Issues in Global Software Development (Communication, Coordination and Trust) A Critical Review

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ABSTRACT

Business software development is difficult to bear throughout the world within the scope of their work around the world to obtain many benefits. The remarkable development of globalization software known as global software development (GSD). Software teams are located in different regions or location worldwide. However, geographical or temporal distance between the developer, tester and team members, etc. Many software companies are followed by GSD profit as cost reduction, time (extra work), quality, large pool of labor, and access to skilled labor, etc. but with the benefits they face many challenges related to communication, coordination, confidence and control. These problems / challenges have some serious risks for the smooth implementation of projects. In this review we highlight critical GSD advantage and disadvantage in terms of communication, coordination and trust.

Keywords: Global Software Development, Socio cultural Distance, Geographical Distance, Temporal Distance

I. INTRODUCTION

Global Software Development (GSD) , a company from another manufacturer or the company that supplied parts or components imported all software development (DSD) as is known. This is an out-sourcing technology. Outsourcing of software development companies in which a company or vendor technology has a variety of imported parts.

Different types of outsourcing, e subtypes are: eg domestic outsourcing (in which clients / customers and vendors from the same country, but the region / locations vary) Off-Shoring (in which customers are from neighbouring countries and vendor) Shoring - the outsourcing of both parties in different geographical location which is near / far area or are from different countries. GSD, DSD and outsourcing are different terminology used for a same or unique global software development technique in which the clients can get benefits from outside the organizations due to low labour cost, faster delivery of projects, good quality and access to skilled manpower. Despite suffering some limited benefits / constraints to development teams generally have different cultural backgrounds , face to face communication are difficult, different time zones, working hours (we work they sleep).

Many researchers have identifies a number of issues that can cause some problems in GSD projects and gives some solution to handle or avoid these types of problems.

The sections of this paper is as follows. In Section 1 (**Introduction and keywords**), In Section 2 (**Literature review pros and cons**). In the last section we conclude our research section 3(**Conclusion**).

II. LITERATURE REVIEW

- We have many researchers try to find different problems from the GSD. Close to some researchers that identifies some of the issues/ problems and solution are provided in this section.

1) Yasir et al only discuss communication issues of GSD among the team member's and most of the

cases they used electronic media for their correspondence. It also discusses the major factors that create interference in communications such as language, cultural and time differences. It also identifies the advantages and disadvantages in the GSD. It also found that the development of agile software is best suited for projects GSD to make the S / W development process faster. But agile methods is not good b/c too many meetings with customer / clients they may lose their interest.

Temporal Distance	Geographical Distance	Socio cultural Distance
Improve communication. Reduced sync communication.	Access to skilled manpower Face to face communication are difficult [9, 10]	Innovation best practices Misunderstanding of cultural background
Minimization of coordination Gradually increase cost	Coordinate planning more pliable Reduction of informal contact	Greater learning set Reduced corporation awaking from misunderstanding
Time zone effectiveness Delays in project management	Hard to carry vision Understand the risk of low-cost training [6,7,8]	process stimuli inherent in many cultural Managers must apply local regulation

Figure 1: Advantages and Disadvantages in GSD [1]

2) Sumit et al, applied agile methods in GSD is beneficial. The finding of the work that agile methods have good result in GSD. But agile methods have their own constraints that is too many meetings with clients so they may lose their interest in project. Graceful technique more good for large projects that require fast application. But in the term small enterprises agent or project manager may not feel good / convenient to keep the team and take a lot of meetings for communication and coordination b / c of budget constraints.

3) Rafiq et al, identifies the SLR list of 18 challenges face by vendor and find the most frequently issues/

problems by percentage like ' geographical ' , 'cultural differences ' , 'language difficulties', 'lack of technological cohesion' etc. and suggest the off shore outsourcing vendor that focus to identifies these challenges in general.

4) Khan et al, address many barriers that have bad impact on s/w or GSD projects. They have identifies sixteen factors related to GSD like communication, delays in delivery, country instability, unknown cost, contrastive with clients, lack of project experiences, lack of understanding, lack of protection, language, cultural, control, quality etc. but the study does not show how to overcome or avoid these barriers or problems [11,12].

5) Minghui Yuan et al, the main / major reason for software or GSD projects failure are involve communication, coordination and trust like challenges. The study only confined on internal coordination in s/w development teams but they only highlight it they can't identifies internal and external coordination between developers and team members.

6) Arif Ali Khan et al, they develop a proposed framework give some details of its which is given below:

 i.   Geographical Distance
Geographical distance is the physical distance b/t stakeholders located at different site mean remote sites. In general, close geographical distance have high opportunity to developer or stakeholders or team members. (Holmstrom, et al., 2006).
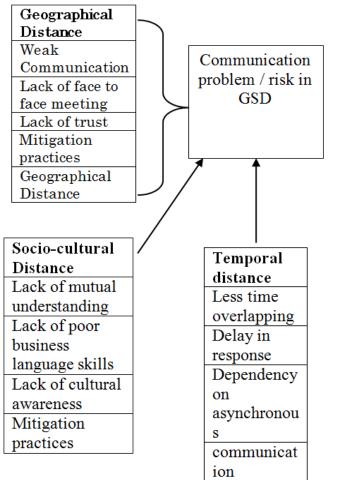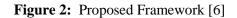ii.   Weak Communication
During the life cycle of any software development model communication with team members is important phase due to which remotely / far apart from one another or the distributed stakeholders the communication become weak [13,14,15,16].
iii.   Lack Of Face To Face Meetings
This is the major challenge / issues or problem in GSD. Geographically distance decrease the chances of face to face meeting. Face to face meeting very important if any problem in face to face meeting it will lead to misunderstanding in design [17, 18, 19, 20, 21, 22].

It also discuss a number of challenges like lack of trust, mitigation practices, socio cultural distance, poor business skills, lack of understanding etc. and develop such a framework which is given below:[see figure:6]

Figure 2: Proposed Framework [6]

III. CONCLUSION

In section we conclude our critical review of issues in GSD like communication, coordination and trust. We highlight different challenges that is identified by different researchers and some of researcher give solution or to avoid these challenges face by vendor and clients to GSD projects in off-shoring outsourcing, on-shoring outsourcing and near-shoring. Communication, coordination and trust among developers / teams in GSD projects when it perform locally and more difficult for stakeholders when it perform different geographical location, cultural differences and time zones. Some of the team members uses electronic media like Email, skype or any other live chat software to maintain communication.

According to our view if we suggest to develop such a software like 'Natural Language Processing / Interpreter' to remove the language barrier or problem. This is our future research.

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