Dissertations and Theses   Project Management (PMGT)

12-2016

Improved Sprint Results with Offshore Indian Teams

Fnu Abdul Hasheem
Harrisburg University of Science and Technology

Improved Sprint results with offshore Indian teams

Fnu Abdul Hasheem

Student Id: 113292

Project Management

Harrisburg University of Science and Technology

Table of Contents

List of Tables

List of Figures

1. Abstract

Due to the cultural and linguistic differences, different time zones, and complexities of knowledge transfer involved in IT offshoring, offshore-outsourced projects are more prone to failure than in-house and domestically outsourced projects. These inherent risks exacerbate the communication, coordination and collaboration between vendors and clients and thus affect various stages of the offshore outsourced software development (OSD).

Communication is a major factor of success or failure for any software project. In offshore software development OSD, communication is more critical than collocated software development. Frequent communication is not always possible due to challenges like time zone differences, holiday customs etc. where client and vendor working hours do not overlap. This communication problem affects the success of offshoring decision in terms of cost, schedule, time-to-market, client-vendor trust, and customer and business satisfaction. For successful software project offshoring, successful communication is necessary.

This paper provides a preliminary exploration for communication mode/mediums and challenges involved in OSD and how to have effective sprint planning sessions with the offshore teams in India. A classification is presented for offshore software development activities and the communication modes/mediums used to perform those activities.

2. Introduction

The core motivation behind offshoring software projects is cost reduction, decreased time to market, access to specialized skills and time saving. But due to challenges like cultural differences, linguistic problems, distances, time zone differences and holiday customs, communication between client and offshore vendor is very difficult. The study analyzes the

communication needs of different OSD activities. We have highlighted some common OSD activities and different communication modes/mediums used to perform those activities. On the basis of the communication needs, the offshore software development activities and communication modes used to perform those activities have been classified into five categories including coordinative, cooperative, informative, feedback-oriented, and inquiry based activities.

Software development has taken a significant portion of the market share in IT offshoring since software coding is an activity that can be dispersed ideally across the globe (Apte and Mason 1995). Offshore software development is also expected to experience continuous growth in the foreseeable future. However, complexity and uncertainty of the nature of software development project make it vulnerable to failure (Hoch 2000). Success remains rare for software projects as they are difficult to manage even in conditions of co-location and proximity.

Due to offshore-specific risks such as the cultural and linguistic differences, different time zones, and complexities of knowledge transfer involved in IT offshoring (Sahay 2003; Heeks 2001; Dibbern 2008), offshore-outsourced projects are more prone to failure than in-house and domestically outsourced projects (Nakatsu and Iacovou 2009). These inherent risks exacerbate the communication, coordination and collaboration between vendors and clients and thus affect various stages of the offshore outsourced software development (OOSD). Several academic and practitioner studies have reported about the failed offshore projects. Since 50% of the offshore projects reportedly fail to reduce costs because of improper management (Vashistha and Vashistha 2006), the original intentions of offshore outsourcing has been questioned.

 Below are the reasons are the main reasons why many IT companies have outsource their projects:

1.1 **Reasons for Offshoring**:

Cutting down the costs:

The labor wages are less in the off shore companies is less compared to U.S. A research paper published in 2007, mentioned that the wages in Asian counties such as India are less than 50% of their equivalent labor in European countries and USA.

Lack of expertise and resources internally:

If the projects are offshored, then the internal team can focus on the main tasks. They have to worry about few things and can focus on what they wanted to. Also, many times the expertise to do certain development or work on certain language/software will be missing. Off shoring companies have that expertise. They are changing and updating according to the recent trends. So IT companies in USA are choosing to offshore their projects to the companies which can provide the required skill.

Providing Support round the clock:

Choosing an offshore company which is on the other side of the globe will help to provide the services round the clock. It also helps the development to be completed quicker.

Globalization:

Entering the international market or the market in that specific country is also a reason for outsourcing.

But many researches have shown that all the benefits of the offshoring are almost not met or partly met:

1. The costs are actually not down. Actually more costs and skilled people are needed to complete the project than the expected costs. Also, when there are many people working on the project, even if their wages are low the operational costs will high.

2. It has been found out that more management, more internal resources and more time has to be spent on managing the off shore resources to meet the deliverables. So the benefit of offshoring to concentrate on main tasks is missing.

3. Many times the offshore deliver the wrong products/applications. There is a lot of misunderstanding and lot of information lost when communicating with off shore teams and they understand something else and deliver the different product.

1.2 Reasons for failure:

Communication:

In all the projects, whether it is on shore or off shore, communication plays a very important role. One of the main reasons for project failure is lack of proper communication. Also, communication with on shore teams is much different than off shore team. With the on shore teams, TPMs can meet the team face to face, or can walk to their desks/offices to clear understanding of a certain team members concern or to explain anything to them and so on. Whereas with off shore teams there are only two main ways to communicate: through email and phone. Face to face communication is much better than telecommunication or email.

The cultural differences also effect communication. What is treated as humor in one culture might be a serious offence in another. Geographical difference is also a concern. The TPMs have to work with the off shore team during or vice versa in order to telecommunicate.

Contract Penalties:

Including harsh penalties in the contract is one of the reasons for the project failure. When these penalties are included it strains the relationship between the IT Company and their offshoring company. When the relationships are strained they have negative impact on overall project development leading to not kicking off the project or stopping the project in between or offshore team showing proper interest in the project development.

Unrealistic Timeframes:

Many times, the clients would want the project to be delivered quickly and when they outsource a project, they ask the off shore to develop the project in a time frame which would really hard to achieve. But the Offshore would agree to the time frame and will try to push their development to deliver the project on time. Many times the projects wouldn't be completed in that short time frame. This is mainly due to lack of proper communication between the offshore management and the development team on time frames.

Minimal or no Involvement:

In general, the IT companies would outsource the project, negotiate the contract, discuss the time of delivery and hand it off to the offshore team. They would involve minimally in the project. Over the years, this has proven to be a very bad practice and a reason for project failure. At the time of delivery, The IT companies would be expecting for X and the off shore would develop Y. And they would have to start the project all over again.

Sprint Planning Meeting

Sprint iteration begins by a sprint planning meeting. The Technical Project manager and the team members meet to discuss about the work that needs to be completed and can be

completed during the sprint. If there any high-priority tasks from the Business owners, those tasks will be discussed first. The TPMs will assign tasks to the different team members and will get timelines for each task from that resource.

Daily Standup

After the sprint planning is complete, the team members will start working on the assigned tasks. Generally, the length of the sprint will be about two weeks. The scrum team will meet every morning for about 10 minutes to discuss the progress of the sprint. The daily standups will help to track the progress on daily basis and to discuss the roadblocks/issues that might prevent from completion of the sprint.

During the Daily standup, each team member will be asked, what task did they work on the previous day, was it complete, were there any road blocks and what task will they be working today, any are there any roadblocks?

Sprint Review Meeting

At the end of the sprint, the scrum team meets again to review the tasks assigned for the sprint, how many tasks were completed and pending, the road blocks/issues. The team also discusses about what they liked about the current sprint and what they want to change. The sprint review meeting will help TPM to analyze what methods are working and what needs to be changed for the next sprint.

Sprint Retrospective Meeting

After the sprint review meeting is completed, the Scrum team will meet to discuss what they would like to different in the next iteration, what do they like about the current sprint and

ideas for improving the sprint results. The sprint retrospective meeting is an informal meeting and it gives the team members to get to each other well. This will help to work with each other well and produce better results. It also gives opportunity for the TPM to analyze the impediments impacting the team and design solution to resolve them.

Most of the case studies and researches mention communication is on the main factor for the failure of the offshored projects. TPM's are not able to have proper communication with the off shore teams. Even though the pre-defined communication process is setup, cultural differences, geographical difference and language impacts communication.

Researches have been conducted and solutions are proposed on how to have proper communication. Solutions like sending one in house resource to the offshore location or vice versa, establishing communication better channels have been proposed. But, one of the reasons of project failure is not being able to meet deliverables at the end of sprint. As the deliverables are not being completed in time, the projects are no being completed in time. So, I feel there is a need to address this problem.

Problem statement:

"How to improve the sprint results for the projects working with off shore teams in India?"

3. Literature Review:

Communication is big challenge in offshore software development. Since face to face communication is not always possible and availability of teams is often a big challenge due to time zone differences between client country and offshore vendor country. The intension of study is to analyze which communication modes/mediums are used for different offshore software development activities and what is role of communication in success of offshore

software development projects. The most persistent problem seems to be the greatly reduced communication in multisite projects as compared to single site projects.

3.1. Communication Challenges with Offshore teams:

Communication in offshore software development is very critical due to many challenges including cultural differences, linguistic problems, time zone difference, holiday customs etc. The cultural differences greatly complicate communication process and leads to frustration and misconceptions. When all the project stakeholders speak common language e.g. when client and offshore vendor speak English, then chances of misunderstanding are greatly reduced because language is usually culture-based.

"Multi-site software developments have to deal with the frustration of communicating with remote workers in different time zones, difficulties of language and culture and lack of trust that restrict communication" (Gabi 2008). The time zone differences in offshore software development create communication delays and reduce opportunities for real time collaborations. It is very difficult to have real time communication in OSD. The geographical distance between client and offshore vendor reduces informal communication across the sites (Mike, L., Chris, M. 2009).

Videoconferencing provides a better alternative of face-to-face which provides a human touch and gives a better feel of customer requirements by the offshore team (F. sahar, S. T. Raza, M.N Nasir 2013). Email is a text-based communication mode; therefore sometimes it is considered most appropriate for communication in offshore settings (Dhruv, N., Varadhrajan, S., Monica, A., Amit, M. 2008). Although face-to-face communication is a gold standard and it provides greater feedback to the sender, and fewer sensory cues to the receiver than all other

communication modes. But frequent face-to-face communication is difficult to manage at every time in offshore settings. Email and computer conferencing are not good because messages sent through email and computer conferencing are not modifiable and trust cannot establish between client and offshore vendor.

