

Understanding Lacking Trust in Global Software Teams: A Multi-case Study

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Abstract. Many organizations have turned toward globally distributed software development in their quest for higher-quality software delivered cheaply and quickly. But this kind of development has often been reported as problematic and complex to manage. One of the fundamental factors in determining the success and failure of globally distributed software teams is trust. The aim of our work has therefore been to describe the key factors causing lack of trust, and the main effects of lacking trust in such teams. From studying 4 projects, all located in two different countries, with trust problems we found the key factors to be poor socialization and socio-cultural fit, lack of face-to-face meetings, missing conflict handling and cognitive based trust, increased monitoring and too little communication. The effect of lacking trust was a decrease in productivity, quality, information exchange, feedback and morale among the employees; the monitoring increased and the employees doubted negative feedback from manager.

Keywords: Trust, global software development, global software teams, virtual teams, multi-case study.

1 Introduction

1.1 Global Software Development – Different, Complex, Urgent

Several organizations have turned toward globally distributed software development (GSD) in their quest for higher-quality software delivered cheaply and quickly. Today, more software projects are run in geographically distributed environments, and global software development is becoming a norm in the software industry [4].

GSD is said to have significant challenges with respect to communication, coordination and control issues, because of the temporal, geographical and socio-cultural distance between members of the joint development team [27]. For this GSD is recognized as considerably more complex to manage than even the most complex in-house projects [3, 17].

What distinguishes globally distributed projects from in-house projects are the environmental properties, also called global factors [23], that even capable project managers often overlook. However, the reason for failure of global projects is not the lack of capability, but a lack of awareness of issues, problems, and barriers associated with global work [6]. Likewise Sahay and Nicholson describe that the unpredictable nature of the risks in a global environment heightens the potential for unintended consequences [21]. The characteristics of GSD can be defined as follows [23]:

- Multisourcing – multiple distributed member involvement in a joint project, characterized by a number of collaboration partners.
- Geographic distribution – partners are located far away from each other.
- Temporal diversity – characterized by the level of working hours overlay.
- Socio-cultural diversity – level of social, ethnic, and cultural fit.
- Linguistic diversity – characterized by the level of language skills.
- Contextual diversity – level of organizational fit (diversity in process maturity and work practices).
- Political and legislative diversity - effect of cross border collaboration due to political threats or threats associated with incompatibility of laws.

Threats caused by the diversity that exists among the distributed teams involved in a project are seen as unavoidable conditions. These threats can lead to unexpected costs, considerable time delays and undermined morale of the collaborating teams.

The body of knowledge on global software development has been crafted over time, but there is still significant understanding to be achieved, methods and techniques to be developed, and practices to be evolved before it becomes a mature discipline [4, 21].

1.2 GSD Teams and Trust

A GSD team is a team whose members collaborate on a common software project while working across geographic, temporal, cultural, and relational boundaries to accomplish an interdependent task. A GSD team can also be characterised as a Virtual Team [18]. Organizations are driven to virtual forms in order to be more flexible, agile, responsive, and inexpensive [3]. One of the fundamental factors that are believed to be important in determining the success and failure of virtual teams is trust [12, 16, 18]. We define trust as “*the shared perception by the majority of team members that individuals in the team will perform particular actions important to its members and that the individuals will recognize and protect the rights and interests of all the team members engaged in their joint endeavour*” [25]. Virtual teams that exhibit a high degree of trust experience significant social communication as well as predictable communication patterns, substantial feedback, positive leadership, enthusiasm, and the ability to cope with technical uncertainty [14]. Trust functions as the glue that holds and links virtual teams together [16].

Jarvenpaa et al [15] argue that trust in a virtual team has a direct positive effect on cooperation and performance, and an increase in trust in a team with a weak structure is likely to have a direct, positive impact on team members’ attitudes and perceived outcomes.

Since trust is a fundamental factor for virtual teams it is reasonable to believe that trust is also important for GSD teams. Vanzin et al and Davidson and Tay [5, 24] argue that trust is a recurring problem in GSD teams, because of geographical, temporal, organizational, cultural and political differences among the team members. Carmel in his book „Global Software Teams” argues that distance is an impediment to building relationships of trust [3]. However, due to the cost benefit of outsourcing versus in-house and other cost saving strategies, most of the team members never meet.

