualistic valued task contributions. One major dimension of cultural variability is individualism-collectivism (Hofstede, 1980). In individualistic cultures, needs, values, and goals of the individual take precedence over the needs, values, and goals of the in-group. In collectivist cultures, needs, values, and goals of the in-group take precedence over the needs, values, and goals of the individual (Gudykunst, 1997; Hofstede, 1980). The research suggests that individuals from individualistic cultures tend to be less concerned with self-categorizing, are less influenced by group membership, have greater skills in entering and leaving new groups, and engage in more open and precise communication than individuals from collectivist cultures (Hofstede, 1980). In addition, the willingness to respond to ambiguous messages, interpreted by Pearce (1974) to be a trusting behavior, has been shown to be higher among members of individualistic cultures than among members of collectivist cultures (Gudykunst *et al.*, 1996). These findings suggest that individuals from individualistic cultures might be more ready to trust others than individuals from collectivist cultures in computer-mediated communication environments.

Finally, previous cultural exposure is an important factor influencing communication behavior (Wiseman *et al.*, 1989). People with high confidence in the knowledge of other cultures tend to be more willing to explore cultural topics. This might suggest that people who are more culturally experienced might seek and disclose individuating information more than those who are not. The social dialog in turn might help introducing trust on the team, at least in the eyes of the culturally experienced person.

Nevertheless, does leadership have any role in the existence of trust in the early stage of the team building? Yukl *et al.* (2002) define leadership as a two-fold process. First, it is the process of influencing others to come to an understanding and agreement about what needs to be done and the best way to do it. Second, it is a process of facilitating individual and group efforts to accomplish a shared goal.

Can we manage, coach or monitor what we cannot see? Some case studies have shown that team members may show swift trust in the early phase, depending on the way that the leader deal with them and communicate with them. Walther and Bunz (2005), in their article the rule of virtual groups, on the verbal and nonverbal cues; the findings show that leaders in organizations will gain more trust with their team members if they use more verbal phrases during chat exchanges. This could be because it demonstrates that the leader is more engaged in the chat and therefore engaging in the swift trust that often occurs with virtual teams. So we can sum-up to answer the question about the existence of trust in early stage of the virtual team, by considering all the sides, Jarvenpaa and Leidner (1999) found four key elements that enhance trust in early stage of virtual teams: 1- social communication; 2- communication of enthusiasm; 3- coping with technical uncertainty; 4- individual initiative. However, we should also consider the cultural differences by considering the members if they are from individualist or collectivist culture. Also without forgetting the way the leader appear to their team in the first sight and the way he/she communicates to them. Iacono and

Weisband (1997) find that virtual teams often develop swift trust or trust that must be assumed in temporary engagements to quickly meet a goal. So how can we develop this swift trust in the virtual team to make it grow to a trust among its members?

3.2. Trust building and sustaining in virtual team

Suppose a virtual team, because of the pressure, they should show some of swift trust among the members. But that trust maybe developed and nurtured till they have settled trust between them, or it may be shattered, since it is weak, especially if there is opportunists and self-interest members, or maybe because many other reasons. Let us see the possibilities to develop trust among members of virtual team.

Nandhakumar and Baskerville (2001) in their case study about developing trust in virtual team, they found that even if personal trust relationships were established, in the absence of colocation, the team members might have found it difficult to maintain them. Virtual team working often leads to unpredictability of the team members' routine practices, fear of isolation, and anxiety. They may be seen as 'forced' to live with trust in impersonal principles and anonymous experts during their work practices. Significant investments are often made into the maintenance of trust relationships through face-to-face interactions and socialization, to sustain reciprocal support and commitment for continuous team working. For practitioners involved in virtual team working or in managing such teams, the insights gained from this study are of value, for example, in broadening their understanding of trust relationships in virtual teams and in developing policies to foster and strengthen trust among virtual team workers in organizations. Nandhakumar and Baskerville (2001) find that trust relationships based on both abstract systems and other participants, are sustained by their continuing reproduction. These findings suggest that there is a need for organizational policies to create conditions for socialization and construct opportunities for active interactions. Such conditions can be achieved, for example, by providing individuals with the necessary resources to become effective contributors in terms of expertise, time and skills, also by providing opportunities to become effective contributors in terms of autonomy and authority.