The above discussion describes that different communication modes/mediums are used for different OSD activities. This proves that different OSD activities have different communication needs.

3.2. Offshore Team Activities

The offshore software development lifecycle activities are same as activities in non-offshore or co-located software development but they are very difficult and complex to perform due to their offshore nature. Based on the offshore software development models and the literature in the area of offshore software development, we have identified various common offshore software development communication-intensive activities including contract negotiation, requirements elicitation, requirements verification & validation, requirements specification, resolving ambiguities from requirements document, requirements change, scope change, design communication, resolving design conflicts, client's acceptance testing, client-vendor artifacts review, code walkthroughs and inspections, initiating software maintenance, budget and schedule tracking, user support, status review meetings, top management reviews and service level audits.

3.3. Communication Modes/mediums Used

Offshore software development community is using various communication modes/medium in order to perform different offshore software development activities. These communication modes/modes include face-to-face, Email , telephone and fax , video conferencing , teleconferencing , chatting , instant messaging , voice mail , text messaging, Online discussion forums, web interactive TV, and web repository.

3.4. Need of Classification

During the last decade, the software development paradigm has shifted from co-located software development to offshore software development. This paradigm shift has created many new challenges for the software development community. These challenges directly affect the communication between client and offshore vendor. Therefore, we need to address the communication issues in offshore software development. The existing literature tells that different communication modes/mediums are used for different offshore software development activities. According to Dave Thomas (2003), "offshore outsourcing creates an increased need for communication of requirements, acceptance testing, and most importantly communication of architecture".

For requirements change face-to-face communication is usually preferred and IM and email is on second and third preference respectively. Initial requirements elicitation is usually conducted on client side and detailed specifications are completed offshore (Matthias, F., Mischa, v. d. B., Sjaak B., Frank, H., Remko, H. 2007). Email documents are not appropriate for architectural design (Dhruv, N., Varadhrajan, S., Monica, A., Amit, M. 2008). A potential difficulty is time delays when a developer gets ambiguity in the specifications. In offshore software development, user interface design is facilitated through a shared data repository. In

offshore software development, design and coding activities are conducted on offshore sites. Thus, an excellent communication and coordination mechanism is essential for communication needs in order to manage evolving changes.

The above discussion shows that different offshore software development activities have different communication needs. There is no existing study dealing with the question that which communication mode/medium is most appropriate for a specific activity. This is a question mark which creates the need to study communication needs of different offshore software development activities. Therefore it is very important to see the relationship between an offshore software development activity and the communication mode/medium used to perform that activity.

3.5. Classification of Activities

Communication is considered as the running blood of software development process, whether it is co-located software development or distributed. But when we shift from co-located software development to offshore software development, communication issues increase significantly and become more critical. In offshore software development, communication is such a serious issue, that if we do not take into account of it properly, the core advantages of offshore software development, such as access to specialized skills, flexible resource availability, and cheaper labor will be lost in the communication overhead.

The offshore outsourced projects are frequently prone to failures and the only reason behind this is miscommunication or poor communication between client and offshore vendor. Due to miscommunication, most of the offshore software development projects complicate the transmission process of the actual set of requirements which leads to frequent change requests. Therefore, effective communication between client and offshore vendor is primary success factor

for offshore software development. According to literature evidence, a coordinative and cooperative environment is precondition for successful offshore software development.

Awareness about the activities, regular feedbacks, and proper response against the inquiries are essential to achieve the objectives of OSD effectively. Unfortunately, there is no research on activity specific communication mode/medium selection for an offshore software development environment. There is a need to investigate that, which communication mode/medium is appropriate for a specific offshore software development activity. Since appropriate communication mode/medium is essential to perform any activity in offshore software development.

3.5.1 Coordinative Offshore Software Development Activities

Coordination means the act of integrating each task and organizational unit so that it contributes to the overall objectives (Dhruv, N., Varadhrajan, S., Monica, A., Amit, M. 2008). The coordination between client and offshore vendor is very essential in offshore software development activities. There are some activities in offshore software development which require strong coordination between client and vendor. We named this type of activities as coordinative offshore software development activities. These activities include contract negotiation, top management reviews, acceptance testing, design communication, and status review meeting. For architectural design communication, email and documents sharing is not appropriate, this type of activity requires physical presence of the key players responsible for the design activity.

Architectural design is a very critical activity, since making a decision by using email or teleconferencing is very difficult. The project status review meetings are coordination

mechanism used in offshore software development activities and take place through video conferencing. At the time of contract negotiation, face-to-face communication is very essential because face-to-face communication increases trust between client and offshore vendor. Acceptance testing is usually carried out by onsite team members and face-to-face communication is usually preferred. In offshore software development, top management reviews are most effectively conducted through face-to-face and through video conferencing.

3.6. Classification of Communication Modes/Mediums

Communication techniques and tools are more important to offshore software development efforts than technologies and programming skills and companies that are doing offshore software development efforts can verify the fact that OSD projects do not fail because of technology or programming skills, but because of communication issues.

3.7. Cultural distance

Culture plays an important role in any team activity's success and is associated with the knowledge sharing process and common understanding between team members. Understanding and dealing with cultural differences for the efficient transfer of project related knowledge is one of the motivations for our research. Furthermore, cultural compatibility is often described as an important factor in determining the success of international software development teams (Gallivan 2005). A number of researchers have already investigated cross-cultural offshore projects (Gallivan 2005; Krishna 2004; Walsham 2002) and they suggest that the cultural approach in IT research needs to take a broader view on culture. Culture is a difficult topic to discuss and a limitation of cross-cultural work is that culture is constantly changing.

According to Hofstede (1980), Culture is more often a source of conflict than of synergy. Cultural differences are a nuisance at best and often a disaster. Dealing with cultural difference in a project can be troublesome, but it shouldn't be considered as just a single influencing variable but rather as a set of variables that influence the project on multiple levels. This approach to understanding culture sees many different layers, including national, organizational, professional groups, and individuals. These are seen as being intertwined in a complex, non-hierarchical way (Gallivan, Karahanna 2005).

This approach may be convenient for conceptualization, but it is very limited for practical purposes in the modern international business world. Hofstede furthermore points out that geographical separation and cultural differences can lead to quasi-autonomous sub-organizations which may lead to further problems of communication, co-ordination, control and motivation (Hofstede 1984b). Thus cultural differences within organizations should not be ignored when discussing knowledge transfer and can be regarded as one of the barriers between company divisions and local units. Knowledge transfer between project partners located in the same country can be troublesome enough, but it is clear that this problem becomes much more severe with geographical and cultural distance (Boden 2009; Bresman 1999).

Within knowledge sharing relationships between members of differing cultures, participants communicated less information than between members of the same cultural background. Li shows that communication between individuals in high-context countries and low-context countries differs significantly in the amount of information transferred (Li 1999). These differences in communication between high-context and low-context cultures lead to tremendous losses of relevant knowledge within the transfer process between these groups.

Contact and communication between different cultures is an inherent fact of offshoring, thus research on cross-cultural issues in this area is gaining more and more emphasis. Motivated by the immense potential negative influence of cross-cultural issues on performance as well as relationship building in software development projects (Carmel 2005), even IS research is beginning to focus on culture. The common understanding of culture is that it is learned, associated with values and behaviors, shared by a group, and passed from one generation to the next (MacGregor 2005).

To explain cultural differences, researchers make use of dimensions of national cultural variations. These dimensions are the specific aspects of a culture that can be measured in relation to other cultures (Hofstede 2004). Hofstede provides an overview of the most popular cultural dimensions: power distance, individualism, uncertainty avoidance, masculinity/femininity, and long/short term orientation. Referring to these dimensions helps to understand and explain why people from different cultures might behave and think differently. For the study of offshore software development, these dimensions can be a useful metric for understanding problems before they arise and analyzing why knowledge sharing can be so complicated between team members from different cultures.

Hofstede work on culture has, however, been the subject of some criticism. According to McSweeney (2002), he sees culture as a stable, monolithic concept; cultural groups are seen as homogeneous, ignoring the possibility of subcultures; and actors only interact in one culture at a time. Although these points might have some validity, other scholars argue that managers and groups tend to identify strongly with their national values and thus this important source of culture cannot be ignored (Sahay 2003).

4. **Research Methodology**

In order to answer the research question of this thesis, on shore and offshore cases will be researched. The projects have one on shore TPM and at least 2 team members in both onshore and offshore locations. All onshore team members are in Kansas, US. The offshore team members of both the project are located in Bangalore, India.

The research will be conducted by observing the sprint results of two projects. The new methods designed for improving the sprint results will be adopted and used by the two project teams. The project teams apply the new techniques for Sprint planning sessions, daily scrum, sprint review meeting and the retrospective meeting. The aim of this research is to improve the sprint results for the projects with off shore teams from India.

Currently, only about 50 percentages of the planned tasks are being completed for sprint iteration. The goal of the project is to increase the completion percentage to at least 75. To measure the task completion percentage, the output of the sprint planning meeting is compared with the results at the end of the sprint.

The following formula will be used to measure the Tasks completion percentage for sprint iteration:

$$\frac{number\ of\ tasks\ completed\ by\ the\ end\ of\ the\ sprint}{number\ of\ tasks\ planned\ during\ the\ sprint\ planning\ meeting}x100$$

For sprint iteration, the Technical project manager will record the number of tasks planned during the sprint planning and the number of the tasks completed by the end of the sprint, in an Excel sheet and calculate the Task completion percentage. The research should be

conducted for at least for eight sprints to analyze the results. Unfortunately, due to time limit for this research the results of only two sprint iterations will be recorded and measured.

