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Disintegrating and Reduction of Risk Factor in 3-C's Model Communication Phase Used in Global Software Development (G.S.D)

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ABSTRACT

Global Software Development is becoming the cutting edge for researchers in the field of Software Engineering. Distribution of Software Engineers in GSD impose challenges in communication phase in 3-C's Collaboration Model. Our Review, Analysis and Results indicates that about more than 70 percent of Software Engineers face the problem in communicating and developing the applications for off-shore clients. In this paper we presented a systematic way, how to deal or communicate and develop software applications for off-shore clients. The communication is based on Project Communication Management Techniques and development of software is based on Agile Scrum Terminology which can improve the communication and application development phase between Software Engineer and Client at its best level.

KEYWORDS: Global Software Development (GSD), Agile Development, Scrum Model, Project Management

1. INTRODUCTION

Information Technology is becoming famous around the world. People are taking befits from new Technology and inventions going around the world. Information Technology is becoming the cutting edge for researchers and developers in the field of Software Engineering. With the advancement of research implementation researchers are succeeding in their aim in the field of Information Technology. The field of Software Engineering is one of them which are leading Information Technology to its Peak. Software Engineering includes different areas covering requirement design, requirement estimation, their analysis, progress and improvements, any change and quality handling and controlling, cost tracing and finally any kind of maintenance and support after the product (software) is delivered.[1]

Now days in development of software products and it is seen as utility of software quality, time and cost. The evaluation of project is made as according to their capability of delivering high quality products within required time and budget [2]. So to achieve goals developers or mangers are trying different methods or fallow different life cycle to overcome their problems during the development of software. But problem still exist because no matter how much mature or well experienced a team leader of a software company is, he or she will always face problems dealing with foreigners. Moreover software developers are making struggle to succeed in making of advanced valuable products, projects can be done fast by delivering its iterations in time. Here is an important problem for scholars and software developer's experts alike is whether it is essential for feature products for trading on the basis of its performance or Can projects succeeds with good quality of high level and performance lacking the effect on cost of the product or time duration which is consumed on the project? Now a days scholars recommends that minimizing weaknesses and modification increases quality [3], so disagreeing for time and quality can be optimized through online sources. Still studies of Global Software Development shows that configuring teams for development of quality are different to the teams, for productivity scholar recommends that trade-off between quality and time is always there in global software Development. [4].

2. Scope of G.S.D

Over the last few years Software applications are becoming popular in every field of life. G.S.D is turning out to be the most popular picture in Software Engineering field. U.S evaluates that for market of development of software its rate of offshore for over previous 10 years has been raised 25-fold, to such an extent that (according to some recent approximation) it is predicted that one fourth of expenditure are spend by United States on software development, its integrations and for its management services to go offshore [5].In today's world, Global software development is increasingly spreading across geographic and national boundaries. There is limited observed substantiation about the number and assigning of software developers staff to software development companies which can work in the environment of

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GSD. Some Question's that always arises in the mind of developers or Software Company Team Leaders is that G.S.D is restricted to a select few employer's in a company? Do managers or team Leaders have to communicate with GSD more than specific Application Expert engineers? In what circumstances or time zones engineers have to deal? What are the advantages and complications that engineers see with G.S.D? What are the key steps engineers that an engineer will take to improve GSD coordination? These are the questions which grab the attention of Researchers. In this paper we analyse the problems and risk factor faced by different software companies working around the world .We analyse these problems and took the results on high scale survey. I found that a very high portion of software companies are directly involved with Global Software Development. Most of the Software Engineers collaborate and communicate more than three time zones away to provide the services to the client, Client maybe internal or external located in different countries.

The significant adoption of G.S.D has moved side by side with methodological communication advancement for instance increasing IS (instant messaging) and email, also world-wide reasonable telecommunication. Furthermore accessibility of skilful software engineers in economical areas e.g. Eastern Europe, Far East and Asia are united with desire to slice costs for development and gain benefits of beginning set-ups near to rising markets, they are all contributing extra more to build robust organizational interactions and technical strategies [6]. In less case, maintenance and application development outsourced in offshore countries or distant third party organizations. In some additional cases, organizations have developed branches in low cost economical countries to outsource their own organizational projects in low-cost [6, 7]. In such a background, geographical remoteness introduce concrete partition among the managers[6, 8] and software engineers, of time remoteness delays and bounds chances for immediate contact and collaboration to an organization[9], also cultural differences and distances leading to negatively affect the level of communications and finally understanding of actions and struggles of distant software engineer groups.[9, 10]. The current Software engineers or developers and also the upcoming ones are all expected to come and work under the GSD environment umbrella by the side of any idea of their career life. GSD initiates difficulties for those who are experienced in confined software development [7, 10]. Furthermore these intricacies may lead to create obstacles for collaboration between globally distributed developers or researchers. Thus it is significant for mentors, expert people, and researchers, to analyse the obstacles and make a path with mutual understanding and collaboration, and technical solutions for overcoming such barriers.