But this findings has limitations, imagine an organization, with a global virtual team, where members have no common past and no common future, completely electronically mediated in different locations and different culture, where some members missing of individual initiative and cannot be self-governed. It may be hard to achieve that by setting only those conditions.

Locke (2001) for example argues that trust can only be built, through a "sequential process that blends together elements of 'encapsulated self-interest', government intervention, and the development of mechanisms for self-governance and monitoring by the actors themselves". Hence, trust building does involve different aspects, and depends on ongoing direct interaction. Because of the need for interaction is also debatable if the speed of trust-building can be increased.

Going back to Jarvenpaa *et al.* (1998b), they studied the behaviors and actions both in early and later stages of group work, as it is introduced in the previous section. Table 1, later behaviors maintaining trust in global virtual team; starting by predictable communication, which is inequitable, irregular, and unpredictable communication hindered trust. In the case study it was less the overall level of communication, and more than one or two members were responsible for

the majority of the communication and that the communication pattern was unpredictable, that characterized teams ending with low trust. Second, it was substantive and timely response, explicit and prompt responses that the messages were read and evaluated.

Another thing that may affect the building of trust in the team is the leadership. A problem that was common for teams ending with low trust was ineffective and/or negative leadership. The teams exhibited a desire for leadership although no leader emerged. The other teams experienced negative posturing on the part of their elected leader and by other key team members. The leaders of these teams were chosen not based on their greater level of experience than the other members, but apparently because they were the first to communicate or sent the largest number of initial messages. The appointed leaders engaged in negative rather than positive reinforcement, complaining about other members, lack of participation, complaining about too little communication, comparing the team unfavorably to other teams, or sending messages of complaint to the project coordinator. They described the work as "extremely frustrating" and as "frustrating experience." These actions were viewed as betrayals by the other team members and did little to reinforce commitment among the team. By contrast, the leadership role of the high trust teams emerged after an individual had produced something or exhibited skills, ability, or interest critical for the role. Moreover, the leadership's role was not static but rather rotated among members, depending on the task to be accomplished. Those taking leadership roles maintained a positive tone.

The fourth issue that is important in the building of trust is transition from procedural to task focus. Teams which end with low trust exchanged many messages on rules, or procedures. The emphasis on procedures, such as on how often to check emails, helped to provide an illusion of certainty, but in the absence of any mechanism to enforce the rules or even monitor the other members, compliance, any member could reemerge and blame his absence on technological problems. Those teams were unable to move beyond setting rules. In contrast, all teams ending with high trust demonstrated an ability to move from a procedural orientation to a task orientation. Once they began focusing on the task, they were undisturbed by negative comments or by missing team members. The teams were also able to make a successful transition from a social and/or procedural focus to a task orientation.

The fifth and last point in the case study of Jarvenpaa (1998a) was phlegmatic reaction to crisis. All teams with high level of trust at the end of the experiment experienced some turbulence, which could conceivably have permanently disrupted the teams. Yet these teams were marked by an ability to remain phlegmatic during crises. All three teams experienced difficulties related to the choice of a topic for the final project, two teams discovered after they had chosen a topic that other web sites existed covering the same idea; one team had difficulty reaching an agreement over an idea. Another temporary source of turbulence for one team coincided with a sudden change in the communication regularity of the key member and disagreement over the division of work.

If we continue with Jarvenpaa *et al.* (1999), where they tested their model figure 3, they started by making research mode on real global virtual teams as illustrated in figure 7.