To understand the importance of trust in GSD and to increase the level of trust in such a team it is essential to understand what leads to lacking trust, and the effect of lacking trust in a GSD team. From our overview of the research literature we believe that the existing literature does not describe this, which is also confirmed by Edwards and Sridhar [11]. Therefore our research questions have been: What are the key factors causing lacking trust in a GSD team located in two countries? What are the main effects of lacking trust in a GSD team located in two countries?

In the next sections we first use previous research on virtual teams and GSD to understand the different threats against establishing trust in a GSD team. We then use theory from virtual teams and teamwork to describe the possible effect of lacking trust in a GSD team, before we apply these reasons and effects to a multi-case study to understand the effect of mistrust on GSD team performance.

2 Key Factors Causing Lack of Trust

Trust in virtual teams needs to be developed quickly because teams may only interact for a short period of time or may be working on a task that is of great importance and urgency [14, 16]. Earlier work on trust in the virtual environment has found that short-lived teams are in fact able to develop high trust but they do so by following a swift trust model rather than the traditional model of trust development [13, 14].

Virtual teams need to focus on the maintenance as well as the development of trust, but there are many threats against achieving a high trust level in a virtual team:

- *Cognitive-based trust.* Virtual teams need to focus on the cognitive dimension of trust (e.g. competence, reliability, professionalism) [16]. Therefore it is important to provide task-relevant background information to virtual team members so that members can quickly develop cognition-based trust. If the remote team does not deliver what is expected this will decrease the cognitive-based trust.
- *Poor socialization.* Socialization strategies may help managers develop trust also in virtual teams [14, 16]. Team members should travel to remote sites to engage in a team-building activity to engender lasting trust [20].
- *Missing face-to-face meetings.* Such meetings are considered irreplaceable for both developing and repairing trust in virtual teams [2, 3, 19]. Carmel [3] argues that “trust needs touch”. If there is no face-to-face communication in a virtual team, this tends to hinder effective communication. E.g. when team members communicate about mutual responsibility and obligations, different perceptions of their commitments may develop, creating a potential for trust decline [19].
- *No conflict handling.* Conflicts in a global development are inevitable [17], and it is often difficult to maintain trust when conflicts among team members emerge. So missing conflict handling is a threat against building and maintaining trust in a virtual team [14, 16].

- *Too little communication.* Virtual teams in a low trust situation need frequent communication to increase the trust level. The frequent communication is important for providing constant confirmation that team members are still there and still working [15].
- *Unpredictability in communication.* The frequency and predictability of communication, and the extent to which feedback is provided on a regular basis, improve communication effectiveness leading to higher trust and improving team performance [13, 14]. Inexperienced virtual team members may experience anxiety or trust decline due to negative interpretations of silence or delays associated with time dispersion [19].
- *Increased monitoring* (behavioural control and too much communication). The use of behavioural controls, such as having members file weekly reports and assigning specific tasks, has been found to be associated with a decline in trust among virtual team members [19]. Also too much communication might cause members of a team to be suspicious that others are monitoring them and this decreases the trust [15].
- *Poor socio-cultural fit.* Duarte and Snyder distinguish three types of culture – national, organizational and functional – and claim that they constitute one of a virtual team’s most significant boundaries [10]. Furthermore, they describe that being hidden like an iceberg, culture affect people’s assumptions, behaviours, and expectations about leadership practices, work habits, and team norms [10] pp.54.

3 The Effect of Lacking Trust

Based on a literature review, Salas et al. [22] argue that it is possible to condense the teamwork knowledge into five core components, which they call the “Big Five” of teamwork, and three coordinating mechanisms. The 5 components affecting the team effectiveness are:

- Team leadership;
- Mutual performance monitoring;
- Backup behaviour;
- Adaptability;
- Team orientation.

The 3 coordination mechanisms are: shared mental models, closed-looped communication, and mutual trust. They are called coordination mechanisms because they are necessary facilitators of the 5 components.

In this model trust is needed to make the team members work interdependently, they must be willing to accept a certain amount of risk to rely on each other to meet deadlines, contribute to the team task, and cooperate without subversive intentions.

Dirks and Fern's [9] review of the literature on the role of trust in organizational settings demonstrates that trust has either direct or moderating effects on a variety of desired performance and behavioural outcome variables. In their view, trust facilitates the effects of other determinants on performance or behavioural outcomes because trust provides conditions, under which certain outcomes are more likely to occur.

Bandow [1] argues that a lack of trust within the group may interfere with how effectively individuals contribute to teams, may reduce overall team performance, increase cycle time, create higher costs and potentially impact product quality.