3. GSD Benefits

Global Software engineering is performing a vital role in the field of software engineering. Some of the advantages that can come from GSD is discussed one by one below

3.1.Building Bridge between Market and Customer

By starting Branches in country area where Business's client are situated, G.S.D will permit and allow engineer's to create applications near to its client and also rise the local-market-place knowledge[11]. it will create new job opportunities that creates support among local software Engineers, probably confirming more agreements and bonds [12] .In fact it can possibly be a business need of pinpointing nearer to clients to develop their business towards other markets. For Example an organization that creates applications software's for embedded systems possibly emphasis on huge manufacturing organizations found in US, otherwise possibly a software corporation set their component of development in Canada. Teams for Development can be situated on site same as the organizations huge client. Organizations always tries to establish planned affiliations in order to get access to new market network [13, 14].

3.2.Lessen Time-Zone to Market

The subdivision of time is the effectiveness measure for company managers the time in multiple time-zones to achieve business goal, Mangers maximize the productivity of an organization by rising development hours per day as a result to develop software within time period (given to client) by team members.

3.3 Accessing Large Multi-Skilled Engineer's

G.S.D delivers an exceptional opportunity to influence Software Engineers and computer field experts by means of synchronising projects to off-shore countries [15, 16]. Software Company can expand their business by accessing large pool of skilled computer experts, no matter from which country they belong because working side by side in GSD make a form of global organization.[14, 17].

3.4Saving Capital

Saving Cost in G.S.D is one of the most sought after benefit which has reduced the development cost of an application [18]. The advantage of this benefit is that most of the organizations are globalizing their

application development actions to leverage low-priced engineer's located in low cost remote areas. This is possibly done by the placement of organization branches in economical countries and enabling the cross-continental high speed communication to deliver fundamental application nearby. Cost divergences across areas can be substantial, the salary of US Software Engineer is three times better than software engineer having same abilities working in Asia or South-America [19]. Organization Managers are finding different places around the world which can offer cheaper engineer's with good development skills

4. Risk Factor in G.S.D

Previous Researchers has identified the number of problems in G.S.D and also suggested how to overcome such problems. Most of Engineers pointed out that the big issue is to communicate with people or organizations around the world and to understand their requirement, yet it is also difficult to solve issues of communication with G.S.D. In this paper we will be analysing some different types of risk which can affect the development process of application development of offshore clients. I will be categorizing risk factor in different stages.

4.1. WEAK Management

If an organization scores low on the operational performance of an application, then the organization will clearly be curious to outsource that application to the third party. This is because of the poor performance of an organization's managers. If an application is facing cost or quality problems that are due to insufficient economies of scale, then outsourcing that application to third party can make sense, How-ever if a company is unable to develop an application and they want to outsource it, then manager's or executives should know how to communicate, co-ordinate and build strong relation-ship with third party [20]. How-ever once an application has been outsourced then the outsourcing company put themselves on another hill to climb.

4.2. Non-Technical Staff

Often when an organization outsourced an application then he start head-hunting to contact with experienced in managing contract's and can handle it easily, here is a problem that it is difficult to find such a person because he/she will prefer to work in the company where he/she get experience and it is better suited for that person. Then eventually the out-sourced company will hire non-technical staff or if it is technical then it will be difficult for the new staff to know about the new projects and environment with in a specific time period.

4.3. Out-Dated Technology

When an organization outsource his project to third party then how come the company will be sure about the third party current technology or if the vendor is up to date with new technology. If third party develop an application, will it work or will be implemented?

5. LITERATURE REVIEW

In [21] author emphasis on how to manage large and complex strategic partnership between two organizations which are located in remote areas and particularly how important and profitably this relation can be in long term partnership. Author analyse the issue of close collaboration between two offshore organization in large complex projects, and how two companies will be able to make strategic partnership between us. Author propose three major themes that are, Identification of employee with the projects and senior management commitment, Understanding of cross-cultural sensitivity and mutual trust and transparency. If a company fallow these three steps he can easily make long-term strategic partnership with off-shore countries. In [22] the author has identified that most of the developers face problem to understand the scrum methodology in Global Software Methodology which is one of the most important AGILE approach and what type of strategies should be made to deal with scrum model because many of Software Engineers don't know the challenging factor that restricts them to use scrum model or how to deal with scrum model technically. In [23] author is differentiating the cultural diversities impacts on G.S.D .Author researched about the complex issues that effects the G.S.D. In [23] paper he pointed out the communication is basic and important step that many of the Organization Developer's or Engineers don't know how to communicate with off-shore clients. The main idea in [24] paper is that author wants to reduce the distance in G.S.D using AGILE Methodologies. Author research on three kinds of distance that is Environmental distance, of time Distance and Traditional Distance. Author identified that distance is being challenging factor when the development practice is started. Author found that by using Scrum and eXtreme Programing he can reduce the distance issues in

communication, coordination and control. In [14] paper author also analyse the issues of cultural, geographical and temporal distance in G.S.D. He also suggest how to overcome the known and un-known issues that is effecting G.S.D at high level. Author categorize the known and un-known issues and suggest solution for those issues.

