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# Key to Success of Offshore Outsourcing

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Key to success of offshore outsourcing

Thesis

For

Master of Science in Project Management

Deep Patel

March 2017

## Abstract

With the proliferating growth in technology and Innovation and the necessity to use new technology skills, outsourcing has become a notable trend in the IT industry. Characterized by USP's like cost-effectiveness and timeliness, outsourcing companies has surged tremendously in the last decade. However, amidst the entire buzz, outsourcing has contributed to some major failures at recent times (A & M, 2016). That has even made organizations to critically think before going forward with an off-shore outsourcing company. A substantial issue on organizational capability and on-time delivery has questioned the very foundation of its efficiency. This has now leaded to surface some very extreme opinions about outsourcing, with rave reviews on good/ bad.

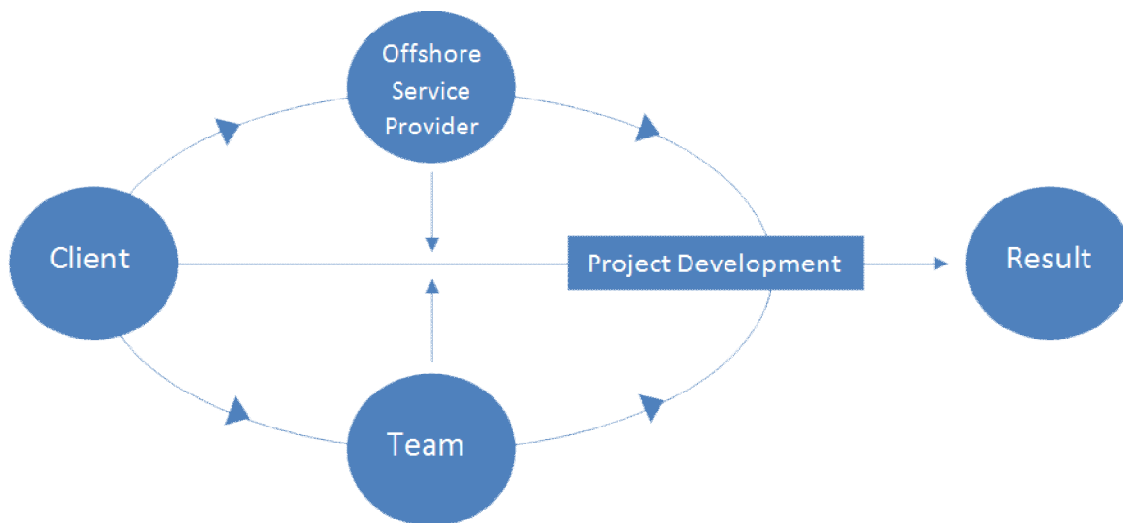


Diagram 2: Dedicated Offshore Model - Here, client has direct control over team, process and result. Service provider also contributes to the project development and team management according to the directions and requirements from the client.

Software Development outsourcing encompasses a contract based voluntary relationship between vendors and clients, wherein a client outsources a part or all the business activities to

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the concerned vendor. However, an offshore outsourcing demands completely different capabilities as against a domestic outsourcing. To begin with, firms associating with off-shore outsourcing must need to compete against language constraints, cultural differences, contrasts in time zones and also the organizational structures. Next, an off-shore outsourcing has a far greater impact than a domestic outsourcing with the above constraints introduced before. With regards to the core knowledge capabilities, there calls for probable risks so as to understand the level of efficiency of the outsourcing companies (A & M, 2016). Together with the differences in legal laws, risks related to data security, privacy and intellectual property can be critical too.

Such disadvantages in outsourcing can be a high limiting factor to the growth of these offshore outsourcing, hence it must, therefore, be necessary to understand the level of efficiency of an off-shore outsourcing team before relying on them.

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### **Keywords:**

Offshore outsourcing, IT service desk and maintenance, Cultural difference, Language barriers, Deadlines, communication issues, Data, Metrics and SLA,

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### **Relationship to CPT**

I am a testing analyst by profession in middleware technology and also working as a software developer position since the last 3 years. I had been leveraging my skills with CPT in a firm that ensures IT management and software technology services.

For a firm that is recognized country wide, one of the most prominent challenges that stands the way of performance is an extensive project delivery, customer management, project maintenance and testing. And if there is any issue with the collaborative outsourcing team operating in the service request department, situations could be worse (Aron, Bandyopadhyay, Jayanty, & Pathak, 2008).

Migrating to an efficient action improvement plan with SLA management, our relationship with the outsourcing team can foster and as well leverage the organization's performance. Thus, the project of the barriers of offshore outsourcing and performance improvement plan shall encompass as a relevant match to the CPT program in the Harrisburg University of science and technology.

## **Introduction**

Outsourcing is basically contracting out software products, applications, services, skills, planning management, development of new applications, for domestic purposes.

But with this increasing dependence on software, there are many other threat issues which are creeping up in the market. This is another reason why many companies are resorting to outsourcing. As explained before outsourcing means to contract out work. Earlier software outsourcing was only meant for small contracts but today billion dollar is spent on IT outsourcing. Therefore companies specializing in outsourcing are growing now and occupying a sizeable proportion in today's market. Many companies are using home developed tools, external skills to meet up with the market demand. Outsourcing promises to deliver products faster at cheaper rate and at the same time not compromising on the product's quality.

Software Development outsourcing encompasses a contract based voluntary relationship between vendors and clients, wherein a client outsources a part or all the business activities to the concerned vendor. However, an offshore outsourcing demands completely different capabilities as against a domestic outsourcing. To begin with, firms associating with off-shore outsourcing must need to compete against language constraints, cultural differences, contrasts in time zones and also the organizational structures. Next, an off-shore outsourcing has a far greater impact than a domestic outsourcing with the above constraints introduced before. With regards to the core knowledge capabilities, there calls for probable risks so as to understand the level of efficiency of the outsourcing companies (A & M, 2016). Together with the differences in legal laws, risks related to data security, privacy and intellectual property can be critical too.

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Such disadvantages in outsourcing can be a high limiting factor to the growth of these offshore outsourcing, hence it must, therefore, be necessary to understand the level of efficiency of an offshore outsourcing team before relying on them.

### **Job Responsibilities of the outsourcing team: IT service request and maintenance:**

The service desk gives consumers/customers one roof of solutions and query addressing to any product related problems with an assured fast responsiveness. With a service availability that continues till 24\*7, the role of service desk and maintenance department includes answering to calls, questions, complaints, risks and remarks. It ensures functioning in the various phases of life-cycle of incidents. Alongside, to give comprehensive support to the testing team and acting as an interface between the customers and the company's core group of testers.