The effect of lacking trust can be described as [1, 9, 22]:

- *Decreased information exchange and feedback* – A low level of trust is associated with suspiciousness of information, and therefore decreased information exchange and feedback [1, 9, 22].
- *Competition and not cooperation* - If one does not trust a partner, it might be difficult to work toward the joint goal and it is likely that the employees will pay more attention to competitive motives and not to cooperation [9], and even withdraw from participation because they feel insecure [1].
- *Self-protection* - If one does not trust the manager, the individual finds it worrisome to behave as expected; and the management's request is likely to exert a much weaker effect on the individual's behaviour, as the individual diverts resources to self-protection [9]. This will hinder the team leader from effectively managing the team.
- *Doubt negative feedback from manager* - When there is a negative feedback from a manager with low trust, it is likely that the employee will doubt the accuracy of the feedback [9, 22].
- *Relationship conflict* - Under low trust, task conflict within a group is interpreted negatively and subsequently results in relationship conflict [9, 22].
- *Individual goals over group goals* - Under low trust the individuals in a group will direct their efforts toward individual goals, instead of the group's goals [9].
- *Team not self-correcting* - Low trust will decrease the mutual performance monitoring, which means the ability to develop common understandings of the team environment and possibility to accurately monitor team member performance. This is essential to identifying mistakes and lapses in other team members' actions, and providing feedback regarding team member actions to facilitate self-correction [22].
- *Not shifting workload among members* - Decrease in the mutual performance monitoring will again affect the backup-behaviour. This is the ability to anticipate other team members' needs through accurate knowledge about their responsibilities. This includes the ability to shift workloads among members to achieve balance during high periods of workload or pressure [22].
- *Productivity and quality decrease* - Since the lack of trust reduces team performance [1, 9, 22] this reduces the productivity and quality.

4 Research Context and Method

The context for this research is the Latvian software development company LatSoftware (the company name is changed for confidentiality reasons), situated in Riga. The company was established in the late 80s and changed its owners and/or structure several times. It has been oriented towards the international market, focusing on providing software development outsourcing services for the public sector, telecommunications, insurance and banking, as well as tourism and logistics. LatSoftware has successfully accomplished more than 200 projects both in Latvia, Western Europe and Scandinavia. At the present time the company represents a joint venture with over 380 employees.

The work reported in this paper is a multi case study [26] to understand reasons and effect of lacking trust in global software development within LatSoftware. This is a multi case holistic study, in which we study one phenomenon in several projects in

one company. Since we are studying the reasons and the effects of lacking trust we picked four global software development projects that all reported trust problems.

4.1 Data Sources

We have used multiple data sources (see Table 1) in the analysis as described in the following. In the analysis, we rely mainly on qualitative interviews, as these provide a rich picture of the reason and effect of lacking trust. We have also used results from postmortem meetings [7] held during and at the end of the project. A postmortem meeting focuses on describing what went well and what did not work in the project, and then a root-cause analysis is performed on the main issues. Using postmortem meetings it was possible to find the root-causes of problems related to trust.

Project problems were also recorded using previously developed problem checklists that have been developed from an extensive literature review and from former project experience. Postmortem analysis data was recorded with the help of a camera during the meetings and later transcribed by the researchers in the postmortem analysis document, which was afterwards sent to the participants for approval.

In this study we have focused on exploring the investigated company's problems, whose employees are acting as suppliers in the studied projects. Due to the limited availability of information about project customers, we do not present data about their team size in Table 1.

Table 1. Data sources

Pro name	Duration	Project type	Supply chains Location* and Team size	Effort	Data collection
A	1995 – present	SW product development and maintenance	DE→DE (3)→LV (5)	46080 hours	Interviewed current project manager, previous project manager and one developer Problem checklists
B	2002 – 2006	SW product development	UK→UK (13)→LV (16)	40480 hours	Interviewed project manager and 3 team leaders. Postmortem analysis Problem checklists
C	2006	SW pilot product development	SE → LV (3)	320 hours	Interview with project manager Problem checklists
D	2005	SW product development	NO (2)→LV (6)→LV (5)	1460 hours	Interview with project manager Postmortem analysis Problem checklists

* DE - Germany, LV - Latvia, UK - the United Kingdom, SE - Sweden, NO - Norway

4.2 Data Analysis

Data analysis was performed in several steps. First, we read all interviews and postmortem analysis data, and coded interesting expressions of opinions related to trust in the text. Then we assigned the expressions to the categories of “the reasons of lacking trust” and “the effect of lacking trust” found in the literature on Global Software Development, Teams and Virtual Teams. For example, “unwillingness to collaborate caused by threat of being fired due to switching to outsourcing mode” was coded as “the reasons of lacking trust” and linked with “competition and not cooperation”. To avoid bias and misunderstanding, the conclusions from our coding was sent back to the interviewees for approval.