6. Problems Domain in Process-Models used in G.S.D

Most of the software companies used to fallow CMMI (Capability Maturity Model Interface) and 3-C collaboration Approach [6] when they want to outsource their software product. One of the defect of CMMI process model is that it fits with the local environment not with off-shore countries, [5] particularly when it comes in relation with social and technical aspects complexities. In order to cope with the problem Teaming Global Model takes the collaboration practice to associate day-to-day running of G.S.D.

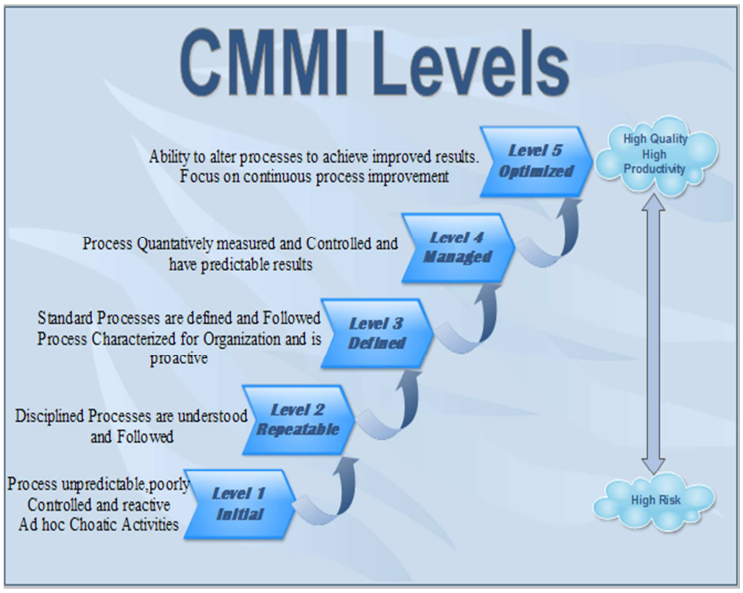

Fig 1: Maturity levels of CMMI with respect to Quality & Risk**.**

Developers prefer CMMI because of its improved performance and being an efficient one, its market loss avoidance feature, making of human resources efficiently and having integration related products for integrating on unlike technologies**.** Secondly the most of the Organization use 3-C collaboration model [25] which is the combination of Communication, Coordination and Cooperation.

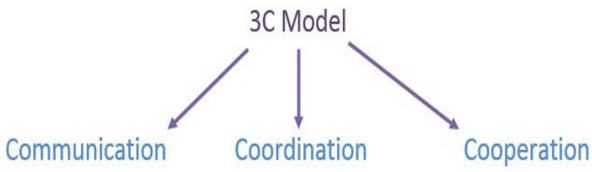

Fig 2: Architecture of 3-C's Model

First ***C*** of the Collaboration Model is namely Communication which refers to the switch of information between people. *Second* ***C*** of the Collaboration Model which is Coordination is associated with managing people, their actions and resources. It can be said to behave as a tie that connects Other C's (Communication and Cooperation) so to inflict and make improvement in the victory of collaboration. *Third* ***C*** of the Collaboration Model termed as Cooperation is linked and associated with construction that takes place between the joint workspace. Cooperation is the mutual process for people in shared workspace looking for to accomplish tasks and make cooperation objects. The unexpected situations that come during cooperation and for their decisions making demands a new round of communication which again (in order to re structure actions that are to be accomplished during cooperation) require coordination.

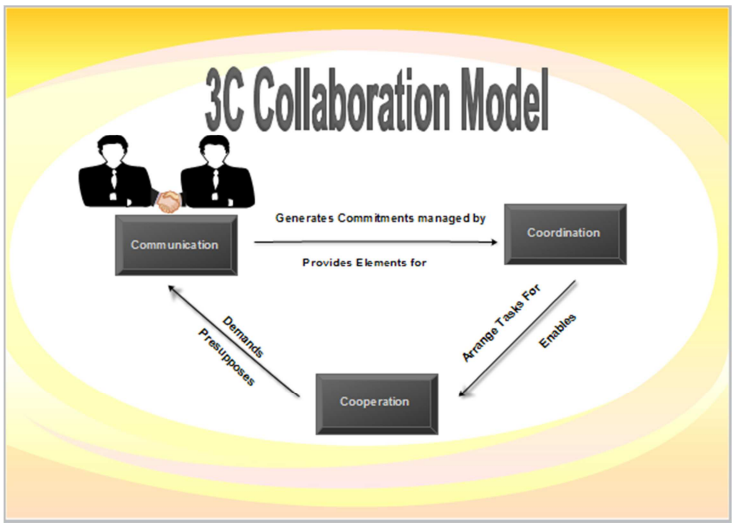

Fig 2: 3-C's Collaboration Model

I do survey of different organizations in Pakistan and other off-shore countries, from the survey I came to know that Communication is the main issue which most of the organization face.