### **My Job Role as a Testing analyst:**

My role as a Testing analyst entitles a preliminary identification and definition of the entailing tests, examining the coverage of the tests and analyzing the complete quality rendered after the test items have conducted their tests. The role revolves around mentioning the wanted Test Data and the analysis of the Test Data by analyzing the testing outcome for each life cycle. At times, the role is denoted as a testing designer or contemplated to be similar to a Tester role.

Role:

1. Identification of the test items targeted to be analyzed by the efforts of testing
2. Definition of the wanted tests demanded and any required Test Data
3. Collection and management of the Test Data
4. Analysis of each test cycle's outcome



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### Test Analyst Roles:

- É Delegating tasks to test staff members to conduct roles both as a Tester and a Test Analyst. This is a prevalent approach and is specifically relevant to all small teams and for any size of test team where the team comprises of Testers who are experienced with an equivalent skill
- É Coordinating with the service request and maintenance department to take updates on any customer queries related to the customer's product issue (Yang, Yuan, & Liu, 2014).
- É Co-operating with the off-shore service request teams to understand the issues and evaluate the maintenance processes of the services/products to be tested
- É Resolving issues concerned with product's architecture and delegating maintenance tasks to the service request and maintenance team.

With the roles comprehensively elaborated as above, the problems and the difficulties shall now be properly understood and analyzed. The purpose of the report does not intend to underestimate the outsourcing business that has empowered IT industry worldwide. Rather, it is to ensure that the concept of outsourcing and its business trends promise a good quality, follow tight deadlines and ensure a good communication to create a strong professional relationship.

## **Problem Statement**

Offshore outsourcing provides noteworthy advantages to many organizations globally. However there are certain facets that need to be in place before going for offshore outsourcing or to make sure. Such as unclear project scope, Communication, Culture differences, different time zones which is causing the offshore outsourcing relationship.

Understanding that the outsourcing team hired is from a different nationality, there were many conspicuous problems that surged during the progress of the work process. Some of them are given as below:

1. Communication issues: Despite language not being a barrier to the communication flow, the frequency of the communication conducted was really less. Issues became critical with the team's unavailability during the most peak hours of customer request and maintenance service (Barclay, 1980). Often the conversation with the team lacked sufficient transparency to gather a profound understanding on the addressed issue of the customers. This surged miss-understandings and created some major ambiguities to successfully meet the solutions to the customer problems.
2. Clash in Time- Zones: Even though, the outsourcing team had committed to do a night shift to co-operate with our team and operate accordingly. Despite the fact, the team often becomes unavailable to the most critical times of need and that gets reflected by the client's complaints on the portal's client's feedback page.
3. Cultural differences: Keeping the cultural differences alive factors like tradition, honor, reputation has made some significant changes to work culture. Owing to the rich religious penetration of the country, the number of leaves and holidays has as well strained the

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workflow to a great deal (Barclay, 1980). Interfering with the religious sentiments can be considered as a great work disruption as well.

4. Instructions follow: It has been noted many times, that there is a lack of an initiative to follow the instructions sequentially to the issues raised by the customers (Wallenburg, Cahill, Michael Knemeyer, & Goldsby, 2011). As we ensure acting on the issues based on their priorities, their maintenance too must be done accordingly. However the outsourcing team also in-charge of maintaining systems and services lack the basic understanding of what needs to be done first and what requires a later action. This has made create further issues for further testing as well.
5. Meeting Deadlines: This marks the zenith of professionalism and unprofessionalism if otherwise. Often the projects submitted for documentation and reporting does not meet the stringent deadlines of the work period (Gurung & Prater, 2006). This makes our work more difficult considering the wrath of the higher authorities that we need to face and be answerable too.

### **Justification:**

The above problem justified multiple dimensions of problems in working with the out-sourcing team that has made the departments of a service request, testing, and maintenance vulnerable to reported client complaints and issues (Ramanujan & Lou, 1997). The justification of the problem statements identification is to ensure efficient handling of the issues tactically and problem wise to ensure that the collaboration and the workflow are smooth and proliferating.

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**De-limiting:**

The problem does not give any direct conclusion as to whether outsourcing the project should be completely terminated. It just ensures to solve the problem statements as mentioned and ensure a smooth workflow and organization performance.

**Literature Review:**

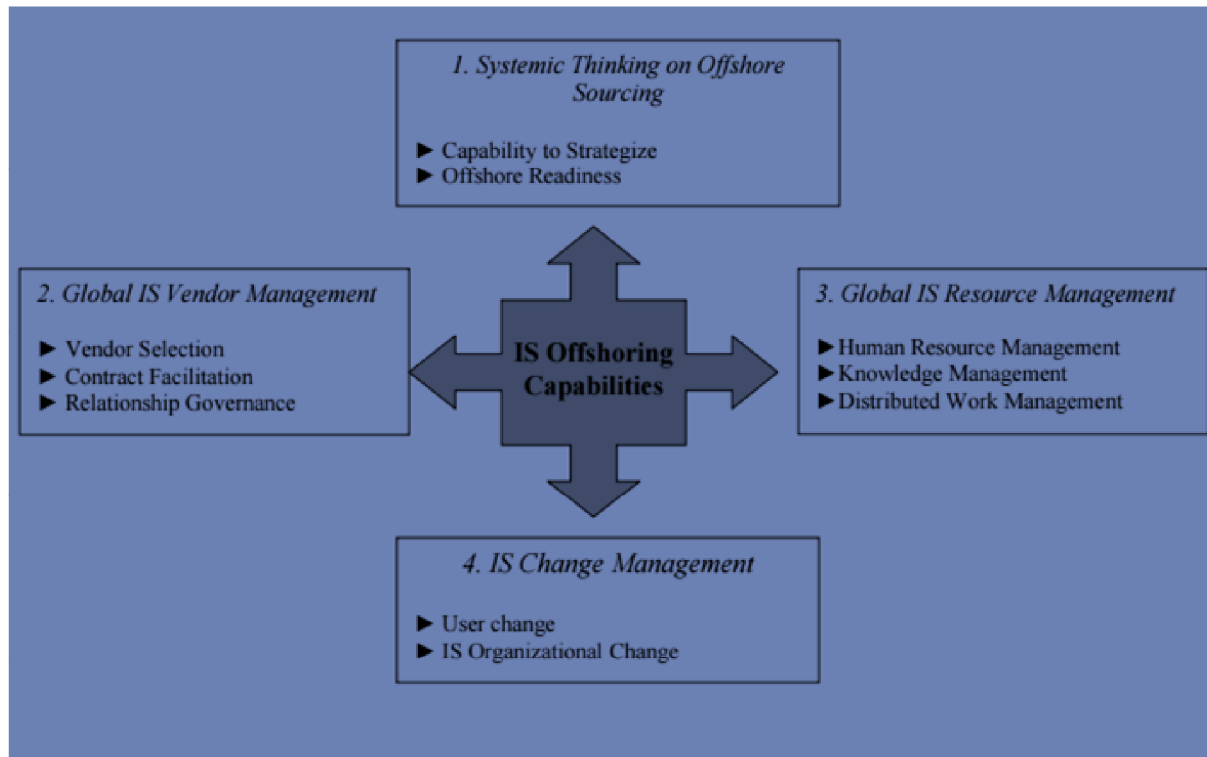
In this article the author has defined the cardinal fields necessary in an Offshore contract, the challenges faced and most importantly the critical capabilities of an ideal off-shore outsourcing team ("Critical Capabilities for Offshore Outsourcing of Information Systems", 2007)