5 Results

In this chapter we describe the four global projects run in the investigated software house. We present each project, followed by a description of why it was lacking trust, and the effects of this.

5.1 Project A

Overview. Project A is a long-term ongoing software enhancement project with close collaboration between 5 Latvian developers and 3 representatives from a German company that build a software product for their customer. The German team performs project management and systems analysis, while outsourcing coding activities. Recent changes in project management from the Riga side didn't get much appreciation from the customer side due to increasing costs. The customer has moved part of the work to a lower price partner from another country, and signalled that future project problems can lead to cancellation of the project

Reasons for lacking trust. The project extensively uses modern collaboration tools such as video conferencing and instant messaging. However, the Riga team argues that this doesn't compensate for the lack of face-to-face meetings. The Riga team also sense that their German partners are afraid that the Riga team is not dedicated to the project, and therefore try to control them by constantly monitoring their performance. It took 10 years for the German partners to visit their Latvian team members. This first meeting uncovered that the German team did not know much about their partner and they were surprised to see the modern offices with high level security and technical equipment. Their perception of the remote team members changed and further collaboration with frequent meetings for some time improved overall project performance and especially team morale and psychological comfort.

However, diversity in process maturity has put the partners into a collision. Corporative culture doesn't allow the Riga team to act in a too agile way without any project management. And with respect to recent disputes between the partners considering these changes, the Riga team acts by competitive motives, and feels not trusted and insecure again.

Effect of lacking trust. The Riga team has continuously suffered from lack of trust and commitment, which dramatically decreased the ability to self-correct, which again initiated extensive monitoring from the contracting partner. This again affected the trust level negatively. Not satisfied with collaboration the contracting partner frequently required to change project leads. Searching for more beneficial collaboration partners puts the Riga team in competition. As a result the project atmosphere negatively influences team morale, productivity and causes conflicts in relationship.

5.2 Project B

Overview. Project B is a software product development and enhancement project run by a UK software house that outsourced software development to a Latvian partner from Riga. Programming activities in this project were performed in both countries. The outsourcing was a strategic choice from the management in the UK software house. This was however, according to the project manager from Riga, not appreciated by the UK team representatives directly involved in collaboration.

Reasons for lacking trust. The Riga project manager reported several problems related to lacking trust. The UK and Riga teams did not share a joint view on their collaboration due to diversity in their work practices. Such problems as poor cultural fit, dominant use of asynchronous tools, unwillingness or slowness of the UK team to act on partner's suggestions, led to poor, unpredictable communication. Due to a lack of joint problem handling, poor socialization and lack of face-to-face meetings process performance didn't take place.

Effect of lacking trust. The Riga project manager reported that sometimes his team seemed to lack motivation to give the customer value for money – manifesting itself in lower than reasonably expected productivity levels. Poor socialization and lack of face-to-face meetings resulted in a lack of team spirit, trust and commitment between the partners. Lacking trust and poor communication has also decreased information exchange and feedback. Lacking understanding of the context of decision making, the negative feedback from the continuously indifferent partner was doubted.

5.3 Project C

Overview. Project C was a pilot project in order to evaluate the investigated Riga software house as an external provider of coding for a software house in Sweden, which has recently switched to outsourcing mode. Their cooperation started by developing a small piece of software and was afterwards suspended.

Reasons for lacking trust. Both partners faced an increasing complexity of distributed multi-team management regarding the necessity of overcoming diversity and lack of joint procedures and tools. After joint risk management meetings with the customer, the project manager from Riga reported that the customer faced the

necessity to change and appeared not to be ready for that. Trust and belief in joint performance was affected by poor cultural fit, too little communication, lack of socialization and face-to-face meetings.

Effect of lacking trust. According to Riga project manager's opinion, the customer's employees felt insecure about their jobs, due to the corporative decision to switch to an outsourcing mode. Remote team members were put in competition instead of collaboration causing a productivity decrease. Consequently, the customer team's individual goals dominated over shared project goals. All task conflicts within the joint team were interpreted negatively. Lack of conflict handling finally led to collaboration suspension.