Also, the onshore project managers, off shore project managers, the onshore team members and offshore team members will be interviewed. The interviews will deliver information about the distances, communication, coordination, and success of the projects. The team members will be asked to fill out a questionnaire about communication during the project. The purpose of this research is to find the coordination measures that improve communication and led to successful sprint meetings. To find these measures, we need information about coordination, communication, and successes in the selected projects need to be found out.

The information about the projects will be collected in two ways: via semi-structured interviews and via a questionnaire.

Semi-structured Interviews:

The projects will have one TPM onshore, one TPM offshore (optional) and at least 4 team members onshore and offshore. All onshore team members are in Kansas, US. The offshore team members of both the project are located in Bangalore, India. The projects are varied in team size, and project duration (3 months – 2 years).

Both the TPM's and the offshore team members would be interviewed, to understand the gaps in communication. The interview topics will be about Project data, Distances in the project team, team Coordination, Communication tools and the project Performance.

 Questionnaire:

Communication and knowledge exchange is the major key to success. In order to get a complete overview of communication in the project, a questionnaire will be sent to all project team members. This questionnaire would show insight in the communication lines during the sprint planning session, and will also show whether the team members have enough knowledge to perform their activities during the sprint.

4.1 Communication

It will also be asked in the questionnaire which communication channels being used by the team member to have contact. The order will be according to communication information richness (Carmel, 1999): desktop sharing, e-mail, chat, phone, internet phone, video conference, advanced video conference, and face to face communication. The answers will tell something about the richness of the communication with each team member: if team members communicated every day over the phone for one hour, there is less information communicated than if they communicated every day face to face for one hour. This is because face to face communication is richer than communication by phone (Carmel, 1999).

4.2 Knowledge exchange

In order to get an overview of the knowledge exchange in the projects, the team members would be asked whether they received information from their colleagues in Onshore or the offshore country, or from the customer, to perform their activities. The questions would be asked, in the Questionnaire, in the form of sentences that could be agreed on a certain level. The answers could be given on a five point Likert scale: from totally not agree, to totally agree. The

answers will indicate whether the project team members had enough knowledge to complete the sprint successfully.

4.3 Data collection

This section describes how the data will be we collected.

Sprint results:

Due to time limit, the results of only two sprint iterations will be recorded for this research. For sprint iteration, the Technical project manager will record the number of tasks planned during the sprint planning and the number of the tasks completed by the end of the sprint, in an Excel sheet. Then the Tasks completion percentage is calculated by using following formula:

$$\frac{number\ of\ tasks\ completed\ by\ the\ end\ of\ the\ sprint}{number\ of\ tasks\ planned\ during\ the\ sprint\ planning\ meeting} x100$$

Figure1: Snapshot of the Excel sheet used by TPM to record the sprint results

Sprint Iteration	Start and End Dates	Number of tasks planned during sprint planning meeting	Number of Tasks completed by the end of the sprint	Tasks completed Percentage

Interviews:

The length of the interviews will be about half an hour for each interview. The Technical project managers will be interviewed at their own location and the offshore team members would be interviewed using the Videoconference tool. Interviews will be recorded and all the answers will be filled in the worksheets. We used a Microsoft Excel file to write down all the answers on the questions. The answers on the worksheets were used to calculate the offshore percentage of roles and activities

Questionnaire:

The questionnaire will be sent to each team member by email. The team members will fill out the questionnaire and will email it back. The questionnaires will be combined into an Excel sheet and the responses will be represented in table format.

5. Results and Analysis

In this section the results from observations, interviews and surveys are present and the results are analyzed. As stated in the Introduction, following are the reasons for poor results in sprints: lack of proper communication methods, lack of coordination, difference in culture between on-shore and off shore teams and difference in time zones. This research focuses Proper communication and coordination methods, better understanding of each other cultures and performance, as key attributes for improving the sprint results of a project.

Unfortunately, due to time limit, difference in the team sizes and in the support received from the Business Owners for the respective projects, the projects used different techniques for improving their sprint results.

5.1 Performance

5.1.1 Project-1:

5.1.1.1 Description of the Project Team:

This project has one on-shore Technical project manager (TPM), 4 developers on shore, 2 developers off shore and 2 offshore QA Engineers, whose commitment was 100% to this project. Depending on the requirements, Project1 had few onshore resources, whose to this project ranged from 25%-75%.

5.1.1.2 Adopted techniques for Improving Sprint Results:

Due to lack of necessary support from the Business Owners, Project-1 used very few techniques for improving the sprint results. Project-1 focused on minimizing communication barriers by using Hofstede's cultural dimensional theory during the Sprint planning, daily scrum, sprint retrospective and closing meetings.

Hofstede's cultural dimensions theory:

It is the framework developed my Mr. Hofstede for understanding cross-cultural communication. According to Hofstede, the work culture is different in every country and understanding each other's culture is necessary for having better communication during the project.

Figure 2: Hofstede's Cultural Dimensional theory
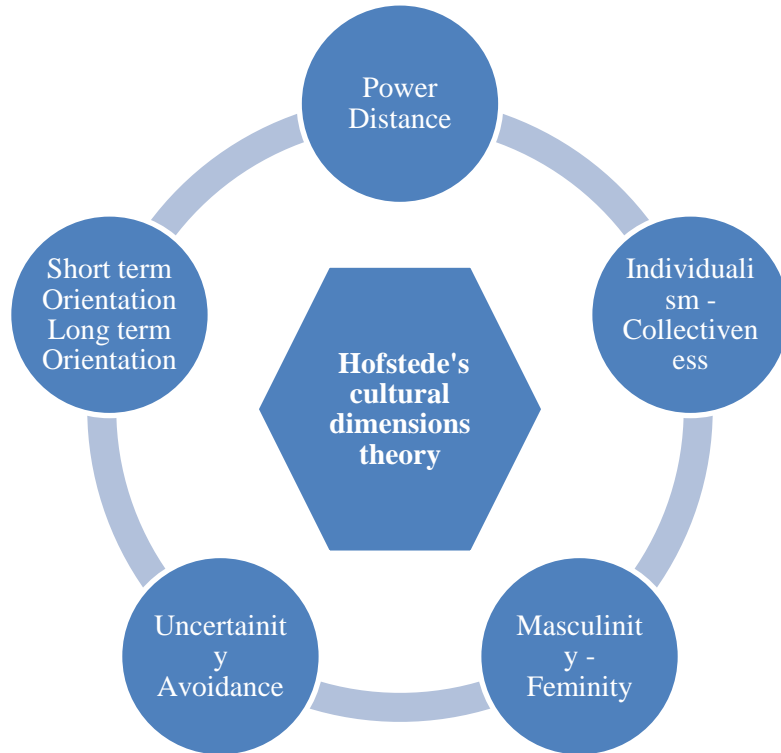
Hofstede proposed five cultural dimensions along which the cultural values of a country can be analyzed. The five cultural Dimensions include:

1. **Power distance**: According to Hofstede, Power Distance Index (PDI) is "the extent to which the less powerful members of organizations and institutions accept and expect that power is distributed unequally."

   A higher degree of PDI shows inequality. The people with power make decisions and force the people with less power to do it. People with less power feel that they don't have the power to question the authority and the rules set. Higher degree of the PDI

indicates that people with power, wealth, and educational status are valued and a hierarchy is created in the society.

Whereas the lower degree of the PDI indicates that people have the power and right to question authority. There are no hierarchies' setups and the power is attempted to be attempt to distribute among everyone.

Figure 3: Differences between the degrees within the Power Distance Index

Small Power Distance	Large Power Distance
Use of power should be legitimate and is subject to criteria of good and evil	Power is a basic fact of society antedating good or evil: its legitimacy is irrelevant
Parents treat children as equals	Parents teach children obedience
Older people are neither respected nor feared	Older people are both respected and feared
Student-centered education	Teacher-centered education
Hierarchy means inequality of roles, established for convenience	Hierarchy means existential inequality
Subordinates expect to be consulted	Subordinates expect to be told what to do
Pluralist governments based on majority vote and changed peacefully	Autocratic governments based on co-optation and changed by revolution
Corruption rare; scandals end political careers	Corruption frequent; scandals are covered up
Income distribution in society rather even	Income distribution in society very uneven
Religions stressing equality of believers	Religions with a hierarchy of priests

Source: Wikipedia

2. **Individualism-collectivism**: "Degree to which people in a society are integrated into groups" is called as Individualism-collectivism Index (IDV).

The lower degree of the index represents Individualistic societies. In the Individualistic societies, people have loose ties. The relationship of the individual with their immediate family is only considered to make any decisions.

The high degree of IDV represents collectivism. In collectivism, the relationships with their immediate families, relatives, work relationships and neighbors are considered for making any decisions. Collectivism represents societies with tight relationships.

Figure 4: Differences between the degrees within the Individualism-Collectivism Index

Individualism	Collectivism
Everyone is supposed to take care of him- or herself and his or her immediate family only	People are born into extended families or clans which protect them in exchange for loyalty
"I" – consciousness	"We" –consciousness
Right of privacy	Stress on belonging
Speaking one's mind is healthy	Harmony should always be maintained
Others classified as individuals	Others classified as in-group or out-group
Personal opinion expected: one person one vote	Opinions and votes predetermined by in-group
Transgression of norms leads to guilt feelings	Transgression of norms leads to shame feelings
Languages in which the word "I" is indispensable	Languages in which the word "I" is avoided
Purpose of education is learning how to learn	Purpose of education is learning how to do
Task prevails over relationship	Relationship prevails over task

Source: Wikipedia

3. **Uncertainty avoidance:** Hofstede defines Uncertainty Avoidance index (UAI) as "a society's tolerance for ambiguity, in which people embrace or avert an event of something unexpected, unknown, or away from the status quo."

   Societies with higher UAI generally create of behavior, guidelines, and rules of behaviors, rigid codes and laws. These societies are run according to the created rules and laws.

The counterparts to the higher degree are the Societies with different thoughts/ideas, in which very few very fewer rules and laws are imposed on its people. The environment in these socities will be free-flowing and individuals are given scope to explore and act on their will.