The cardinal fields in an offshore contract:

1. Elucidation of the scheduling of work (encompassing the holiday schedules at offshore locations along with the time-zones)
2. Dissemination of off-site and on-site resources during different project stages
3. Standards of documentation
4. The entailing skills that is necessary for off-shore staff and the manner of meeting the staff attrition of the vendors
5. Demands for management of sub-contracted related work
6. Reporting, and documentation of vendors
7. Terms of Payment( payment schedules, payment frequencies, currencies)
8. Bonuses or Penalties
9. Demands for resolution of disputes and the procedures relating to it (Prasad, Martens, & Declerck, 2012).
10. Jurisdiction for solving any problems in the country of the client instead that of the off-shore company)

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11. Confidentiality, privacy and data security
12. Intelligent property rights



The prevalent challenges that any company going for an offshore company is vulnerable to:

1. Confusions and ambiguities owing to a geopolitical environment
2. Irrelevance in the organizational and national values, norms, and cultures (Prasad, Martens, & Declerck, 2012).
3. Securing the intellectual capital and the proprietary based information
4. In-accurate background knowledge on the off-shore vendors
5. Impractical anticipations for lowering expenses
6. Multiplicities in Time-Zones in various global based locations
7. Client Collocation that is activity based and team members of global vendors
8. Transfer of knowledge between the client and the vendor based team members

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9. Layoffs and human capital loss
10. Constraints in workflow for end users.

The author of the article recognizes that cultural barriers and language constraints, country instability, no protection for intellectual property rights, and limitations in project management along with a lack of sufficient technical capabilities have amalgamated as a serious disadvantage on the outsourcing of software development. The selection of right vendors has become a crucial step for companies. Thus it is necessary for outsourcing vendors to focus on these constraints to have a good impression on the companies. These constraints have been noticed across barriers and continents including US, Asia, Europe etc. However, the most significant barrier among all is cultural barriers and language barriers (Khan, Niaz, & Ahmad, 2011).

### **Additional Resources**

The off-shore outsourcing of Information system can be denoted as a series of processes in an organization that a firm utilizes to take an advantage of the cross-border and internal Information system resources to accomplish the goals as in Offshore outsourcing. This involves exploring the approaches where a particular firm fosters its knowledge, human resources and technical elements to collaboratively determine the efficacy of the off-shore outsourcing capabilities of the firm (Ng & Hillyer, 2001).

For Information system management related outsourcing, there are two perspectives that can be defined. One where, the capabilities are acquired from past experiences that are usually inimitable in nature (Ng & Hillyer, 2001). Another case, where the capabilities are acquired with a state of an art infrastructure to support the equipment of the IT infrastructure and well-defined past experiences. This calls for deliberate investments made in the field. The core capabilities of an Information system can be given in the below figure:

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In the course of the report, the author sheds light on the fact that since the last three to four years numerous studies on sourcing have been directed by an assortment of exploration and counseling firms. These studies demonstrate that most organizations spend between 40 percent and 60 percent of incomes with outsiders (off-shore outsourcing). By all accounts, the rate of outsider consumptions is keeping on expanding with the developing pattern toward outsourcing, particularly to Asia, and progressively to Eastern Europe, South America and Mexico ("Researching the differences in the flora [R&D outsourcing]", 2001). The article further accentuates the fact that Outsourcing processes bring a critical arrangement of risks. Most organizations remember this and react by receiving a careful risk investigation process. While hazard examination is a significant device, it must be joined by progressing hazard administration to adequately alleviate outsourcing risks. The risks mainly relate to the issues relating to lack of professionalism like timeliness in services, quality reinstated, transparency in communication and more.

The literature review from this resource highlights Off-shore outsourcing in Information system is picking up prominence since organizations are constantly compelled to decrease costs on development while keeping economical aggressive quality (Penrose, 1976). In any case, this pattern of programming advancement builds activities' multifaceted nature and raises dangers to the Off-shore outsourcing's general work flow, Ramanujan & Lou, 1997). In this manner, risks/dangers must be overseen as right on time as could reasonably be expected for an effective undertaking. This paper considers a model for risk assessment from an all-encompassing point of view to oversee Off-shore outsourcing hazards, incorporated into early phases of technology. The approach of Goal driven risk assessment methodology adequately distinguishes and indicates the objectives of a venture and the related variables of risk (Penrose, 1976). This is

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done on the premise of choosing programming advancement parts inside the running task. The project demonstrates to follow and control these dangers as of now amid early necessities designing exercises. The current model is executed into a continuous outsource programming improvement venture to (1) distinguish objectives and danger elements from the nearby setting and at long last (2) to decide its appropriateness of the methodology in off-shore outsourcing ventures from a seller's viewpoint (Tanenhaus, n.d.).

Offshore outsourcing represents a challenge in fluent communication for client companies... Communication endeavors on outsourcing will unavoidably include a generous protective part ("The importance of being different [business communication]", 2007). The positive motivation, in the meantime, is to guarantee that the macroeconomic environment accommodates wide-scale development. Communication barriers can invariably create a lot of project related misunderstandings and create unnecessary ambiguities to sustain a proper working environment.

The resource here elucidates that the agonies of outsourcing like poor communication, cultural differences, and time zone clashes are likely to upsurge. Taken together, notwithstanding, these conclusions recommend that offshore outsourcing is prone to be helpful for the United States all in all. This presents a test of how to best help individuals influenced by off-shore outsourcing without withdrawing from universal engagement and accordingly surrendering the financial additions that exchange administrations makes conceivable.

Here the author of the article explains the improvement elements on off-shore outsourcing taking into the fact that there will be inevitable challenges. Off shore, outsourcing speaks to a challenge of communication for business sector examiners (Wallenburg, Cahill, Michael Knemeyer, & Goldsby, 2011).It can derive veritable hardship on workers and their families, and it is no comfort for people going up against division that outsourcing gives general increments to the



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United States and the world economies. Basically, as with trade's growth thoroughly, correspondences attempts on outsourcing will unavoidably incorporate a liberal defensive part. The positive inspiration, meanwhile, is to ensure that the macroeconomic environment obliges broad-based improvement and effective outsourcing work standards as expected. There is no doubt, that discontent rising up out of outsourcing will be an issue for government authorities likewise, money related specialists alike for quite a while to come.