5.4 Project D

Overview. Project D is a complex project involving a customer from Norway, a direct supplier from Riga and a remote programmers team from a small Latvian town situated in the poorest region around 250km from the city. However, our attention in this case study was focused particularly on collaboration between two separate teams within one country and one organization not separated by country borders. Both supplier teams work for the same company and perform development by joint effort.

Reasons for lacking trust. Despite the fact that all the team members work for the same company, in comparison with the Riga team, the remote team works in a poorer environment and has significant problems with technology and communication lines. The remote team reported on lack of trust and belief in their performance by the Riga project manager, which he confirmed. Lacking trust in project D was caused by concerns of the project manager about successful remote team performance, the inability of direct control and communication problems due to distribution and poor technological infrastructure, lack of socialization and face-to-face meetings. Despite the fact that both teams are situated in the same country, they experienced socio-cultural diversity which also affected trust.

Effect of lacking trust. Lack of trust in this project decreased information exchange between the team members and increased suspicion and the desire to control by the Riga project manager. His behaviour led to self-protection and apprehension of the manager's feedback. This also resulted in low motivation for self-correction within the separated teams.

5.5 Key Factors Causing Lack of Trust and the Effects of Lacking Trust in the Projects

We have examined issues uncovered in related studies regarding trust in virtual environments within the investigated projects. A report of the occurrence of the identified key factors causing lack of trust is in Table 2 below.

Table 2. Key factors causing lack of trust in the project

Reason for lacking trust	Projects			
	A	B	C	D
Cognitive-based trust	✓	✓		✓
Poor socialization	✓	✓	✓	✓
Missing face-to-face meetings	✓	✓	✓	✓
No conflict handling		✓	✓	✓
Too little communication		✓	✓	✓
Unpredictability in communication		✓		✓
Increased monitoring	✓	✓		✓
Poor socio-cultural fit	✓	✓	✓	✓

Describing the main effects of lacking trust, all project managers reported that it to some level always influences customer satisfaction and supplier team morale.

A global environment puts new demands on trust achievement between the remote team members. An organization switching to outsourcing mode puts its own employees under threat of being fired. This leads to a competition instead of collaboration with the remote suppliers. Inability to achieve a shared understanding and compensation of diversity in work practices leads to remote team goal separation.

Table 3.The main effects of lacking trust

The main effects of lacking trust	Projects			
	A	B	C	D
Decreased information exchange and feedback	✓	✓		✓
Competition and not cooperation	✓		✓	
Self-protection	✓			✓
Doubt negative feedback from manager	✓	✓		✓
Relationship conflict	✓		✓	
Individual goals over group goals	✓		✓	
Team not self-correcting				✓
Not shifting workload among members				
Productivity and quality decrease	✓	✓	✓	✓

6 Discussion

In this paper we have used the literature to describe the key factors causing lacking trust, and the main effects of lacking trust while collaborating over geographic,

cultural and organizational boundaries. Then we have applied these key factors and effects to a multi-case study to understand the effect of mistrust on GSD team performance in a team situated in two countries. We have investigated projects that all have reported lacking trust; the data was only collected from the Latvian developers and managers.

6.1 Key Factors Causing Lacking Trust

From our study we found that poor socialization, lack of face-to-face meetings and poor socio-cultural fit were reported by all the projects. Lack of face-to-face meetings and poor socialization are probably related since it is difficult to socialize if you seldom or never meet. We think that poor socio-cultural fit may also be strengthened due to lack of face-to-face interaction and poor socialization. Other key factors for lacking trust were also reported frequently by the projects.

We also found additional factors leading to lack of trust. For instance, lack of language skills leads to poor socialization and communication problems, because employees with poor language skills tend to be afraid to speak over the phone. Inconsistency in work practices may lead to a lack of cognitive-based trust, misunderstandings and again cause increased monitoring. Involvement of unenthusiastic employees who lack previous experience in outsourcing projects can lead to a belief that the work cannot be done from a far off location. This negatively affects mutual socialization, communication and trust.