Figure 5: Differences between the degrees within the Uncertainty Avoidance Index

Weak Uncertainty Avoidance	Strong Uncertainty Avoidance
The uncertainty inherent in life is accepted and each day is taken as it comes	The uncertainty inherent in life is felt as a continuous threat that must be fought
Ease, lower stress, self-control, low anxiety	Higher stress, emotionality, anxiety, neuroticism
Higher scores on subjective health and well-being	Lower scores on subjective health and well-being
Tolerance of deviant persons and ideas: what is different is curious	Intolerance of deviant persons and ideas: what is different is dangerous
Comfortable with ambiguity and chaos	Need for clarity and structure
Teachers may say 'I don't know'	Teachers supposed to have all the answers
Changing jobs no problem	Staying in jobs even if disliked
Dislike of rules - written or unwritten	Emotional need for rules – even if not obeyed
In politics, citizens feel and are seen as competent towards authorities	In politics, citizens feel and are seen as incompetent towards authorities
In religion, philosophy and science: relativism and empiricism	In religion, philosophy and science: belief in ultimate truths and grand theories

Source: Wikipedia

4. **Masculinity-femininity:** The Masculinity-femininity Index (MAS) is defined as "a preference in society for achievement, heroism, assertiveness and material rewards for success."

The higher degree of MAS indicates dominance of Men over women. It also indicates that preference is given for results, achievements, heroism and material success. People in the societies with higher MAS always compete with each other and focus on

achieving materialistic and individualistic success rather than thinking about others. Also women are suppressed and are not given equal importance as men.

Whereas in the societies with lower MAS, Women are treated equal with men and are provided with equal opportunities as men. Also, Women handwork and contribution will be recognized and valued in the feminist type of societies.

Figure 6: Differences between the degrees within the Masculinity vs. Femininity index.

Femininity	Masculinity
Minimum emotional and social role differentiation between the genders	Maximum emotional and social role differentiation between the genders
Men and women should be modest and caring	Men should be and women may be assertive and ambitious
Balance between family and work	Work prevails over family
Sympathy for the weak	Admiration for the strong
Both fathers and mothers deal with facts and feelings	Fathers deal with facts, mothers with feelings
Both boys and girls may cry but neither should fight	Girls cry, boys don't; boys should fight back, girls shouldn't fight
Mothers decide on number of children	Fathers decide on family size
Many women in elected political positions	Few women in elected political positions
Religion focuses on fellow human beings	Religion focuses on God or gods
Matter-of-fact attitudes about sexuality; sex is a way of relating	Moralistic attitudes about sexuality; sex is a way of performing

Source: Wikipedia

5. **Time Orientation:** The Long-term orientation vs. short-term orientation Index (LTO) is defined as "the connection of the past with the current and future actions/challenges."

In the short term orientation, the traditions are honored but not changed, while steadfastness is valued. Whereas, In the long term orientation Out of box thinking, problem-solving nature and adaption to the given circumstances are valued.

Figure 7: Differences between the degrees within the Long-Term vs. Short-Term Orientation index.

Short-Term Orientation	Long-Term Orientation
Most important events in life occurred in the past or take place now	Most important events in life will occur in the future
Personal steadiness and stability: a good person is always the same	A good person adapts to the circumstances
There are universal guidelines about what is good and evil	What is good and evil depends upon the circumstances
Traditions are sacrosanct	Traditions are adaptable to changed circumstances
Family life guided by imperatives	Family life guided by shared tasks
Supposed to be proud of one's country	Trying to learn from other countries
Service to others is an important goal	Thrift and perseverance are important goals
Social spending and consumption	Large savings quote, funds available for investment
Students attribute success and failure to luck	Students attribute success to effort and failure to lack of effort
Slow or no economic growth of poor countries	Fast economic growth of countries up till a level of prosperity

Source: Wikipedia

Cross-cultural differences between US and India:

Figure 8: Graph representing the Cross-cultural differences between US and India
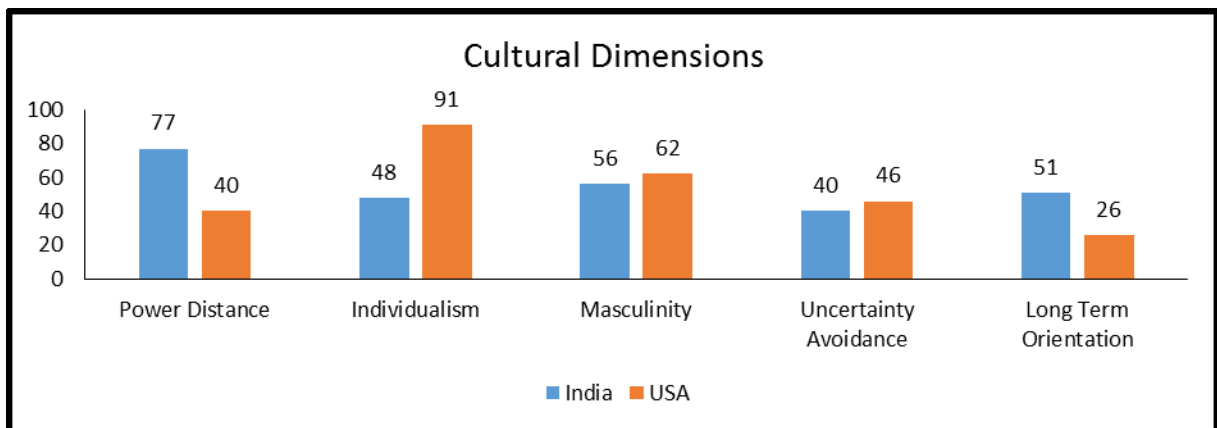
Power distance: India scored 77 on PDI, whereas U.S scored 40. This indicates that India falls under the higher degree of PDI and U.S. falls in the lower degree.

In India, Top to down hierarchy is followed in work and in societies. A higher degree of PDI shows inequality. The people with power make decisions and force the people with less power to do it. People with less power feel that they don't have the power to question the authority and the rules set. Higher degree of the PDI indicates that people with power, wealth, and educational status are valued and a hierarchy is created in the society. Whereas, in United States, people have the power to question the authority. There are no hierarchies' setups and the power is attempted to be distributed among everyone.

Individualism:

India scored 48 on IDV and U.S scored 91. This indicates that Indians are collectivist and United States people are more individualists. Indians consider their relationships with their immediate families, relatives, work relationships and neighbors are considered for making any decisions. Collectivism represents societies with tight relationships. United states people only their relationship with their immediate family for making any decisions.

Masculinity-Feminity:

India scored 56 on MAS, whereas U.S scored 62. This indicates that both India and U.S falls under the higher degree of MAS. Both the nations prefer dominance of Men over women. Also they give preference for results, achievements, heroism and material success. People in the

societies with higher MAS always compete with each other and focus on achieving materialistic and individualistic success rather than thinking about others.

Women in U.S. are suppressed and are not given equal importance as men. Whereas in India, Women are treated equal with men and are provided with equal opportunities as men. Also, Women handwork and contribution are recognized and valued in India.

Uncertainty-avoidance:

India scores 40 on UAI and U.S scored 46. Societies with higher UAI generally create of behavior, guidelines, and rules of behaviors, rigid codes and laws. These societies are run according to the created rules and laws. The counterparts to the higher degree are the Societies with different thoughts/ideas, in which very few very fewer rules and laws are imposed on its people. The environment in these societies will be free-flowing and individuals are given scope to explore and act on their will.

Term orientation:

According to Hofstede's model, Indians score 61, making it a long term and pragmatic culture. In the long term orientation Out of box thinking, problem-solving nature and adaption to the given circumstances are valued. On the other hand U.S scored 26 making it a Short term Orientation Culture. In U.S, the traditions are honored but not changed, while steadfastness is valued.

1. The Cultural differences between U.S and India are explained to TPM using the Hofstede model.

2. TPM was given suggestions on how to overcome the communication problems created due to cultural differences.

   For e.g., Indians have Top-down hierarchies setup. So including the Boss in the email conversation also helps to get the things done quickly.

3. The team has started using online poker game for sprint session. This game helps to involve all team members in the planning sessions and get their opinions and feedbacks. Team members will use poker cards to give their story point estimate for each task. This made the sprint planning fun and better.

5.1.1.3 Results:

The Sprint report graphs are included for iteration1 and iteration2. The sprint report graph shows the story points the project team has committed during the Sprint planning session, changes to the commitment during the iteration and the story points completed by the end of the sprint.