Company Name and Location			Risk and Strength Factor of 3C's		
			Communication	Cooperation	Coordination
1	Telic Technologies	United Kingdom	●	○	○
2	Precise Tech	Canada	●	○	○
3	Liana Spiro	Australia	●	○	○
4	I-Fast	Pakistan	●	○	○
5	Soft-Chasers	Pakistan	●	○	○
6	Web Solutions	Pakistan	○	●	○
7	Gravity Solution	Pakistan	○	○	●
8	Globe Technology Traders	United States(L.A)	●	○	○
9	WEB Kumpany	Australia	○	○	●

Table 1. Survey of different Software Companies

7. Solution Domain

As I discussed that there were many cases where diversities in development of project and discipline tracking lead to significant issues. Including some cases where it looked like that Inexperience in management of project on part of provider of service ended up with a plan that leads to a delay, also comes up with communication lacking, the significant detail lacking and finally not viable [26].

Fig 4: Communication Model

I will be focusing only on Communication Phase in 3C-Collaboration Model because Software Engineers always face problem in communicating with off-shore clients. In my solution Domain I will present here a systematic way of dealing or communicating with client off-shore countries. My communication will be based on two Standard techniques which are discussed in Agile Manifesto and Project Management.

7.1.Methodology of Scrum in GSD

Although there comes a confirmation for Agile Software Development to be successful, but still its presentation in context of GSD needs some movement. At this point Software Engineers distribution impose many hurdles for agile practices to be applied [24].

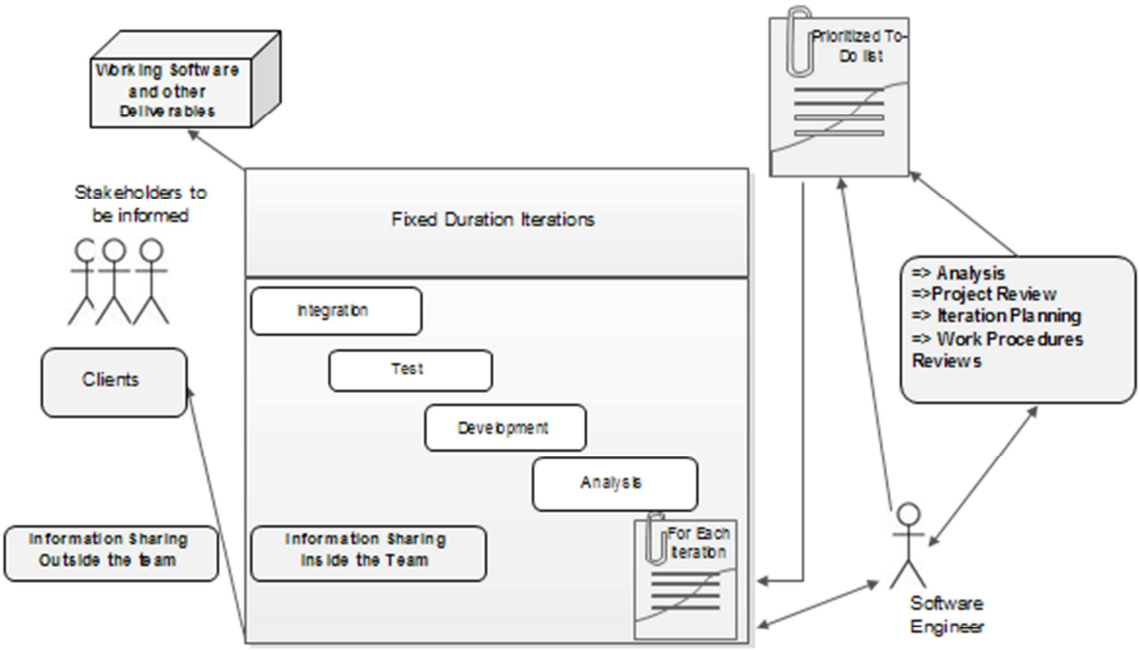

Fig5: Standard Agile Methodology for Software Development.

The main key requirement of agile Methodologies is way to efficiently communicate and for that to be accomplished it requires members of team to assemble .Still concrete communication of Software Engineers with off-shore clients is not all the time viable and thus many diverse explanations have been given of how to apply the Agile methodology in G.S.D. e.g. [27] proposes a touch of recommend (DXP), in which scholar mention the features of eXtreme Programing, though in various grades. Distributed eXtreme Programming, eight of the XP practices are checked as independent for local Software Engineers and thus GSD adopt Agile practices and these practices can be applied on GSD easily. In a similar way [28]deliberate the use of eXtreme Programming and Scrum Terminology to enhance the effectiveness in communication when the product is to be outsourcing to off-shore countries.