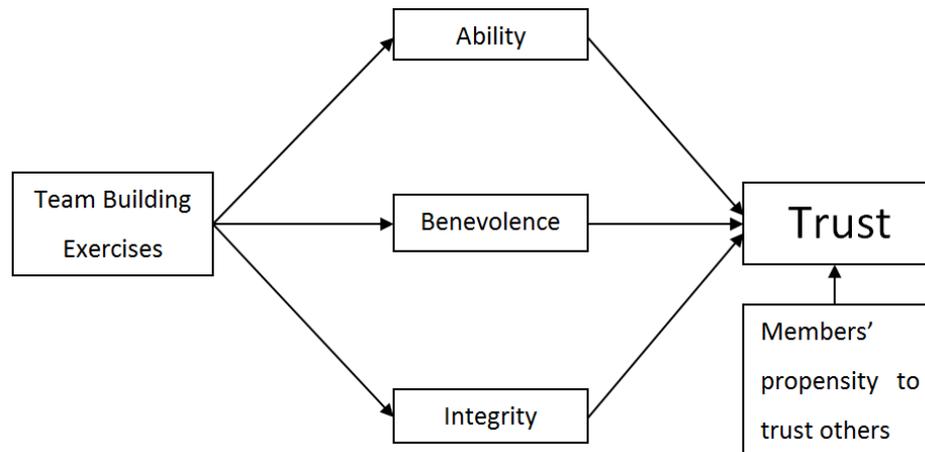


Figure 7 Research model (Jarvenpaa et al., 1999)

From their quantitative results, they found that benevolence takes time to affect trust, but the ability seems to change by time and has big effect on the trust building, and the effect of ability decreases as relationship is established among the team members. In addition, they come up with a pattern-matching approach to infer behaviors and strategies common to the high trust teams but less common or nonexistent in the low trust teams, which are summarized in table 2

Table 2 Strategies between High- and Low-Trust teams (Jarvenpaa et al., 1999)

Behaviors/ Strategies	High trust teams	Low trust teams
<i>Style of action</i>	Proactive	Reactive
<i>Focus of dialog</i>	Task output driven	Procedural
<i>Team spirit</i>	Optimistic	Pessimistic
<i>Leadership</i>	Dynamic	Static
<i>Task goal clarity</i>	Team’s responsibility	Individual responsibility
<i>Role division and specificity</i>	Emergent and interdependent	Assigned, independent
<i>Time management</i>	Explicit/ process-based	Nonexistence
<i>Pattern of interaction</i>	Frequent, few gaps	Infrequent, gaps
<i>Nature of feedback</i>	Predictable, substantive	Unpredictable, non-substantive

Nevertheless, the most interesting finding in this research is that the teams with high trust have exhibited swift trust in the early stage that is after on developed into high trust. However, let us imagine that the virtual team does not exhibit any swift trust in the early stage, does it mean that trust should not exist in the virtual team. Moreover, the case does not provide clear evidence on the relationship between action and the other antecedents of trust (integrity, ability, benevolence and propensity to trust), to summarize the work, trusting action is as much an antecedent of trust

as an outcome of it, the relationship between action and trust appears to highly recursive in a virtual team context.

Let me finish the discussion with normative work of Greenberg *et al.* (2007), where they divided the trust building into five stages as shown in figure 8, and described with details in table 3; they identified the stages from the three components of trust, ability, integrity and benevolence.