Table 1: Sprint Report for Project 1

Sprint Iteration	Start and End Dates	Number of tasks planned during sprint planning meeting	Number of Tasks completed by the end of the sprint	Tasks completed Percentage
1	9/28/16 – 10/12/16	16	11	68.75%
2	10/12/16-10/27/16	72	30	41.66%

Figure 9: Sprint report for Project 1's Iteration1
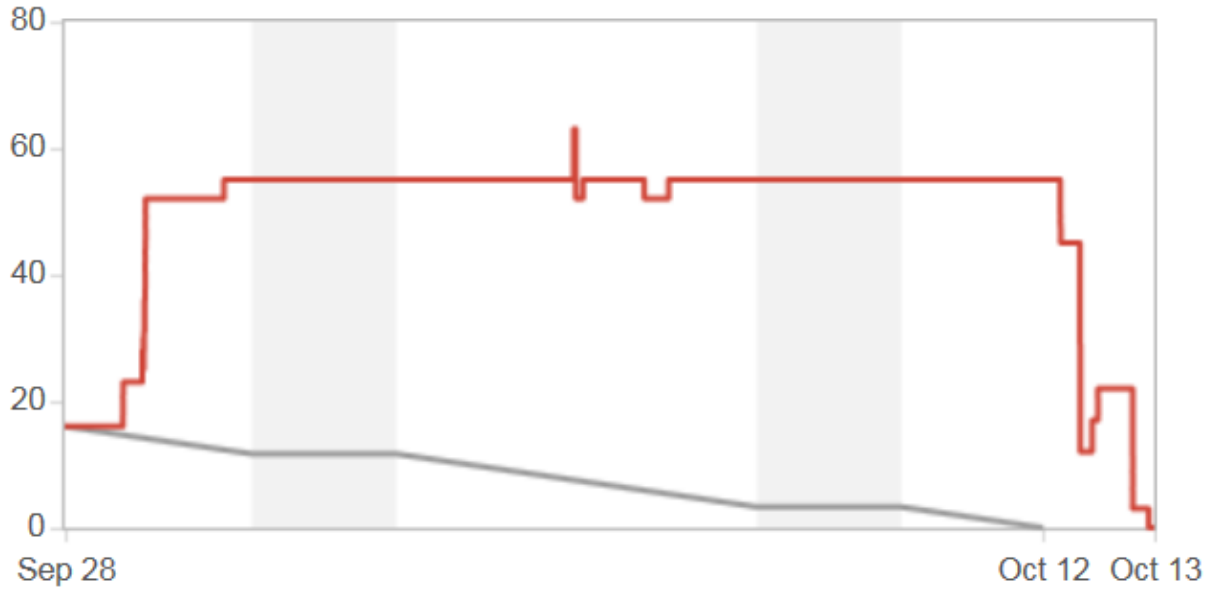

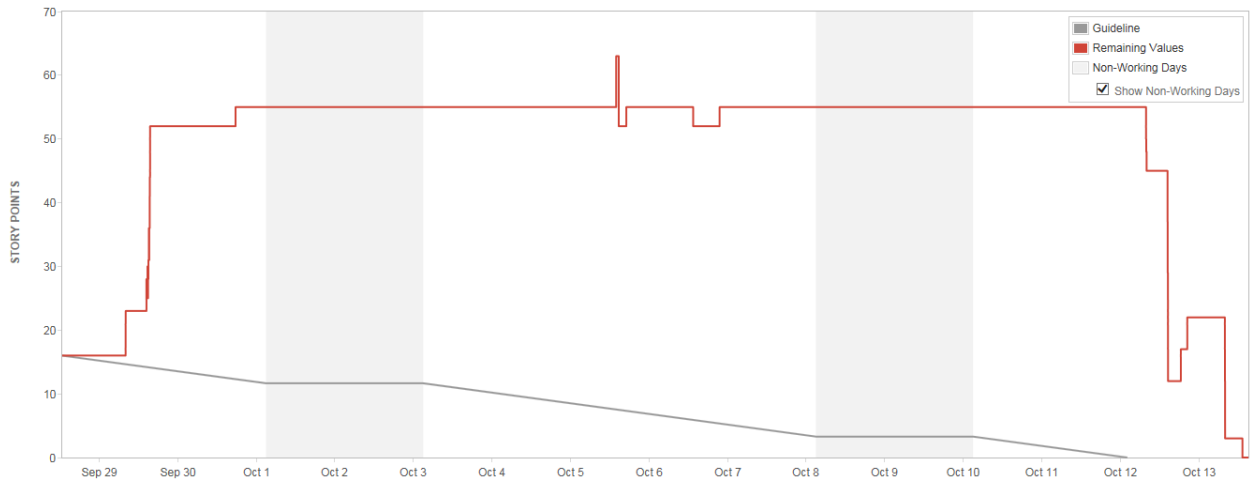**Figure 10: Burn down chart for Iteration1**
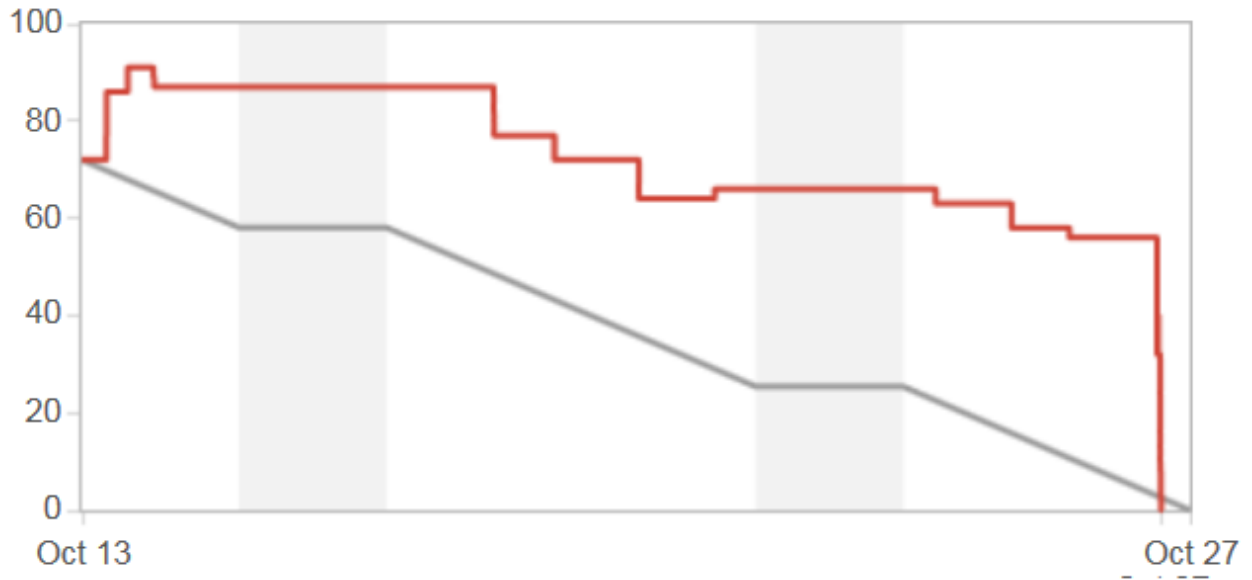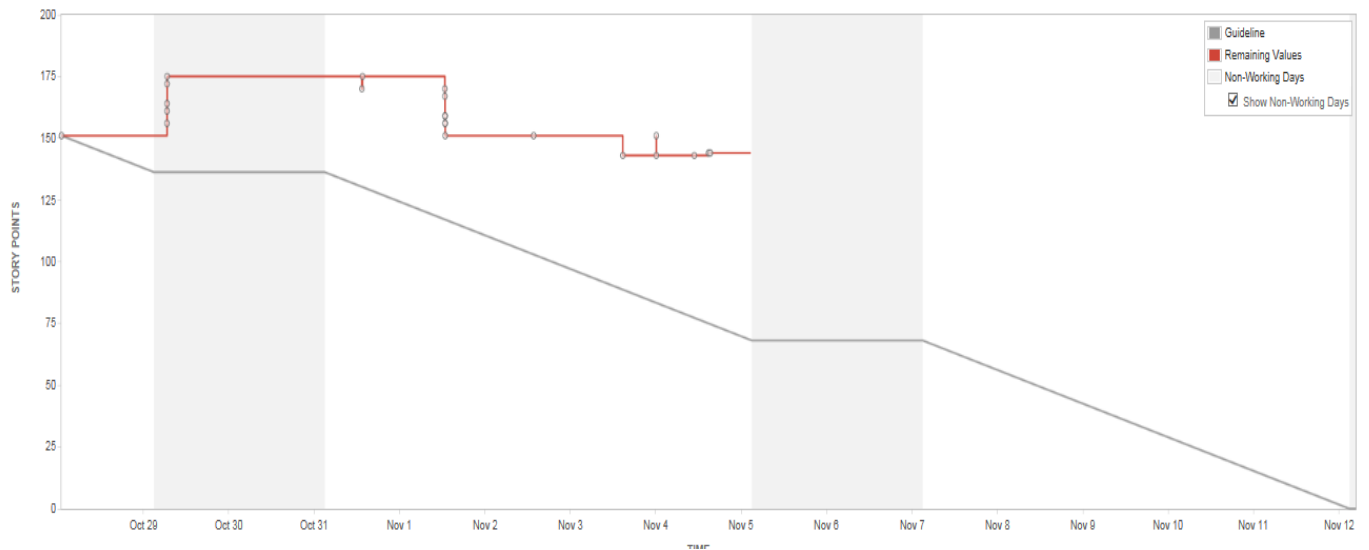
Figure 11: Sprint report for Iteration2

Figure 12: Burn down chart for Iteration2

5.1.1.4 Analysis:

The velocity chart and the table show the performance of Project-1 in sprint Iteration1 and 2.
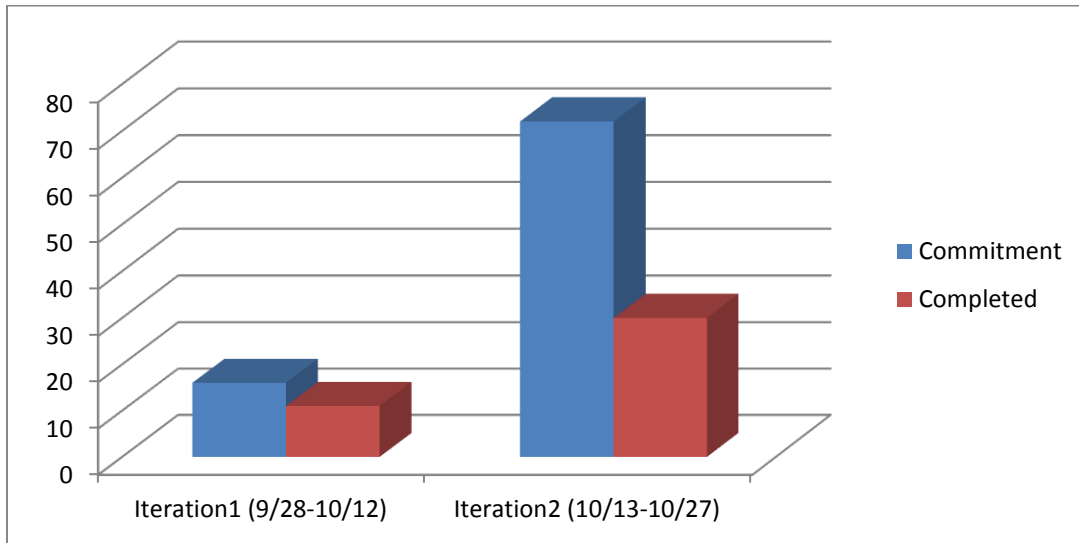
Figure 13: Project 1 Velocity Chart

Table 2: Project 1 Velocity Chart values

Sprint	Committed	Completed
9/13-9/27	23	9
9/28-10/12	16	11
10/13- 10/27	72	30

The Business owners' participation in the project and interaction with the Project 1 was very minimal and the project team didn't adopt all the suggested approaches for improving the sprint results. As the result, many of the committed story points for iteration1 and 2, have been either moved to backlog or the next sprint. There was huge misunderstanding in the scope of the tasks. BO would request for a particular feature or add-on or product. But due to lack of proper communication, the developers misunderstand it and develop different features or products. This has been of the major reasons for moving most of the tasks to next sprints leading to sprint failures.