The author here resembles a mere fact that Outsourcing radiates an impression of being connected with extending U.S. work and developing them economically and globally. Some U.S. livelihoods are emphatically outsourced to distinctive countries (Tanenhaus, n.d.). All things considered, in any case, firms requiring the offshore outsourcing are not moving net businesses abroad yet rather are making them done in the United States itself. However, since the past decade, the challenges in an efficient outsourcing have been prominent and thought óprovoking. With poor quality standards, late work delivery exceeding the deadline has made many US firms to re-think before joining hands with an off-shore outsourcing company. Despite being well known as a cost effective solution, the cost and investment for an off-shore outsourcing have incremented as well. Along with compromising quality standards and poor work ethics with common and predominant issues like cultural and language barriers, Offshore outsourcing has been vulnerable to major loopholes.

### **Experiment in Offshore Project management**

In order to understand the issues in the off-shore project management, there has been a software development project conducted with an off-shore team from India. The Project entailed is an ERP software development wherein the project shall be developed using a Waterfall model.

**Lens to be used:**

I would use an information literacy lens to understand the experience of several organizations, journals, and information to understand the critical issues in off-shore outsourcing. Information literacy lens uses the burgeoning information centric and comprehensive information based society to extract, review and assess data using literature searches, communicating and publishing ideas to understand the rudimentary elements in off-shore outsourcing. It will help to speed up the identification of issues and finding solutions to the problems.

**Research Methodology**

The nature of the research has been conducted as an exploratory approach and is based on a specific case study regarding the development of software. The organization whose case shall be studied here deals in services related to computer support as well as manufacturing and has been discerned in the level of SW-CMM. It has units of software development for demand of internal clients across world-wide. The headquarters are situated in US. The collection of data had been done using primary sources via interviews and secondary sources via the document reviews as well as the process of software development. Understanding the respondents, there was an interview done with 11 people who represent from Brazil and resemble two significant projects (Prasad, Martens, & Declerck, 2012). They had resembled the team members of the project, the managers for development, and team members of quality assurance, improvement of software process as well as the individuals who have resembled the strategic levels of the organization. There had been a development of two questionnaires wherein each had considered a particular

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dimension to be discovered, dimension of the organization which comprises of the information and data regarding the entire organization as well as the strategies that resembled GSD along with dimension of the project which contains the information pertaining to the projects which have been chosen as a part of this research(Ng & Hillyer, 2001)..

The development of the case study encased the development unit of software situated in Porto Alegre which is in southern Brazil. The aim of the center focuses on performing a global development of the technology regarding the organization. There has been a distribution of almost all the projects globally as because the users and the customers are disseminated across the world. The development of the software is on the basis of Microsoft Solutions Framework along with the known methodologies like a Rational Unified Process and also the Project management institute. The reasons that have lead to the investment of the global software development points out the below reasons:

1. Reduction of the cost
2. An expansive strategy to the markets across the world
3. Collaborating the trademark of the organization outside the US
4. A standard of global development of software.

There had been interviews conducted contemplating these 2 global where each each of them had been from one department representing the organization. In each of the projects there has been a interaction among the inter group team of project and a intra group team of project. (Prasad, Martens, & Declerck, 2012).

The outsourcing team had been advised to follow a waterfall model for the Software development project.

## Requirement Analysis Model-Waterfall Model

The Waterfall model can be given as below:

The waterfall model can be contemplated as a design process which is sequential or non-iterative in nature and shall be prodigiously used for the above project in the development process of the software. The progress can be contemplated as a downward below model via the phases of initiation, conception, design, analysis, construction, production, testing as well as maintenance. Even after the development of new models of software development process, the method of Water fall model remains the dominant process with more than a 1/3<sup>rd</sup> of the software developers preferring to use it(Ng & Hillyer, 2001)..

The original model of Royce's Waterfall can be given by the below process:

1. Requirements of software and system: It ensures the capture of the requirements of product document
2. Analysis: It shall result in the schema, model as well as the rules of business
3. Design: It shall result in the architecture of the software
4. Coding: It shall ensure the development, evidence as well as the software integration process (Prasad, Martens, & Declerck, 2012).
5. Testing: It shall unveil the system as well as defect debugging
6. Operations: It shall give the migration, installation as well as anchorage and the maintenance of the overall systems

Hence it must be understood that in a waterfall model before proceeding to another phase, the erstwhile phase must be completed, evaluated and verified.

### **Result:**

The organization whose case shall be studied here deals in services related to computer support as well as manufacturing and has been discerned in the level of SW-CMM. It has units of software development for demand of internal clients across world-wide. The headquarters are situated in US. The collection of data had been done using primary sources via interviews and secondary sources via the document reviews as well as the process of software development. Understanding the respondents, there was an interview done with 11 people who represent from Brazil and resemble two significant projects (Prasad, Martens, & Declerck, 2012).

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### **Analysis**

#### **Technical Impact**

Use of the Waterfall model by the outsourcing agents

1. Lack of the use of requirements of the Waterfall model: It was understood that there was a lack of an all-encompassing requirements that can fulfill the need of the technological frameworks and the equipment required for the project to complete. The team hired as outsourcing agents lacked a sizeable knowledge of the required frameworks, their versions and the required versions that can suitably address the execution of the project successfully. There was a lack of almost 35% of the requirements that the project development must have. (Gurung and Prater, 2006).

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2. Analysis: Due to the incomplete requirement phase, the analysis phase also caused a number of errors to understand how the design of the project must be conducted and with what specific technical resources. There was a lack of an efficient analysis and a discussion on the resources by which the designing will be conducted as a result. Almost 1/3<sup>rd</sup> part of the project lacked a substantial analysis. The outsourcing team had to again re-visit the requirement specification phase and understand the specific technical resources that can support the designing of the project.
3. Design: Due to the erstwhile incomplete phases, the team lacked conspicuous knowledge to efficiently outline a design of the project. The analysis of the requirements made rendered an inefficient design with prominent loopholes in the security and efficiency of the product being developed. Almost 32% of the design accompanied significant errors and bugs. Thus there was a need to again understand the analysis phase where the outsourcing team had missed substantial points of requirements that the expected project must entail (Prasad, Martens, & Declerck, 2012).
4. Coding: The coding of the project must be done on the basis of a robust design and algorithm. However due to errors in the design phase, the algorithm created for the ultimate coding also lacked efficiency and accuracy. There were bugs found that made the issues in the project more visible. Almost 25% of the coding had been accompanied with errors. Thus a few phases of the project had to be revisited in order to accurately complete the coding phase (Ng & Hillyer, 2001).
5. Testing: At the time of testing, the outsourcing team had found several bugs and errors that prevented the project's phases from executing successfully. Thus, every time the errors were found, the coding and designing phase had to be re-created. That made more

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time invest in testing phase than usual. There had been almost 15 rounds of testing conducted for each phase.