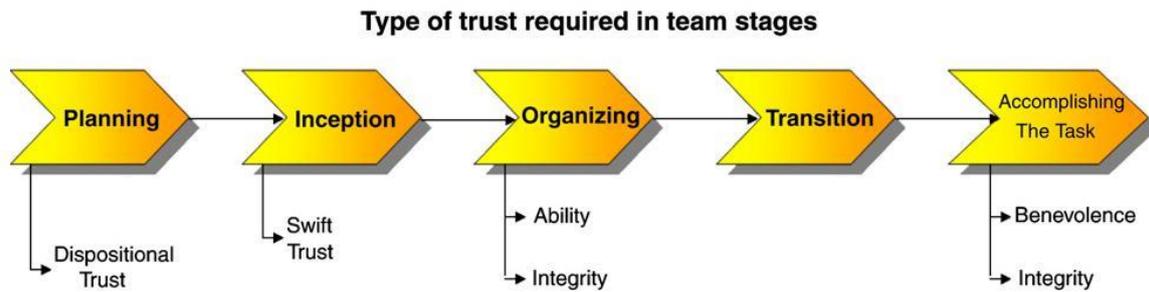


Figure 8 Type of trust required in team stages (Greenberg *et al.*, 2007)

Table 3 Action steps for creating and sustaining trust, (Greenberg *et al.*, 2007)

Stage	Trust	Manager's actions	Team leader's actions
1. Establishing the team	- Dispositional trust - Foundation for the development of trust	Choosing members • Technical/functional skills • Predisposition to trust Training • Communication and decision support software • Being virtual Reward structure • Cooperative not competitive	
2. Inception	- Swift trust - Build bonds of cohesion for the development of trust	Introductions • 3rd party testimonials concerning past accomplishments of team members • Validate technical/functional role in team • Establish 'rules of engagement' for communication and interaction	Team-building exercise • Abilities • Contribution to team • Personal/social component • Begin to establish bonds
3. Organizing	- Trust in teammates' - Ability - Integrity	Evaluate participation in organizing activities • Include contribution to organizing activities in evaluation criteria • Recognize and encourage leadership while discouraging domination and cliques Evaluate communication patterns • Include communication patterns in evaluation criteria	Encourage participation in organizing activities • Encourage participation from all members • Acknowledge and commend suggestions of individual members to the whole team • Do not exclude non-contributing members Monitor communication patterns • Require timely and substantive responses

			<ul style="list-style-type: none"> • Prohibit unsanctioned subgroups from communicating without including entire appropriate group • Encourage social aspects of communication
4. Transition	<ul style="list-style-type: none"> - Trust transition - From ability and integrity - To benevolence and integrity 	Be available <ul style="list-style-type: none"> • Support • Guidance 	Move focus from procedures to accomplishing task <ul style="list-style-type: none"> • Punctuate the end of the organizing stage and the beginning of the task with an 'event' • Change focus from individual to group
5. Accomplishing the task	<ul style="list-style-type: none"> - Trust in teammates' - Benevolence - Integrity 	Support members <ul style="list-style-type: none"> • Release members from local activities • Emphasize that team activities have priority Evaluate participation in accomplishing the task <ul style="list-style-type: none"> • Reward achievement of interim deadlines • Continue to include communication patterns in evaluation criteria 	Encourage supportive communication in accomplishing the task <ul style="list-style-type: none"> • Establish interim deadlines and celebrate when met • Encourage members to express their appreciation of each other's contributions • Continue to encourage social aspects of communication • Continue to require timely and substantive responses

The problem in their model is that the manager in the planning phase should choose the individuals those meeting the condition of ability. However, a project manager depends on the functional manager available resources, second is the predisposition to trust, how can the functional manager provides individuals with this characteristics if he/she has limited resources, even if he/she has more resources, how can he/she knows that an individual is ready to trust other people but another not. On the other hand, they mention the training of the members to work virtually, this may help little bit all individuals to give importance to the predisposition to trust, but still if the nature of an individual is not to trust from the first sight, training is not from big help. The authors also mentioned the rewards structure, they advise that cooperative rewards are helping the growth of trust and competitive rewards leads to hiding information and less sharing of them, leads to trust dissipation.