Scholar emphasises that a main advantage of eXtreme Programming is that it organises the project moderately and that if some repetition is not possible, then it doesn't prevent us from the submission of the overall method [39]. Global Software Development (with teams and organisations in off-shore countries) is a playing modern role in Software development. GSD gained significant role by means of reducing time period of project to market, increasing production, achievement in cost value and refining quality [29, 30]. Scrum Model is an incremental and an iterative approach for management of projects. It consists of various practices which extensively depends upon the communication among Software Engineer, Project Manager and clients. Indeed, [31, 33] proves that the reason behind success of Scrum is the development of project by Software Engineers across national border. This kind of communication is a challenging one for GSD [32] to achieve. Still the only supple agile methodology is the Scrum which is able to be used extensively in GSD. One of the recent experimental study showed that by means of Scrum terminology in GSD, it improves reliance, incentive, interaction and quality of product. Furthermore the industrial involvement proposes that by using Scrum terminology it upholds both collaboration and communication which is the basic need of GSD and ensures timely delivery of product to client.it also provides a chance to reduce some Global Software Development challenges [34]. To identify Scrum terminology that is in Global Software Development, in this paper I examined a number of practices, Which includes sprint (essential unit of development), planning of sprint, Daily Scrum (which is the communication meeting for team of project), Scrum of Scrums, sprint review (held at the end of each sprint it is an informal one to access that whether the sprint goals that were assigned during

sprint planning is accomplished or not), retrospective (to show what works and what not and to make alterations for next sprint) and backlog (list of requirements).

8. Scrum Terminology

By applying Scrum Terminology to Global Software Engineering it will provide us a systematic process of working and delivering a project in time to off-shore client. If development team is spread around the world and working on one project so scrum terminology can combine and bind them together to work on same project easily.

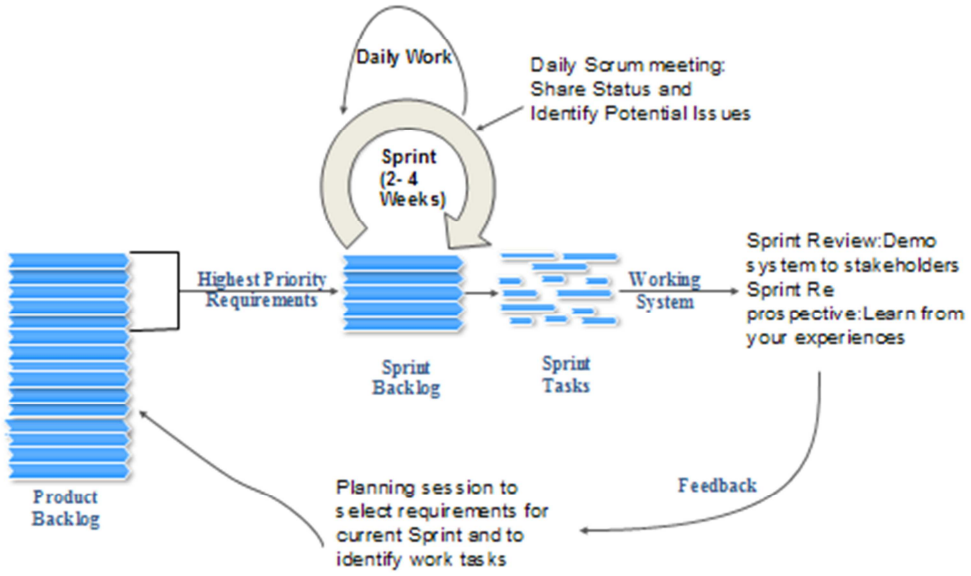

Fig 6: SCRUM Terminology Process

8.1.Scrum Team

A usual six to ten people work in scrum team, but it can be easily extend to hundred people and lessen to 3 to 5 member team depend upon the project .Scrum can also be used for one member team too but in one member team Software Engineer will do all tasks by himself which becomes a hectic job for software engineer. Scrum team include Product owner, Master of Scrum and the development team. Team members does not consist of any of the modern teams working in software houses like the characteristic of software engineering such as coder, tester, designer, or architect. In Scrum each person will work on the project together as a team to finish and deliver the work in time on the basis of which the team as a whole decided to wind up work within a sprint. Scrum team improve themselves day by day and fells that they all are "IN" or working in a project as a whole.

8.2. Product Owner

The key responsibility of product owner is to look after product maintenance and presenting the product to users, clients and to other people working in the scrum process. Product Owner also guarantee the significance of work done by Development Team. Product Owner has multiple responsibilities, he is amongst the higher authority working in scrum whom manages all the work going on in scrum and on other hand can do communicate with client.

8.3. Scrum Master

The responsibility of Scrum Master is to make sure that the team makes best use of product benefits. His responsibility is not to help the team members encoding, designing or any other task working in scrum, his responsibility is to collect all the team and let them know to work in the scrum process by pointing and removing the weaknesses of any member working in team which leads to product progress.