6. Operations: The maintenance and support phase had taken a substantial period of time to come as because the testing phase occupied much of the time due to the consistent errors and bugs found in the software. This lead to perceive a considerable level of maintenance issues visible. It was understood that due to a much complicate testing phase, the outsourcing team has to conduct a very careful monitoring of the software developed and ensure that the software does not cause problems at the time of operation due to any faults or errors in the system. There had been a consistent 24\*7 monitoring system established. (Ng & Hillyer, 2001).

The above phases in the waterfall model had identified that there were clear issues in the manner interactions between the outsourcing team and the company had taken place. In order to understand the intricate issues that caused this problem, there was an in-depth search conducted to understand the key issues that had made the project suffer a scope creep (Gurung and Prater, 2006)..

### **Business Impact**

Based on the interviews implemented in the organization, the difficulties of GSD are pertaining to the engineering based requirements, deficit of activities and standards between the teams distributed, issues in information sharing as well as the deficit o share information and a impeccably defined process of software development. Other than that, there had been significant issues in the language communication as well as the barriers, the differences in culture along with trust acquisition and context sharing in between the teams.

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There was a need of Requirements engineering as a persistent issue which includes the elicitation of the requirements, evaluation, validation, specification, management and maintenance. A few interviews had been conducted on individuals had mentioned as project's distribution is made on several sites, there is a need of having an comprehensive requirement series as much as possible.

The process of software development itself has a huge difficulty as because a few offshore teams had not been working with the similar process. Additionally, the configuration of software had also be a crucial difficulty (Prasad, Martens, & Declerck, 2012)..

The problems related to language and communication had been encouraged by the differences in culture in between the sites and the dispersed individuals. Ultimately the factor of trust was as well an issue, most significantly the need of a dissemination acquisition of trust.

Thus the problems can be summarized as below:

1. Communication issues: Despite dialect not being a boundary to the correspondence stream, the recurrence of the correspondence directed was truly less. Issues got to be basic with the group's inaccessibility amid the most pinnacle hours of client demand and support benefit (Barclay, 1980). Regularly the discussion with the group needed adequate straightforwardness to assemble a significant comprehension on the tended to issue of the clients. This surged miss-understandings and made some real ambiguities to effectively meet the answers for the client issues.

2. Clash in Time-Zones: Even however, the outsourcing group had resolved to do a night move to co-work with our group and work in like manner. Regardless of the reality, the



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group regularly gets to be inaccessible to the most basic critical crossroads and that gets reflected by the customer's grumblings on the gateways customer's input page.

3. Cultural contrasts: Keeping the social contrasts alive elements like custom, respect, notoriety has rolled out some huge improvements to work culture. Attributable to the rich religious entrance of the nation, the quantity of leaves and occasions has also strained the work process to an awesome arrangement (Barclay, 1980). Meddling with the religious assessments can be considered as an incredible work disturbance too.

4. Instructions tail: It has been noted ordinarily, that there is an absence of an activity to take after the directions consecutively to the issues raised by the clients (Wallenburg, Cahill, Michael Knemeyer, and Goldsby, 2011). As we guarantee following up on the issues in view of their needs, their upkeep excessively should be done appropriately. However the outsourcing group likewise accountable for keeping up frameworks and administrations do not have the essential comprehension of what should be done first and what requires a later activity. This has made make advance issues for further testing also.

5. Meeting Deadlines: This denote the peak of demonstrable skill and unprofessionalism assuming something else. Regularly the activities submitted for documentation and reporting does not meet the stringent due dates of the work time frame (Gurung and Prater, 2006). This makes our work more troublesome considering the anger of the higher powers that we have to confront and be liable as well.

## Solutions

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Despite several being easily identified, the focus of the organization on standardization, process management as well as planning and investment were significant. There was also a need of continuous training and augmentation of trust in between the teams working globally. The preliminary planning was essential to select which could evaluate the distribution of the projects, and the availability of unit for receiving it.

## Project management Impact

A project management is key to successful execution of a project. However if the project is handed over to an off-shore outsourcing team as of the case mentioned above, the impact of the determinants of project management like the Time management, cost management as well as quality management factors must be monitored more stringently to ensure the successful execution of the project(Prasad, Martens, & Declerck, 2012)..

However, as can be understood from the above the case, the frequent misunderstandings due to language barriers, cultural constraints, clash in time zones and lack of up-to sate technical knowledge substantially has affected the time, cost and the quality of the project substantially.

The Impact of the Software Development on the cost, quality as well as the time management of the project (Väyrynen & Kinnula, 2012).

**Cost:** It was understood from the above case study that the reason because the outsourcing of the software project was conducted was due to the cost efficiency that the concept of outsourcing usually supports. However it was found that due to the increasing delays in the project with more and more cultural and language constraints, there were several errors found in the software project. There was almost a two fold increase in the estimate of the cost. The software project had failed to smoothly operate and with the increasing issues and errors, the

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expense and the cost incurred to have the errors corrected and continue the project's working had been also substantial (Ng & Hillyer, 2001).. Also as because the outsourcing agents had charged on an hourly rate, there was a prominent expense overflow due to the added hours they had been working to correct the issues found in the project. (Wallenburg, Cahill, Michael Knemeyer, and Goldsby, 2011).

**Time Management:** Due to the increasing misunderstandings from the language and cultural barriers, the time taken to execute a project phase had been more. The delay of time had been by over three months. Hence the expected milestone and exit points that had been formulated earlier for the completion of the project had also suffered more. As because of the clash in time zones, there was also a considerable level of time taken for monitoring the project. Hence, there was even a lack of an immediate response to review the phase execution. This caused a departure of the project's submission date from its original submission date that had been decided earlier. (Väyrynen & Kinnula, 2012).

**Quality management:** The management of quality as well had to face certain issues as far as using certain technological frameworks is concerned. The outsourcing team had been slightly unaware of the latest technological frameworks that is prevalent and entailed for the development of the project. The quality had affected adversely and substantially by almost 5%. Hence as a result the project had suffered from the required efficiency and competitive advantage that had been expected from the project's requirements. Thus, the quality of the project had been affected due to the collective delaying and lack of the required technological expertise (Weigelt & Sarkar, 2011),.

From the above phases, it was thus understood that the project had suffered prodigiously from a scope creep wherein due to a careless and an inefficient requirement specification

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Phase, the project cost management, time management and quality management suffered substantially. The lack of a proper definition of the project scope, its requirement, specification as well as drivers involved the project had over-exceeded the budget and the time period that was expected before. Thus this showed that the outsourcing team had several in-competencies and a thorough background check must be considered before hiring an outsourcing team for the work.