Project-1 didn't show much improvement in the Task completion percentage for Iteration1 and 2. The team continued to have struggles in completing the committed story points by the end of the sprint.

5.1.2 Project-2:

5.1.2.1 Description of the Project Team:

This project has one on-shore Technical project manager (TPM), off-shore technical project manager, 2 developers on shore, 4 developers off shore, one QA engineer on-shore and 2 offshore QA Engineers, whose commitment was 100% to this project. Depending on the requirements, Project-2 also had few onshore resources, whose commitment to this project ranged anywhere from 25%-75%.

5.1.2.2 Adopted techniques for Improving Sprint Results:

Apart from using the techniques adopted by Project-1, Project-2 has used most of the suggested approaches and techniques for improving their sprint results.

1. Hiring off-shore Technical Project manager.

2. Sending on-shore lead developer to offshore location for 30 days

3. Sending offshore technical project manager and lead developer to onsite for 30 days

4. Using video meetings for sprint planning and retrospective meetings

5. Allocating, at least an hour for giving the team members chance to hang out with or communicate with team members after the sprint retrospective meetings.

6. Inviting the offshore TPM and all the onshore and offshore team members for sprint planning, daily scrums and retrospective meetings.

7. Allowing off-shore development team to communicate with the Business or the project owner to understand the requirements properly before starting the development tasks.

5.1.2.3 Results:

The Sprint report graphs are included for iteration1 and iteration2. The sprint report graph shows the story points the project team has committed during the Sprint planning session, changes to the commitment during the iteration and the story points completed by the end of the sprint.

Table 3: Sprint Report for Project 2

Sprint Iteration	Start and End Dates	Number of tasks planned during sprint planning meeting	Number of Tasks completed by the end of the sprint	Tasks completed Percentage
1	9/28/16 – 10/19/16	59.5	48	80.67%
2	10/19- 11/4	52	43	82.69%

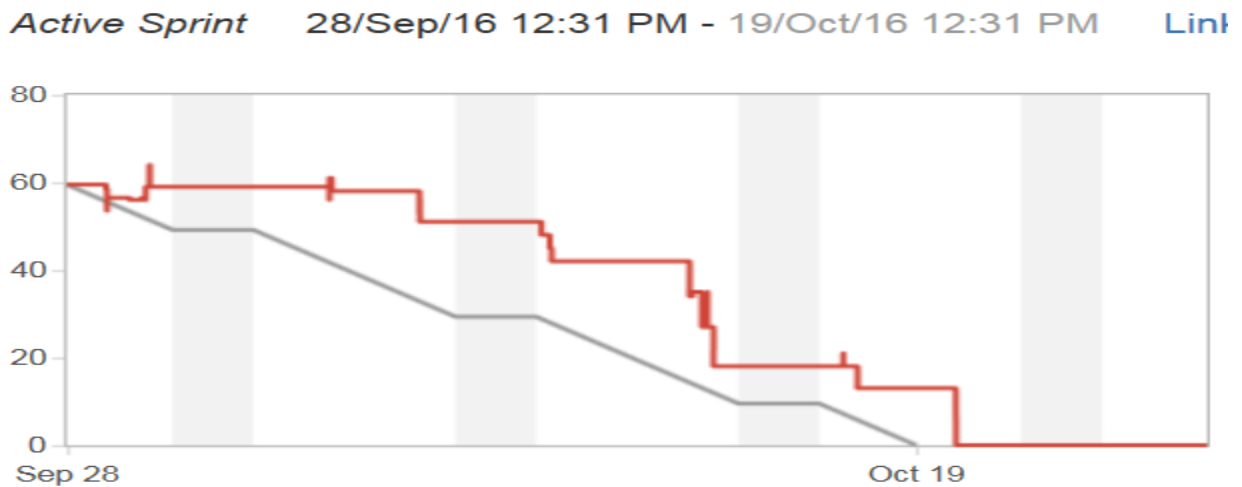**Figure 14: Sprint report for Project 2's Iteration1**

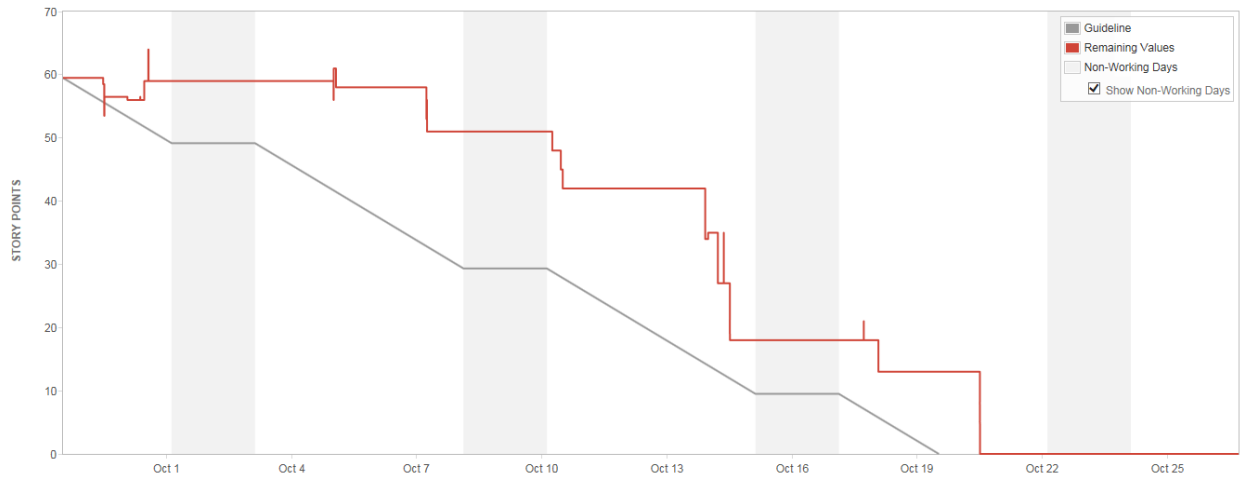**Figure 15: Burn down chart for Project 2's Iteration 1**

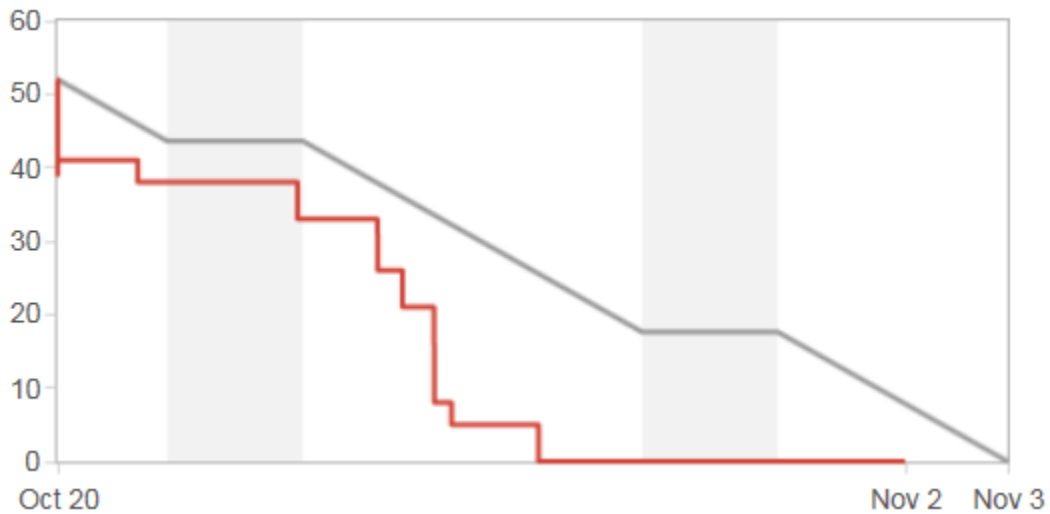**Figure 16: Sprint report for project 2's Iteration2**

Figure 17: Burn down Chart for project 2's Iteration2
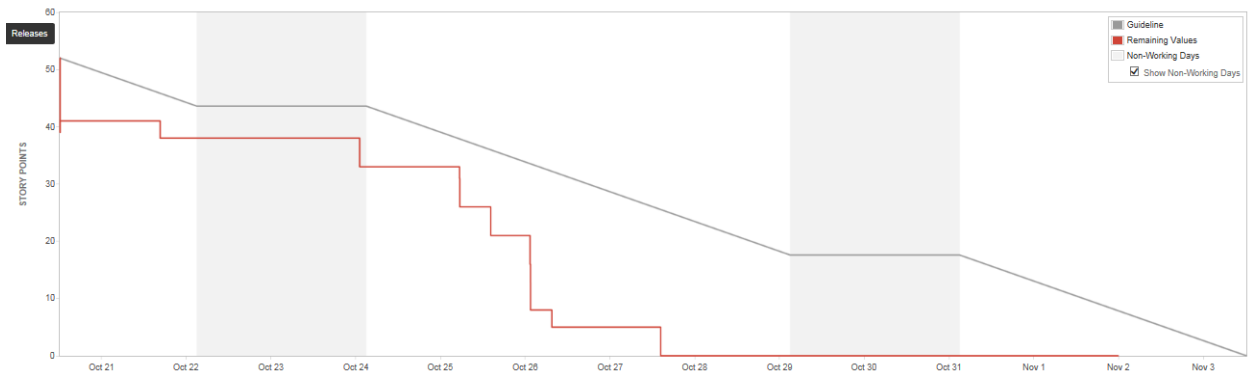
5.1.2.4 Analysis:

The velocity chart and the table show the performance of Project-2 in sprint Iteration1 and 2.