8.4. Product Backlog

The product backlog is the list of arranged structures which includes all the preferred changes and work by the team to the product. Product backlog is done when the iteration is deliver to the client, Client feedbacks and changes are notified about the product then these changes are send to backlog in which

changes are done developer. In backlog changes are made in a software module on the basis of its requirement from client , if module A is submitted in last for changes and it is the most required module from client then the priority of module A becomes first and other modules to second and third so on.

8.5. Sprint Planning Meeting

During the initial point of Sprint, a meeting for planning of sprint is held; under there the owner of the product gives product backlog's top things to the group team. Further the team for Scrum pick the task which they can accomplish during the sprint coming. Then furthermore the selected tasks are shifted to a sprint backlog (Includes Tasks list that are necessary to complete the items of product backlog that the team group has committed to accomplish in sprint) from the previous product backlog.

8.6. Daily Scrum

During Each day during the sprint, a concise meeting called as daily Scrum is held. The meeting assists in setting up the each day's task context also assist the team to be stable on trial. It is mandatory for all members of the team to attend the daily scrum.

8.7. Sprint Review Meeting

At each sprint end, the accomplished functionality during sprint review meeting is presented by the team, under that team demonstrates what they have accomplished during the sprint. Distinctively, it can be said to have presentation of new characteristics but to be in an informal form e.g. PowerPoint Slides are not accepted. Also the Meeting should not be transformed into a task or work individually also not to become a disruption from the main process.

8.8. Sprint Retrospective

Sprint retrospective is done at every sprint respectively at the end. It is organised and done by all the team members including the master and owner in which they reflect the light on the current product they are working. In Sprint retrospective they also discuss and analyse the working of Scrum process for their projects and what changes should be made in future to make the scrum process better for the projects.

9. Communication

What is meant by communication in Global Software Development? [35] Communication can be deliberated as the basic task or necessity of any organization which allows Software Engineers to exchange information between team members and with clients. Communication is being classified into following group's i-e compulsory, spontaneous, asynchronous and synchronous communication [35].Communication came into the category of several different classes of electronics media i-e telephonic communication which is based on the ability of media used in communication. Face-to-face communication happens very less in Global Software Engineering.

9.1. Interactive Communication

Interactive communication is an effective method of communication. Interactive communication is real time communication in which all stake holders are involved and respond to each other in time. Messenger chat, face to face meetings, phone calls, video conferencing are good case in point of such Communication. Most of the people do Face-to-Face communication are which are more in effect, one can easily guess the personality of stake holders or outer organizational body by its gestures. Such communication are more operational as compared to others because such type of communications are mostly used in projects. In [37] an interactive face-to-face communication, meetings are often held and it is the most good in effect because it will allow your body language and facial expressions of communication interested to see. More often in the process of brain storming Software Engineer is supposed to gather requirement of a project .He emailed the to all stake holders working in organization for their inputs, After consolidating inputs from all users then software engineer is able to forward these input to the stake holders. Here in this case brainstorming is very ineffective because the mailing communication is ineffective as compared to face to face communication. However in several cases it is not possible that Software Engineer will use the method of interactive communication, it might not be suitable in some scenarios.

9.2. Push Communication

Where feedback is not necessary of distributed from the recipient's then push communication is preferred that is, Software Engineer may send relevant notes after brainstorming workshop. [37] It means that pushing an information report related to project to stake holders just for informing or for stake holder satisfaction in which no any feedback is necessary.

9.3. Pull Communication

One of the most operational communication is pull communication. It is used when number of people want gain information of their own choice. Suppose Software Engineer organise a workshop on newly made project for the developers , after the closing of the workshop each developer will need the related content material and other supporting data. [37] Similarly once the project ends then Software Engineer will enable other developers in an organization to use end project artefacts such as Decision Tress and Precedence Diagram for other newly Projects. It means that the information will be only accessed when an employ of an organization need arises for that information.