In the second stage, which is inception, here we start having team building exercise to enhance swift trust and set the stage for increasing cognitive and affective trust. In the next stage, which is organizing, from my perspective ability should be in the planning phase. It is recommended that the individuals working in virtual teams have backgrounds and knowledge relevant to their tasks and the contribution within the team, and can be prolonged to till the transition stage since the individual should reflect his ability among the team and make them understand that he/she is able to accomplish his tasks. Integrity continues until the last moment and the benevolence appears in the last stage.

The process of developing and sustaining trust among members of virtual teams is wrought with complexity, yet important to successful project completion. External signals (reputation, roles, rules) and intrinsic factors (predisposition to trust) determine initial swift trust. Assessments of ability and integrity (cognitive trust) determine trust in early stages of a team's life. Assessments of benevolence (affective trust) and the continued assessment of integrity determine trust in the later stages. In virtual teams, communication patterns and the incentive/reward scheme influence how communication is interpreted and how the determinants of trust are assessed (Jarvenpaa *et al.*, 2004; Coppola *et al.*, 2004; Greenberg *et al.*, 2007; Mumbi and McGill, 2007). It is interesting also to check the role of other values in virtual teams contrary to traditional teams where most of the work regarding organizational values are done based on traditional organizations (e.g., Zidane *et al.*, 2016; Ghazinejad, 2018).

4. Conclusion

This paper was based to certain extent on Jarvenpaa *et al.* works (1994~2004), due to the size of their empirical work, based on high numbers of participants from all over the world, that meets the definitions of virtual projects and virtual teams, temporary, electronically mediated, different location and different cultures.

However, the problem in their method of doing the research work is that they do not take each concept (leadership, motivation, cultural differences...) separately. Then see their effects on the trust in virtual teams, but still they manage to create virtual projects with virtual teams, then try to observe and study the behavior of those virtual teams, then conclude some outputs of each concept and its effect on the trust building. To feel those gaps, this paper used some complementary inputs, to support those empirical findings.

The big challenge in virtual teams is to create, build and maintain trust among its members. All the researches show that trust may exist in initial phase of the virtual team, in the form of swift trust, as discussed in the previous sections is this paper. This type of trust is so fragile and may dissipate; the team leader should think how to nurture that small signal and amplify it till they get highest level of trust, it is as a spark which gives life to a fire. In addition, as described in Jarvenpaa *et al.* (1999) work, integrity, ability and benevolence do not affect directly the trust in the early phase of the team; on the other hand high level of activity and responsiveness will help to move that swift trust to a trust in the next stage of the life cycle of the team. In a virtual environment, trust is more tasks based than interpersonal relationship based and the level of member performance over time results in building or denial of the trust. Trusting someone in a virtual team is linked directly to their work ethic; it is task first, the trust has been built through the task-based relationship that has evolved. We cannot talk about each concept separately and deeply and its effect on trust building in virtual team since as said before, they were not taken as main cues in the empirical works. That is why we encourage making the same work but focusing on each concept (leadership, motivation, cultural differences, etc.) separately and more deeply.

In virtual projects, the need for qualified project manager for these types of projects is to be anticipated, the degree of success of the virtual projects depends on how the virtual project manager deal with the virtual team building. The case here as we talked before is not as the traditional face-to-face team building, where we have more control and power. In virtual team,

the project manager should give highest importance and priority to the trust building and maintaining in the virtual team, project manager plays a pivotal role in getting the virtual team to work as unit and thus focus on achieving the goals of the task on hands. By the progress of the project, the virtual team will face challenges, which will reflect the trust level among the team members. Each member makes his/her own cognitive assessments on how to deal with the challenges facing him/her and here appears the role of the project manager; how to find ways and techniques to keep the teams focused and motivated. If the leader succeeds in doing that and as the project continue to progress, he/she can apply trust building techniques to the team so to reach the desired level of trust, and jumping from calculus-based trust to identification-based trust, which is really hard to achieve in a virtual team. The team has a higher chance of achieving success as the trust levels are raised to the highest possible level.

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