Figure 18: Project 2 Velocity Chart
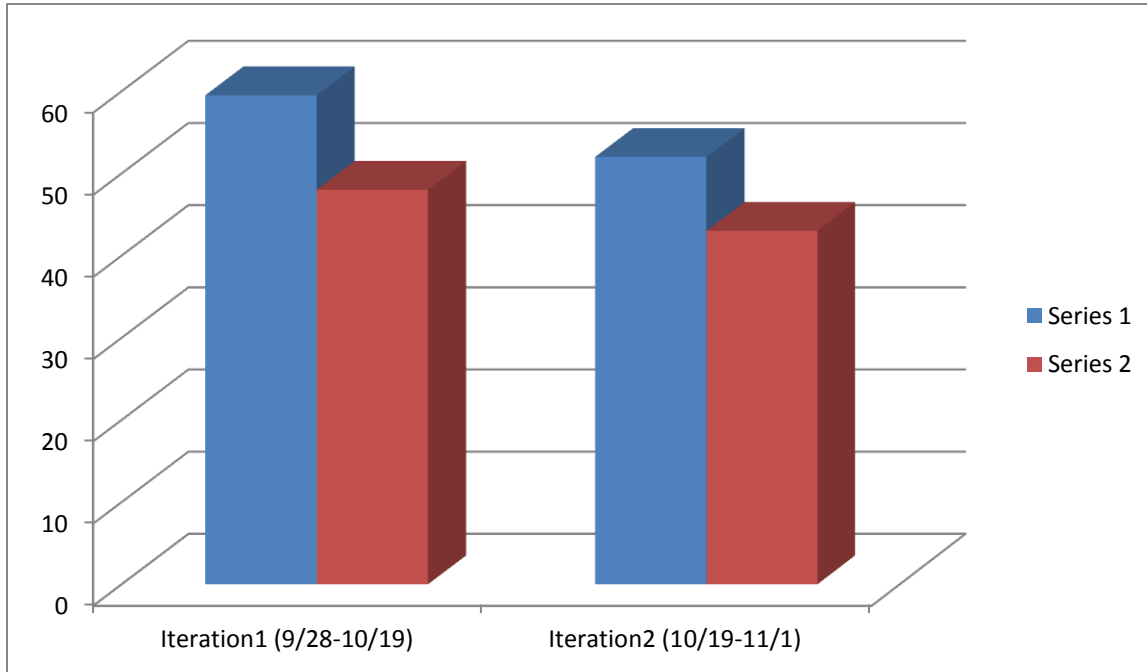
Table 4: project 2 Velocity chart values

Sprint	Committed	Completed
9/15-9/28	62	39
9/28-10/19	59.5	48
10/19- 11/4	52	43

Adopting most of the suggested approaches and techniques, Project-2 showed significant improvement in their sprint results. The desired result was to achieve at least 75% task completion ration and Project-2 task completion percentage is above 80 percentages in both the iterations. Using the suggested approaches and techniques majority of the story points were completed during the sprint. Allowing both on-shore and off-shore developers to communicate with the Business Owners lead to very minimal change in the scope of the committed tasks.

5.2 Questionnaire and Interviews

5.2.1 Results:

Below are the results gathered from the surveys and interviews conducted with the project-1 and project-2 team members:

Table 5: Interviews and Questionnaire Results

Question	Project -1	Project -2
Does The Lead On-Shore Team Member Know The Scope Of The Project?	Yes	Yes
Does The On-Shore Team Member Know The Scope Of The Project?	No	Yes
Does The Lead Off Shore Team Members Know The Scope Of The Project?	Yes	Yes
Does The Off Shore Team Members Know The Scope Of The Project?	No	No
Did The On-Shore And Off-Shore Team Members Worked With Each Other Previously?	No	No
Did The TPM Travel To The Off-Shore Location?	No	No

Did The Lead On-Shore Developer Travelled To The Off-Shore Location?	No	Yes
Has An Off-Shore TPM?	No	Yes
Did The Off-Shore TPM Travel To On-Site Location?	No	Yes
Did The Off-Shore Lead Developer Travel To The On-Site Location?	No	Yes
Was A Formal Knowledge Transfer Session Conducted Between On-Shore And Off-Shore Teams?	Yes	Yes
Are All The Documents That Are Available To Onshore Team Are Available To Offshore?	No	Yes
Communication Channels?	Hipchat, Skype For Business, Microsoft Exchange And Avaya Phone	Hipchat, Skype For Business, Microsoft Exchange And Avaya Phone
Are The Activities Done On-Shore And Off-Shore Clearly	No	Yes

Defined?		
Are The On-Shore Team Members Allowed To Communicate With BO's And Key Stake Holders?	Yes	Yes
Are The Off-Shore Team Members Allowed To Communicate With BO's And Key Stake Holders?	No	Yes
Are The On-Shore And Off-Shore Team Members Invited To All The Team Meetings?	No	Yes
Are The On-Shore And Off-Shore Team Members Given Opportunities To Get To Know Each Other?	No	Yes

5.2.2 Analysis:

5.2.2.1 Project-1:

After studying the results gathered from the interviews conducted with TPM and key project team members the following analysis is made:

Business Support:

1. The off-shore team developers are not allowed to communicate with the Business owners, which lead to the misunderstanding in the scope of the Jira stories and unsuccessful development.

2. No necessary support from business owners.

Co-ordination strategies:

1. The on-shore and off-shore activities are not clearly specified.

2. No proper documentation available.

3. Without proper knowledge transfer or understanding of the development activities, the off-shore developers were assigned to work on development.

4. The on-shore team and the TPM have no understanding of how the work environment in off-shore location.

5. No off-shore coordinator.

6. Opportunities to work with each other and to develop work relationships are not given to both off-shore and off-shore team members.

7. Lack of proper sprint planning techniques

8. Unclear requirements and very frequent scope changes during the sprint.

Communication:

1. Not involving all the team members in the project team meetings.

5.2.2.2 Project-2:

After studying the results gathered from the interviews conducted with TPM and key project team members the following analysis is made:

Business Support:

1. The off-shore team developers are allowed to communicate with the Business owners

2. Good support from business owners.

3. Involving the Business owners in pre-production, production and post-production testing activities.

4. Requiring Business owners sign-off for testing the pre-prod environment.

5. And requiring BO's sign-off after making the changes in production.

Co-ordination Strategies:

1. The on-shore and off-shore activities are specified very clearly.

2. Documentation available is both the on-shore and off-shore teams

3. Having an off-shore TPM.

4. Adopting new techniques for sprint planning, closing and retrospective meetings.

5. Defining the requirements clearly. Less scope changes in the jira stories or assigned work during the sprint.

6. Allocating time for identifying the reasons for any production deployment failures.

Communication:

1. The on-shore lead developer travelled off-shore location for understanding the work environment in off-shore location.

2. The off-shore TPM and Lead developer have visited the on-shore location for better understanding of the project activities, work environment and improving work relationships.

3. The on-shore TPM contacts off-shore TPM daily.

4. Conducting proper knowledge transfer sessions. Encouraging the off-shore team members understanding the development activities and work process.

5. Opportunities are given to the off-shore and on-shore team members to work with each other and to develop work relationships.

6. Giving equal importance to off-shore and on-shore teams. Inviting all the team members to the project team meetings.

7. Formal mutual adjustments with in the on-shore team members and between on-shore and off-shore teams.

8. Designing work flow process for moving the code from development to the Production environment.

9. Involving off-shore team members in the sprint process discussion meetings and valuing their feedback.

10. Using video conference tools during the sprint planning, closing and retrospective meetings.

6 Conclusions &Discussion

The question of this thesis is: "How to improve the sprint results when working with off-shore teams in India?" Based on the results analyzed in the previous section, the research question is answered in this section. In this section, Conclusions are drawn, results are discussed and opportunities for further research are described.

6.1 Conclusions

The research question is split in two parts, Communication barriers due to cultural differences and the coordination strategies to improve the sprint results.

6.1.1 Communication barriers due to cultural differences:

After analyzing the results, it is concluded that working with off-shore teams has many communication barriers, challenges and threat of geographical, time and culture. The barriers become very complex when the project is long and project and if the team members haven't worked with each other previously.

The results showed that communication barriers due to cultural differences can be overcome by using Hofstede's method. This method helped Technical Project managers to understand the cultural difference between on-shore teams and off-shore teams and how the same message can be perceived differently by the onshore and offshore teams.

It would be a great advantage to the project, if the Technical project manager has experience of working with off-shore Indian teams. If not, it is necessary to teach them the cultural differences. Understanding the cultural differences and using techniques, like including off-shore managers in all the emails, communicating and reaching out to each team member individually and allowing the off-shore developments to develop out-of- box solutions will be helpful for the success of the project.

The following are the factors that contribute to better communication and project success:

1. team members know each other from previous projects

2. Team members know how to collaborate and who the customer is

3. the team members have understanding of each other's culture, expertise, and experience the communication would be much better.