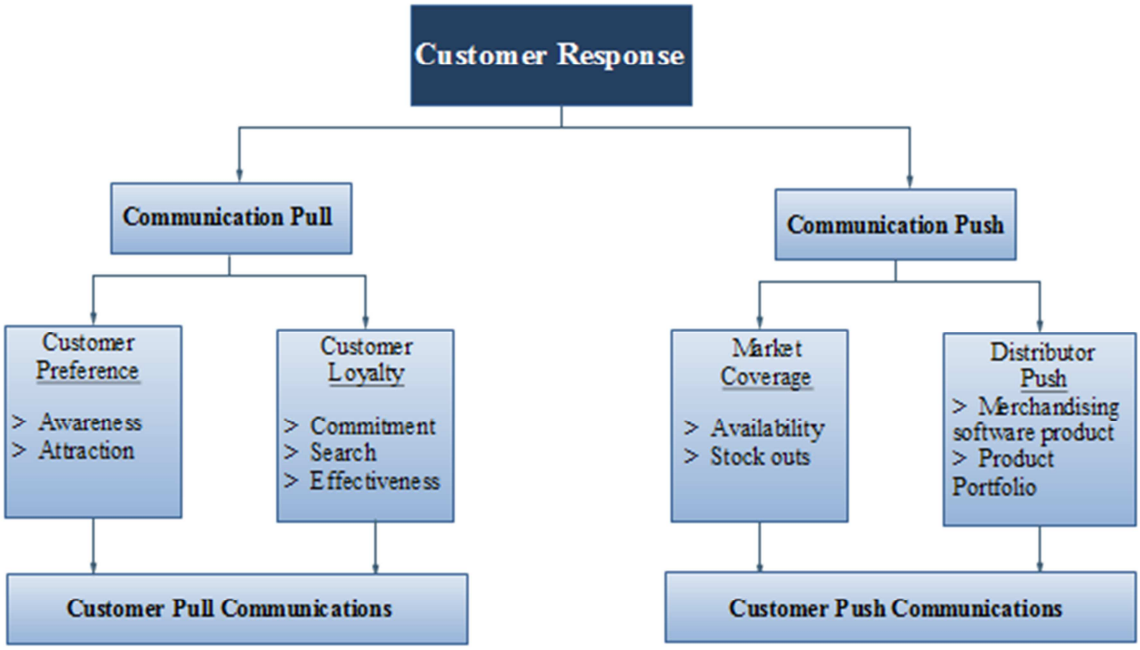

Fig7: Difference between Pull and Push Communication

10. Communication in GSD Process

Project Communication Management is playing a vital role in Global Software Engineering. In GSD communication is necessary to be in touch with all stake holders during whole process of product development, and stakeholders want to adopt some sort of appropriate communication devices or approaches in the development stages to look on the requirements by customers and also software structures made by software engineers, By communication I can solve the problems in development phase, I can easily monitor the processing of software product, the relationship amongst different teams will become stronger, an easy process of going through between the Software Engineer and customer and at last to install and sustain a software product. In [35][36] researchers has proposed four well-known necessity of communication such as solving problem , building relationship amongst customers and Software Engineers, making decisions and co-ordinating with local organizations and monitoring and informing the organizations. More consideration should be on GSD planning process, affluent communication can be provided to enhance and develop the technical skills of GSD developers who are responsible for designing, building and maintaining the systems .By having Flexibility in communication the workers of the team who find answers to the questions rapidly may speed up the process and cope up with the market time.

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alterations, and understand new technology and to create new documnents.in case of not having richness in communication process, the provider might have difficulties to achieve tasks.

Diversities in cultures conveys different norms, habits and people behaviours that leads to have a pessimistic impacts on the GSD projects. So to diminish these pessimistic affects, quality communication must be adopted to improve these impacts. Several workers from diverse teams across sites will understand habits. Norms and people behaviours all the way by some appropriate channel of communication, that builds good association and faith in them. One can say that they become known to one another and as I know that when one gets known and familiar to a new one, the person gives consideration to the one that gets known to him and tries to answer that person's queries and also will try to rapidly solve and reply to the person's questions and queries. In general .I can say that good relationship and faith can assist and promote the GSD and process. Certain factors of technology involving hard-ware. Soft-ware architectures, operating systems and interfaces, and database system can gives foundation to communication problems. Comparatively excessive prices for hardware-software and also high cost of some locations of emerging countries can influence the G.S.D process consistency, which in turn may affect quality of software such as including reliability of its performance, also its cost and security Improvements in software quality rely on Communications in process of GSD. The above all aspects have an important role in process of GSD and connect with communications. By encapsulating all, it can be said that one of the important factor in G.S.D process is the communication [36]. If only I accentuate more on the communication and develop appropriate methods for communication in G.S.D process, Could possibly I decrease Risks, challenges during the G.S.D process, and also side by side increase the G.S.D likelihood for victory.

11. Project Communication Management

The unique techniques of communication have used several style types, including conversation and discussion, conferences, email, supporting meetings, joint authoring etc. rapidly changed requirements or good support for projects which are will defined is offered by Agile Methods to project managers [37].Every Technique of communication possesses its consequences and usefulness during the process of G.S.D and diverse sites teams possess their choices. Several Teams recommend the use of face-to-face informal meetings; on the other side some cannot waste time and money for meeting up face-to-face. Majority of teams make use of a combination of techniques of communications. As Email of being so enveloping and low cost it doesn't require any formal plan of its being to be displayed as chief communication facility, also it doesn't require the people to know one another and the real time. Currently Email is considered as the mainly favourite style for communication at spare time and also has significant part in G.S.D. Further classifying the conferencing in text , an audio, and the video conferencing on media of communication is measured as very efficient communication and also must be accentuated ,also for critical purposes in addition to spare times it's a synchronous mode .Discussion including the Discussion on web are also in asynchronous mode and permits sample preview and editing before posting. Consequently a significant alternate for informal communication lacking can be Discussions which could permit people so that they can freely communicate.