## Discussion

### **Phases of application development**

Understanding every phase of a software development requires a specific set of skills, technical resources, and the Outsourcing software development phases involve contracting a vendor to carry out more than one software development phase. For example external skill is required for analysis, coding, decoding or maintenance phase. It is important to stress on the point that these phases can be totally outsourced or can be carried out jointly. (Väyrynen & Kinnula, 2012).

### **Category of outsourcing**

In order to understand the efficient usage of outsourcing, one can either totally outsource the project to the off-shore team's infrastructure or can make it totally in house. There are different types of tasks like control tasks, common tasks or specialized tasks which can be considered. In the case discussed above, the tasks were specialized in nature. Common tasks are routine tasks based on general knowledge. They consume a lot of time as compared to specialized tasks but require less experience. Specialized tasks require specialized people with special skill and knowledge. Control tasks help to control application and the process of development. Sometimes this task falls within core competencies. Core competencies are activities, skills, special

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knowledge which makes an organization superior compared to their other competitors. Specialized tasks are very critical and require special skill. Specialized tasks are very important while dealing with the problem of taxation. Taxation is required only once a year but specialized staff is needed to maintain the changes in the taxation laws throughout the year. (Väyrynen & Kinnula, 2012).

Many companies even outsource core tasks if they do not have sufficient internal expertise. Here it is either a partnership relationship or a coupled relationship and its main focus is on internal experience. (Wallenburg, Cahill, Michael Knemeyer, and Goldsby, 2011).

## Issues

There are some technical and managerial problems. These problems are critical enough to prevent the company from enjoying any advantage from the outsourcing process. These issues are interdependent however it is important to identify these issues which will pave the way for its solution. (Tanenhaus, n.d.).

## Control

It is very important to control the quality and the properties of the product. Repeated surrendering of the development might lead to losing of security, confidentiality. Hence more assurance is mandatory by the outsourcer. Control is also required when decomposing the system into sub parts and understanding which parts to be outsourced. Critical aspects which provides advantage in the market, control on them must be imposed. When the system is being designed, these controlling aspects must be identified first and addressed to.

Management	Technical
Outsourcing decision	Trust
Vendor capacity and availability	Vendor capability

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Outsourcing scale/size	Outsourcing scale/size
Contract	Criticality/control
Ownership/IP/location	System decomposition and interface
Frequency of use	Paradigms
Liability/responsibility	Technology
Cost	Process visibility
Relationship with vendor	Conformance measures/quality
Resourcing	System evolvability and reusability
Risk management	Verification and validation
Privacy	Configuration management
Managing the process/coordinating vendors	Maintenance

### Responsibilities

The duties and responsibilities of the final products must be discussed in the contract. For intermediate products like designs, test data must also be taken into account. The agreement designed should be flexible to allow changes, also should be rigid enough. Information should also be passed between the vendor and the outsourcer which again raises the question of security (Weigelt & Sarkar, 2011),.

### Coordinating with vendors

Different risks are involved in the software development whose nature is variable. These risks are :

-Ensuring ability of the vendor to carry out development in difficult times.

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-to plan dependencies

-analyzing project's status so that reforms could be taken at the time of emergency.

In addition the different technologies, architectures raise the question of compatibility. It needs to be ensured that the different components are compatible and can be implemented in the entire system.

## Development paradigm

The development paradigms across integration, communication, compatibility should be addressed. The outsourcer and the vendor can use different procedures, development tools, software hence it is critical when the development paradigm used by the vendor and outsourcer is different. It is the duty of the outsourcer to check that all the guidelines required are followed by the vendor. There is also a risk of confusion when both of their analysis differs. So when there is such difference then it is important to arrange things in a proper way. (Väyrynen & Kinnula, 2012).

## Trust

Every project requires trust and security. So when an item is outsourced, the outsourcer seeks assurance to meet its security. That is the main concern of both parties. In technical issues, the outsourced component meets the required security but as a total, it may fail in the safety requirement. It is so because safety, security is always for the whole rather than for sub parts. (Tanenhaus, n.d.).

### **The decision to outsource**

Outsourcing offers new opportunities. A structural approach will take into account different factors which influence outsourcing.

### ***Situation of the organization***

Organization needs to identify their situation and their major concerns. They need to determine their status against their competitors and understand their strength and weaknesses. They must also identify their core business skills, competencies, their human resources, internal and external alternatives and also the technology required for the process (Wallenburg, Cahill, Michael Knemeyer, and Goldsby, 2011)..

### ***The drive***

Identifying the main drivers to outsourcing is very important (Ng & Hillyer, 2001).. The main drivers to outsourcing are the relationship between the outsourcer and the vendor also the degree of outsourcing should be taken into account.

### ***Issues of outsourcing***

There are numerous organization issues which should be solved first. These issues could be managerial, technical, and financial. Companies must find out alternatives to solve such problems or else they will persist and hamper the development of the organization.

### ***The final decision***

First organizations must decide the product being outsourced, the vendors involved, the time required to outsource, and the degree of outsourcing. After assessing every aspect with minute detail, they can decide whether outsourcing is the organization's strategy and it can achieve the desired goal or not.



### **Future prospect**

There is no denying to the fact that outsourcing brings new challenges and opens the door to a new wider business world, though some more time is required to solve the problem of paradigms, risk, designs, boundaries, specifications, designs. Organizations need to develop models for successful outsourcing because this process of outsourcing is very complex. Organization's situation, status, the main drivers to outsourcing should be addressed to before taking any decision. A software development outsourcing framework should be developed to progress outsourcing decisions in a systematic way (Wallenburg, Cahill, Michael Knemeyer, and Goldsby, 2011). If everything is planned properly it will improve the quality of the good, it will be delivered timely and also at a much reduced price and will provide time to organizations to focus on core business. This is achieved by improving the processes, exercising control on the skills, expertise, technologies available, improving the processes, sharing the production cost and the risk involved in the project and reusing the products and experiences (Weigelt & Sarkar, 2011),.

Importance of system decomposition and integration along with multi paradigm development paves the way for more research in the outsourcing process. This research would address issues of designs, tools that support multiple paradigms and configuration management system which inhibits different developmental practices at different distributed sites (Tanenhaus, n.d.).

Our final assessment of the issues of software development outsourcing has led us to understand that outsourcing projects and the engineering tools and technique are all dependent on each other. Decision of the management on engineering practices, expertise, and skill available in the organization influence the outsourcing decisions taken in the organization. This relationship between project management and software engineering will shape future research.

**Problem existence:**

This brings to the fact that offshore outsourcing has many stringent challenges some of which might be inevitable to control. Despite solutions being found and actions were taken, the prevailing issues in outsourcing continue to remain. With the issues like communication problems, meeting deadlines and following instructions concerned, it is to be seen whether or not the issues are solved efficiently. This most commonly includes language and cultural behaviors, mindsets and most importantly the level of adamancy to adopt a new organizational culture which constitutes as a necessary reform element for a successful relationship between the client and the vendor to embrace a promising growth(Ng & Hillyer, 2001)..