Finally we try to explain how the factors that characterize the GSD team are related to the key factors of lacking trust that we have found in this study:

- Multisourcing – increasing the number of collaboration partners involved in the project results in more complex communication, coordination and control. This again increases the number of sources of threat and complexity of trust achievement.
- Geographic distribution – leads to increased virtualness, communication problems, troubled socialization, and knowledge and awareness share.
- Contextual diversity – level of organizational fit, characterized by diversity in process maturity and inconsistency in work practices acts as a counterforce for shared environment development. Team members who do not share background and work habits seem to have less commitment to a joint team.

6.2 Effects of Lacking Trust

Like Dirks and Fern, and Badow [1, 9] we have found that lacking trust indeed may cause significant problems with performance and behaviour of the team members. The most frequently reported effect of lacking trust was productivity and quality decrease. This indeed proves the importance of trust for overall project performance. The next most frequently reported effect of lacking trust was decreased information exchange and feedback (3 projects). Another frequently reported effect (3 projects) was team members doubting negative feedback from their manager. Issues such as

team members not shifting their workload and not self-correcting were barely mentioned or not at all by the interviewed project members. This can be explained by the problem with information exchange and feedback, self-protection, competition and lack of cooperation. Because of these problems the team probably never had the chance to consider shifting their workload and self-correcting.

This and other comments point that although remote team members ought to form a joint team they consider distribution as team separator. After all, these projects demonstrate that there might be committed teams in each location and lack of team spirit between them.

The existence of committed and joint internal teams at every location that experience lack of trust may also explain why Project B and D, which have faced all of the mentioned key factors of lacking trust, have not reported as many effects of lacking trust as the other teams.

From our observations we would also like to add the following effects to the list of lacking trust outcomes:

- **Increased monitoring** (reported in Projects A, B and D) – in addition to a trust decline due to a pressing monitoring [15, 19], lacking trust in supplier performance and lack of direct control due to geographic and temporal distribution makes managers struggle with a desire to control instead of cooperating with the remote teams, resulting in increased monitoring and causing extra time for reporting. This also forms a locked loop.
- **Undermined morale of the employees** (reported in every project) – lacking trust creates a negative atmosphere that results in psychological discomfort of the members.
- **Threat of project cancellation** (reported in Project A and C) – we have also found that lacking trust may put the overall collaboration under threat.

6.3 Recommendations

The reason for failure of global projects is not the lack of capability, but lack of awareness of issues, problems, and barriers associated with global work [6]. From the multi-case study and the literature, the factors causing lack of trust can be linked with the global environmental characteristics – various diversities (organizational, socio-cultural, geographic, temporal, etc.) between the partners. We therefore emphasize the role of diversity and inconsistency awareness and the importance of flexibility and adaptability. Therefore, never start a distributed collaboration unprepared and without awareness of diversity. To face the key factors causing lack of trust we recommend:

- Go through the list of “key factors” and “main effects” of lacking trust, discuss this early with the team, and identify actions to meet these “threats“. E.g:
 - Invest in one or several face-to face meetings [1-3, 17, 19],
 - Invest in socialization activities for the whole team together [14, 16, 20],
 - Invest in groupware packages to provide remote team members with effective means of communication and compensate lack of personal contact during the project [[17]].

- Communicate expectations early and establish initial rules, in the form of a contract or trust structure, to spell out performance parameters for the team as a whole and for individual team members [1].
- Develop a 360° view by establishing a team intranet; facilitate publishing and updating individual, team, status and task information; encourage personal touches including personal pages [3].
- Create a common understanding of the work process, and how to cooperate in this process. This can be achieved by creating some common process elements. A common process workshop can be used to create this [8].
- Consider a software development method that provides both flexibility and adaptability, and that requires frequent communication. One solution to this is the use of agile methods [27].

7 Conclusion and Future Work

Trust is a recurring problem in GSD teams, because of geographical, temporal, organizational, cultural and political differences among the team members. Face-to-face meetings, active communication and socialization that are commonly used for building trust in software teams are a hard recipe for global software teams. Due to cost saving strategies, most of the GSD team members never meet.

In this paper we have conducted an empirical study that aimed to understand the reasons and effect of lacking trust on GSD team performance in four software projects in one company. All projects reported that lack of trust resulted in a decrease in quality and productivity. These and other findings leads to a conclusion that a company should consider the pros and cons of collaborating over borders and never start a distributed collaboration unprepared. Awareness of the importance of trust, the reasons for lacking trust and its effect, will help to avoid many problems of joint collaboration. However achievement of a high level of trust in GSD teams is not a simple question.

Accordingly further work should focus on investigating which methods for building and maintaining trust in GSD can be applied.

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