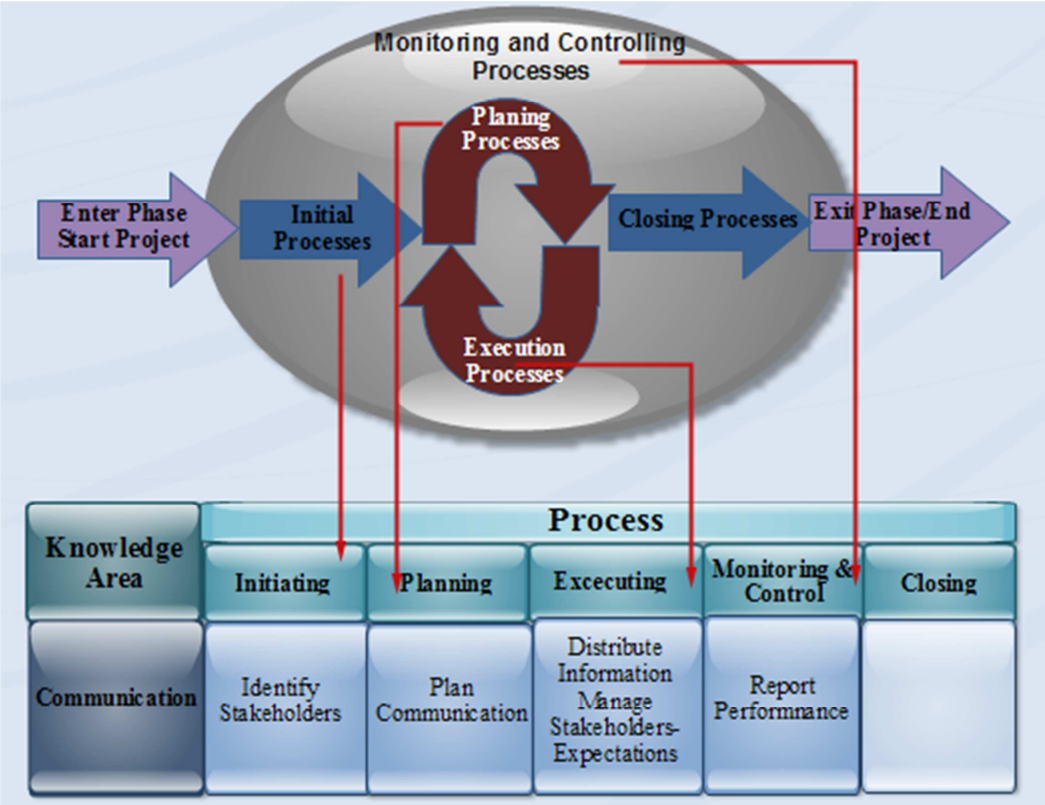

Fig 8: Project Communication Management

The Communication process in project management [38] area includes Initializing the process that includes identification of the stakeholders then comes the Planning phase of processes where the communication plan is discussed and made then is the Process execution phase where the information is distributed and the expectations of stakeholders are organized and managed [38]. Then comes the processes controlling and monitoring phase here the performance of processes is documented and reported. Final phase is the Closing of the project processes.

11.1.Identifying Stakeholders

In GSD stakeholders are the persons whom have direct relation communication link with Software Engineer of an organization. During the product analysis phase Software Engineer tries to communicate with such client of an organization whom have strong interest with the product because he can understand his product very well and this interest should be taken into account throughout project. It is the job of software engineer to identify all potential workers and relevant information of an organization If Software Engineer tries or mistakenly communicate with such person whom have not any interest with the end product, so in result the end product will be not according to the needs of client.in such case Software Engineer will face many difficulties.

11.2.Plan Communication

In this step Software Engineer will plan his communication in all ways and he should communicate with all stakeholders working in an organization for gathering requirements and then do analysis on these requirements. Software engineer must have determine and limit to whom the communication will be and what information should be needed from a specific stakeholder.

11.3. Managing Client's Expectations

It is very important and key step for maintaining long term relationship with client. Software Engineer should actively manage the expectations of Client. Software Engineer should achieve client's desire and maintain project goals according the needs of Client. Software Engineer should meet the needs of client and address the issues that are found. He should clear the all the issues arises in client mind that have been identified because these issues can further disrupt the performance of project.

11.4.Report Performance

It is the Performance Reports that lead Software Engineer to the progress he achieved on a project. Such report can help software engineer to classify administrative and programmatic problems. Once Project is accomplished then such reports becomes a permanent record.

12. Conclusion

The main and foremost challenge of my paper in Global Software Development is to bridge the world wide gap between Technical Software Engineers and non-technical Clients. In this paper I search the key factors that affect the communication between offshore countries and development methodology in GSD.I also ensures the effective Software development methodology and communication between Software Engineer and Client which makes the communication between software engineer and client easy.

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