6.1.2 Coordination strategies:

Basing on the results described in the previous section, the following coordination strategies are proven to be helpful for improving the sprint results:

Business Support:

1. Allowing off-shore development team to communicate with the Business or the project owner to understand the requirements properly before starting the development tasks.

2. Business owners involvement and support for the project

3. Including Business owner to do the pre-production and post-production deployment testing.

Co-ordination Strategies:

1. Hiring off-shore Technical Project manager

2. Using poker game in sprint planning sessions

3. The development should not be off-shored completely. At least 30% should be done on-shore

4. Using fun activities like online poker games while sprint planning and retrospective.

5. Better planning and defining the requirements clearly. Changes in requirements not only delays the project and increase the project costs, it also decreases the team morale.

6. Dividing the responsibilities between off-shore and on-shore teams. This will help the offshore team to understand what is expected from them.

Communication:

1. Sending on-shore lead developer to offshore location for 30 days

2. Sending offshore technical project manager and lead developer to onsite for 30 days

3. The off-shore Project manager should be in contact with the on-shore technical project manager every day.

4. The off-shore lead should be in contact with on-shore team every day.

5. Using video meetings for sprint planning and retrospective meetings

6. Allocating at least an hour free time to hang out with team members after the sprint retrospective meetings to develop work relations and improve communication.

7. Inviting the offshore TPM and all the onshore and offshore team members for sprint planning, daily scrums and retrospective meetings.

6.2 Discussion

The conclusions show that there are multiple factors for improving the sprint results while working with off-shore Indian teams. The most important thing is to overcome the communication barriers and using the appropriate coordination strategies as discussed in the conclusion.

6.2.1 Applying to other projects Sprints:

It is clear from the conclusions that multiple factors are involved in improving the sprint results. These factors and the strategies are described in this thesis. The important in a project the deserve attention are also described. This thesis analyzed cases from real projects and can be applied to future projects, which has on-shore team in United States and off-shore team in India.

Besides using the results for the setup of future projects, the discussed strategies and factors can be used by organizations to evaluate their projects. Organizations can use them to improve their sprint results. The data collected from the projects in this research can be used as a benchmark for other projects and the results and conclusions can help the other projects to improve the sprint results.

7. Future research

The research conducted is qualitative, but not quantitative. Certain characteristics for improving the sprint results while working with offshore Indian teams are described. But in this research the results are analyzed only for two scrum sprints. Continuing the research on more number of sprints and analyzing a larger result set can actually show what characteristics are influencing the Sprint success. This will helps to analyze the actual characteristics that are helpful for improving the sprint results.

Also, both the task completion percentage and sprint success are downsized in this research. The goal of the research was to achieve the task completion percentage more than 75%. Future research can be conducted to determine how to attain this percentage more than 90% in each sprint.

References:

Matthias, F., Mischa, v. d. B., Sjaak B., Frank, H., Remko, H. Reasons for Success and Failure in offshore software development projects. Technical Report UU-CS

Gabi, R. W. (2008) Enhancing the Effectiveness of Virtual and offshore Project teams: Guidelines for Best practice. Communications of the IBIMA

F. sahar, S. T. Raza, M.N Nasir (2013) Communication Tools in Offshore Development with Scrum. International Journal of Engineering and Technology

Onshoring vs. Off shoring choosing the Best Outsourcing Strategy for Your Business. Baldwin Hackett & Meeks, Inc

Rafiq, A. K., Siffat, U. K., Mahmood, N. (2015) Communication and Coordination Challenges Mitigation in Offshore Software Development Outsourcing Relationships: Findings from Systematic Literature Review. ICSEA

Dhruv, N., Varadhrajan, S., Monica, A., Amit, M. (2008) Project Quality of Offshore Virtual Teams Engaged in Software Requirements Analysis: An Exploratory Comparative Study. E-Publications@Marquette

Mike, L., Chris, M. (2009). An examination of IT Offshore Outsourcing and the Challenges of Working Effectively with Suppliers. Umsl.edu

Tom, P., Erik, W., Gerhard, S. Exploring The contribution of problems in Team level Functionality to the failure of offshore outsourced software Projects. Uzh.ch

A. Gopal, T. Mukhopadhyay, and M. S.Krishnan. The Role of Software Processes and Communication in Offshore Software Development. Communication of the ACM April 2002/vol, 45, No 4ve.

S. Sakthivel. Managing Risk in Offshore Systems Development. Communication of the ACM April 2007/vol, 50.No 4.

S. Gopalakrishnan, V.P. Kochikar, S. Yegneshwar. The Offshore Model for Software Development: The Infosys Experience. Education and Research Department, Infosys technology Limited Bangalore-561 229, India.

C. L. Iacovou and R. Nakatsu. Arisk. Profile of Offshore-outsourced development Projects. Communication of the ACM June 2008/vol, 51.No.6.

K. T. Chang, Out of Sight but Not Out of Mind? Informal Networks Communication and Media Use in Global Software Teams. Klarissa Chang and IBM Corp, 2007.

Hofstede, G. *Culture's Consequences, International Differences in Work-Related Values.* Sage Publications, Beverly Hills, 1980.

Hofstede, G., and Hofstede, G.J. *Cultures and Organizations: Software of the Mind*, (2 ed.) McGraw-Hill, 2004.

Boden, A., Avram, G., Bannon, L., and Wulf, V. "Knowledge Management in Distributed Software Development Teams – Does Culture Matter?," in: *International Conference on Global Software Engineering*, 2009, pp. 18-27.

Bresman, H., Birkinshaw, J., and Nobel, R. "Knowledge Transfer in International Acquisitions," *Journal of International Business Studies* (30:3) 1999, pp 439 - 462.

Carmel, E., and Tija, P. Offshoring information technology : sourcing and outsourcing to a global workforce Cambridge University Press, Cambridge, 2005.
Gallivan, M., and Srite, M. "Information technology and culture: Identifying fragmentary and holistic perspectives of culture," *Information and Organization* (15:4) 2005, pp 295-338.
Krishna, S., Sahay, S., and Walsham, G. "Managing cross-cultural issues in global software outsourcing," *Communications of the ACM* (47:4) 2004, pp 62-66.

Li, H.Z. "Communicating information in conversations: a cross-cultural comparison," *International Journal of Intercultural Relations* (23:3) 1999, pp 387-409.

MacGregor, E., Hsieh, Y., and Kruchten, P. "Cultural patterns in software process mishaps: incidents in global projects," in: *Hawai'i International Conference on System Sciences*, 2005.

McSweeney, B. "Hofstede's model of national cultural differences and their consequences: A triumph of faith - a failure of analysis," *Human Relations* (55:1) 2002, pp 89-118.

APPENDIX 1: Interview Questions - Technical project Manager (Onshore and Offshore)

1. What is the aim of the project? Define the scope, estimated budget and schedules.

2. What development methodology is used?

3. Please specify the number of onshore and offshore team members working on this project.

4. Had the onshore and offshore team members worked together previously?

    (YES/NO)

5. Which activities are done onshore and offshore?

6. What development method is used?

7. Did any of the onshore team member travelled to the offshore site or vice-versa?

    (YES/NO)

8. Was there a formal knowledge transfer session provided for offshore team members?

    (YES/NO)

9. Which types of documents were unavailable to the front-office, and which ones were unavailable to the back-office?

10. Which communication tools were used during the project?

APPENDIX 2: Interview Questions – On Shore team members

1. Did you work with the off shore team work previously?

   (YES/NO)

2. Which activities are done onshore?

3. What development method is used?

4. Did you travel to the offshore location?

   (YES/NO)

5. Are you allowed to communicate with Business and other stakeholders to understand the requirements?

   YES/NO

6. What communication tools available for you to communicate with your onshore and offshore team members?

7. Did you have a knowledge transfer session with offshore team members?

   YES/NO

8. Do you feel that the offshore team receives proper information and help from the onshore team?

9. Please mention three things you like about the current Sprint planning sessions and three things you think should be stopped.

10. What do you think can be improved about the Sprint planning?

APPENDIX 3: Interview Questions – Off Shore team members

1. Did you work with the onshore team work previously?

   (YES/NO)

2. Which activities are done offshore?

3. What development method is used?

4. Did you travel to the onshore location?

   (YES/NO)

5. Are you allowed to communicate with Business and other stakeholders to understand the requirements?

   YES/NO

6. What communication tools available for you to communicate with onshore and offshore team members?

7. Did you have a knowledge transfer session with onshore team members?

   YES/NO

8. Do you feel you receive proper information and help from the onshore team?

9. Please mention three things you like about the current Sprint planning sessions and three things you think should be stopped.

10. What do you think can be improved about the Sprint planning?

APPENDIX 4: Questionnaire – On Shore team

1. Were the deliverables communicated clearly during the spring meeting? (YES/NO)

2. Do you have all the necessary resources to complete the tasks assigned for this sprint?

   (YES/NO)

   If NO, please mention what resources are required?

3. Are any of your tasks dependent on others?

   (YES/NO)

4. Do you feel you were given enough time to complete the assigned tasks?

   (YES/NO)

   If NO, What is your estimated time for completing the tasks?

5. Where any of your assigned tasks moved to the next sprint? (YES/NO)

   If yes, Please specify the reason:

6. What went wrong in this sprint?

APPENDIX 5: Questionnaire – Off Shore team

1. Were the deliverables communicated clearly during the spring meeting? (YES/NO)

2. Do you have all the necessary resources to complete the tasks assigned for this sprint?

   (YES/NO)

   If NO, please mention what resources are required?

3. Are any of your tasks dependent on others?

   (YES/NO)

4. Do you feel you were given enough time to complete the assigned tasks?

   (YES/NO)

   If NO, What is your estimated time for completing the tasks?

5. Did you have a knowledge transfer session with onshore team members?

   (YES/NO)

6. Where any of your assigned tasks moved to the next sprint? (YES/NO)

   If yes, Please specify the reason:

7. What went wrong in this sprint?