**Proposed solution approach:**

The gathered information from the above literature review conspicuously proves the fact that off-shore outsourcing activity accompanies a substantial amount off risks (Väyrynen & Kinnula, 2012). Majority of companies identify and react to the issues of off-shore outsourcing process with a risk analysis approach. Thus, I have elucidated some stringent directions to detect and resolve the key risks in outsourcing by implementing an ongoing risk management activity.

**Off-shore outsourcing based Risk analysis:**

A risk analysis provides a real time analysis of risks. And it is generally followed prior to the selection of the vendor. However, in our case, the issues and difficulties faced has created a significant to re-build our assessment methodologies.

The risk analysis filters the probable risks that the outsourcing's association with the company may deliver.

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## Outsourcing risk management

Risk management is a continuous process that comprises of three components: vendor and contract management, the SLA or service level agreement and lastly the billing. Vendor and contract management monitors the historical or the statistical performance of the outsourcing relationship. These statistics are persistently enhanced to improve the performances for the activities together done by the vendor with the client. The SLA shall entail the statistics that meets the requirements for the involved parties (Väyrynen & Kinnula, 2012). The SLA requires a periodic assessment and regular updating according to the terms of the contract.

The need to re-establish our SLA management and make the regulations more stringent must be for:

1. Assessing and determining the reasons of poor performance by the vendor company.
2. Comprehending the external and internal process interdependencies.
3. Comprehending the strict process requirements and termination if otherwise.
4. Understanding the performance measures to be re-established in the SLA and contract management.

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5. Revising the necessary capabilities for the vendor.
6. Transparently communicating the issues and problems that must be corrected with the vendor.
7. Ensuring to build a fostering relationship and improving the performance scale of the outsourcing team.

I believe that in order to have a comprehensive assessment of the outsourcing team's performance, the concepts that shall come forward to measure performances include:

**Data:** These gather raw estimates to throw light on analyzing the performance. These are the ticket counts, raw defect counts and the effort hours which our system will be able to automatically record after the teams do their everyday work (Weigelt & Sarkar, 2011).

**Information:** This will give the outcome of the analyzed data to assist comprehending the data gathered from above. Data alone gives the units and the numbers. The information thus gives the necessary analysis and rules require making useful decisions for implementation.

**Metrics:** This resembles performance figures (Wallenburg, Cahill, Michael Knemeyer, & Goldsby, 2011). Metrics shall define testing the efficiency of the outsourcing team and its contribution to the organization's overall performance.

Defining metrics resembles the preliminary step to measure the team of the outsourcing team's performance. The significant metric elements include:

**Volume:** This measures the work amount that the outsourcing team has done. It gives the work units that the team achieves and a goal to quantify it.

**Efficiency:** This measure the work amount completed within a pre-defined period. The selected volume units and the time period (weekly/monthly) along with the granularity (person/team/hour) explain the process. (Ng & Hillyer, 2001).

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**Efficiency:** This measures the work quality. The type may be different from the service type a team performs. Here the metrics shall include the customer relationship performance, the maintenance performance etc

**Capturing data:** After the data has been received from the metrics, the data captured is now reviewed with tools like incident reporting and time tracking along with other tools for project management (Wang & Li, 2015).

**Analysis and reporting:** This explains the process of consistent reporting. For this a month wise reporting is generally considered the best method. The reporting and analysis achieves to gain an improved performance in the following month from its current performance status.

The initial reports may just emphasize on comprehending the results in terminologies for the metrics defined and its analysis. After a minimum span of time, the action of plan must entail the courses of activities and performance improvement schemes that will help the outsourcing team to perform better.

### **Proposed Work Plan:**

After having analyzed the report prodigiously, the action plan must include the following directions:

1. Engaging with the team: For every reporting cycle the performance results needs to be reviewed with the whole team
2. Emphasizing the review: Prior to the meeting, one or two of the most critical performance areas must be selected where the team needs to discuss the short-falls and improve.

Generating actions for improvement: Every session must generate the action plan to be done before the next quarter (Wang & Li, 2015).

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In order to recognize the key targets to improve, one of the above discussed metrics must be selected which is not giving a positive report on the outsourcing team's performance. There needs to be an analysis on the particular field outside the regular reports in order to produce some productive improvement ideas. The entire team must be involved. Taking instances from above the ticket types that has complicated problems associated with them needs to be resolved first.

Based on the prevalent problem statements that were discussed in the Problem statement above, the below includes a set of action plans to prevent the problems:

Countering communication issues: Having engaged with the team, the information and the metrics defining the issues must be prominently explicated to the outsourcing team. And the problems faced due to a poor communication, should be additionally explained. Here, as the problem relates to the specific team member assigned to the role of communicating with us must be changed. Or, the key problem areas like clearly communicating the queries and issues, availability to listen to issues and queries must be ensured (Weigelt & Sarkar, 2011). A transparent communication must be supported via an email, quick response to email or video-conferencing availabilities whenever possible.

Countering instruction following issues: The team must be recognized with the loop holes of the instruction followed with the right data and metrics report. Prioritizing tasks and following what needs to be done first must be clearly known to the outsourcing team and asked if there are any issues to understand the process.

Countering issues of deadlines: This requires a stringent and a careful analysis. The team must be aware of following the deadlines or else being terminated from the contract. As meeting

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deadlines is a critical factor in a customer relationship management as well. It can exploit the front face of the organization. (Ng & Hillyer, 2001).

Countering cultural differences: Despite the empowerment of culture and religions in the country, these influences must not be reflected in the professional relationship between us. It is necessary to make the outsourcing team discern the loss of business incurred due to a holiday and also make the team aware that this can further result in the deduction of the vendor's monthly payment. With exception to important days like the country's Independence Day or related (Weigelt & Sarkar, 2011), no other additional leaves must be permitted.

Countering time-Zone differences: Although the issue here inevitable, however, the team must deliver a 100% availability to any queries or addressed by the team during the time zone. However project deliveries should be done according to the time zones of the vendor's country as that will be convenient for the team.

## Conclusion:

The context of the study thus concludes the plethora of constraints that can arise in an off-shore consulting. With outsourcing as a not-so new concept, Software Development outsourcing encompasses a contract based voluntary relationship between vendors and clients, wherein a client outsources a part or all the business activities to the concerned vendor. However, an offshore outsourcing demands completely different capabilities as against a domestic outsourcing. As because problems related to off-shore consulting is myriad and unique, the most stringent off-shore outsourcing constraints resemble to be Cultural and Language barriers. With different professional environments, the penetration of the culture and traditions make the process of working with an offshore client all the more difficult. Along with other issues like

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clash in time-zones, lack of a fast responsiveness and more, the proposed solutions to avoid issues related to off-shore consulting must firstly include Engaging with the team wherein For every reporting cycle the performance results needs to be reviewed with the whole team. Next is Emphasizing the review, wherein Prior to the meeting, one or two of the most critical performance areas must be selected where the team needs to discuss the short-falls and improve and lastly, generating actions for improvement: Every session must generate the action plan to be done before the next quarter. This shall enable a performance monitoring review of the off-shore clients and shall also ensure that the expenditures on them is more-meaningful and follows a strict examination process.



## References:-

1. A, G. & M, A. (2016). Values and Disadvantages of Outsourcing the Regulatory Affairs Tasks in the Pharmaceutical Industry in EU Countries. *Pharmaceutical Regulatory Affairs: Open Access*, 05(01). <http://dx.doi.org/10.4172/2167-7689.1000161>
2. Aron, R., Bandyopadhyay, S., Jayanty, S., & Pathak, P. (2008). Monitoring process quality in off-shore outsourcing: A model and findings from the multi-country survey. *Journal of Operations Management*, 26(2), 303-321. <http://dx.doi.org/10.1016/j.jom.2007.02.014>
3. Barclay, L. (1980). Communications with off-shore installations. *Radio Electron. Eng. The UK*, 50(8), 375. <http://dx.doi.org/10.1049/ree.1980.0057>
4. Gurung, A. & Prater, E. (2006). A Research Framework for the Impact of Cultural Differences on IT Outsourcing. *Journal of Global Information Technology Management*, 9(1), 24-43. <http://dx.doi.org/10.1080/1097198x.2006.10856413>
5. Kumar, S. (2007). An explorative study of established software leaders and their key outsourcing partners. *International Journal of Business Performance Management*, 9(1), 58. <http://dx.doi.org/10.1504/ijbpm.2007.011496>
6. Murray, R. (1995). Off-Shore Authors Are Welcome. *Analytical Chemistry*, 67(21), 641a-641a. <http://dx.doi.org/10.1021/ac00117a600>
7. Yang, B., Yuan, N., & Liu, M. (2014). The impact of boundary spanning capability, cultural differences on a success of offshore information system outsourcing - from the vendors' perspective. *IJNVO*, 14(1/2), 4. <http://dx.doi.org/10.1504/ijnvo.2014.065086>

8. Weigelt, C. & Sarkar, M. (2011). Performance implications of outsourcing for technological innovations: managing the efficiency and adaptability trade-off. *Strat. Mgmt. J.*, 33(2), 189-216. <http://dx.doi.org/10.1002/smj.951>
9. Wang, Y. & Li, Y. (2015). Performance Evaluation of Human Resource Outsourcing in Food Processing Enterprises. *AJFST*, 9(12), 964-969. <http://dx.doi.org/10.19026/ajfst.9.1783>
10. Wallenburg, C., Cahill, D., Michael Knemeyer, A., & Goldsby, T. (2011). Commitment and Trust as Drivers of Loyalty in Logistics Outsourcing Relationships: Cultural Differences Between the United States and Germany. *Journal Of Business Logistics*, 32(1), 83-98. <http://dx.doi.org/10.1111/j.2158-1592.2011.01008.x>
11. Väyrynen, K. & Kinnula, M. (2012). Differences between success factors of IS quasi-outsourcing and conventional outsourcing collaboration: a case study of two Finnish companies. *Electronic Markets*, 22(1), 49-61. <http://dx.doi.org/10.1007/s12525-011-0079-6>
12. The importance of being different [business communication]. (2007). *Engineering Management*, 17(6), 30-33. <http://dx.doi.org/10.1049/em:20070605>
13. Tanenhaus, R. Economically Complementary, Ecologically Balanced, On-Shore/Off-Shore Industrial Clustering. *Journal Of Environmental Systems*, 1(1), 101-107. <http://dx.doi.org/10.2190/3gaw-093k-78wp-hvxb>
14. Ramanujan, S. & Lou, H. (1997). Outsourcing Maintenance Operations to Off-Shore Vendors. *Journal Of Global Information Management*, 5(2), 5-15. <http://dx.doi.org/10.4018/jgim.1997040101>

15. Prasad, B., Martens, R., & Declerck, C. (2012). IT outsourcing partnerships and cultural differences: an analysis of European-Asian projects. *IJBG*, 8(3), 388.  
<http://dx.doi.org/10.1504/ijbg.2012.046212>
16. Nadeem, S. (2009). Macaulay's (Cyber) Children: The Cultural Politics of Outsourcing in India. *Cultural Sociology*, 3(1), 102-122.  
<http://dx.doi.org/10.1177/1749975508100673>
17. Ng, W. & Hillyer, B. (2001). Obtaining high performance for storage outsourcing. *ACM SIGMETRICS Performance Evaluation Review*, 29(1), 322-323.  
<http://dx.doi.org/10.1145/384268.378813>
18. Penrose, J. (1976). A Survey of the Perceived Importance of Business Communication and Other Business-Related Abilities. *Journal Of Business Communication*, 13(2), 17-24. <http://dx.doi.org/10.1177/002194367601300203>
19. Khan, S., Niaz, M., & Ahmad, R. (2011). Barriers in the selection of offshore software development outsourcing vendors: An exploratory study using a systematic literature review. *Information And Software Technology*.  
<http://dx.doi.org/10.1016/j.infsof.2010.08.003>
20. Critical Capabilities for Offshore Outsourcing of Information Systems. (2007). *Association For Information Systems AIS Electronic Library (Aisel)*. Retrieved from [http://aisel.aisnet.org/sprouts\\_all](http://aisel.aisnet.org/sprouts_all)
21. Khan, Siffat Ullah , Niazi, Mahmood and Ahmad, Rashid, (2009) "Critical barriers for offshore software development outsourcing vendors: a systematic literature review", 16th Asia-Pacific Software Engineering Conference, pp.79-86. Retrieved from

<https://www.researchgate.net/publication/220772663> Critical Barriers for Offshore Software Development Outsourcing Vendors A Systematic Literature Review

22. Siffat Ullah, Mahmood Niazi, and Rashid Ahmad. "Factors influencing clients in the selection of offshore software outsourcing vendors: An exploratory study using a systematic literature review." *Journal of systems and software* 84.4 (2011): 686-699.
23. Khan, Siffat Ullah, Mahmood Niazi, and Rashid Ahmad. "Barriers in the selection of offshore software development outsourcing vendors: An exploratory study using a systematic literature review." *Information and Software Technology* 53.7 (2011): 693-706.
24. Ranganathan, C., Balaji, S. (2007). "Critical Capabilities for Offshore Outsourcing of Information Systems," Indiana University, USA. *Sprouts: Working Papers on Information Systems*, 7(14). <http://sprouts.aisnet.org/7-14>.