Effective Distribution Of Roles & Responsibilities Of Team Members In Software Industry

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ABSTRACT:

In Software industry traditional co-located form of development shifted where teams are distributed geographically and collaborates with each other. Distributed software development (DSD) is becoming a common practice in today's industry. Software development teams, in DSD, are not physically co-located and therefore cannot see or speak in person on a regular basis. Within the project environment, a transparent definition of the roles and responsibilities that individuals play are critical to the success of the project. Throughout the course of the project, an individual may play more than one role simultaneously. Individuals must understand the roles they play to grasp what responsibilities they need in making decisions, taking actions, reporting, and reviewing. Successful development projects undertake careful planning, a talented team and collaboration of a project's team members, both internal and external (client representatives). Software projects only move forward when the key team members are in place. This is a conceptual paper which focuses on the effective distribution of project roles and responsibilities of team members working in software industry.

Key words: Project role, Project responsibility, Software industry

Introduction:

People working together effectively are the inspiration of any successful project. Projects recognize this and assign clear roles and responsibilities to every person in a project, both from the 'customer' and 'supplier' side of the project. These two communities work very closely together in the project to reduce possible communication barriers. Main three Project-level roles
are the directors, managers, and coordinators of the project work. They will either be on or directly report to any project board or steering committee. The Business Sponsor provides the overall strategic direction and funding. The Business Visionary hold the customer and supplier visions of solution excellence. The Project Manager ensures that the funding supplied is used effectively to create the envisaged solution. The Development roles are Team Leader, Business Analyst, Software Developer and Software Tester. Jointly these roles form the engine room of the project. They shape and build the solution, are collectively responsible for its day-to-day development and for assuring its fitness for business purpose. There may be one or moreSolution Development Team: the membership of each team should be stable and cover all the responsibilities defined for the Development roles. Individual team members will report through the 'normal' project communication channels as well as to individuals holding senior responsibility in their own sphere of interest. The other role (Technical Writer) aids and guidance to the project throughout the lifecycle. The project may also bring in subject matter experts as necessary for their specialist expertise. The projects roles do not necessarily relate to individuals on a one-to-one basis. One person may perform more than one role. For instance, one person may carry out the responsibilities of both the Project Manager and the Team Leader. However, some roles will usually be held by one person whatever the size of the project, e.g., the Business Sponsor and the Business Visionary. Such things as geographical constraints and staff availability can affect the creation of the ideal project team, but it is strongly recommended that all the roles are considered, and their individual responsibilities as signed as appropriate. The role definitions can be used as the basis for personal terms ofreference for a project.

Project Roles and Responsibilities: Role definition benefits the project by:
- Bringing a traditional project process into the Agile process
- Allowing the team to achieve "perform" stage of development faster
- Keeping people from performing redundant activities
- Predetermining decision-making responsibility
- Identifying personal responsibility for success at the beginning of the project

- Reducing confusion about who does what and when

Everyone in the project team holds the role of a project team member. Each team member is liable for understanding the other roles and responsibilities. Each project team member should consult with the matrix when assigned a job in the team.

Project Roles:

A project role is an assignment on the project team. It's just like employment description.A team member can have one or more roles at the identical time. A person's role could also be temporary or last for the lifetime of the project. for instance, one person mayhave the role of team lead, artifact owner, and SME. When the artifact is completed, baselined, and the project phase is complete, the person would relinquish those roles and tackle the responsibility of the subsequent role assigned. Some roles like project sponsor and project manager will last over the course of the project track and project. At certain times, the person is also asked to play a distinct role like business analyst (BA) or SME and responsibilities of the person also change as per the role. To facilitate smooth team interactions and clear lines of authority and responsibility, all and sundry on the team should identify which role he or she is filling when giving direction, making decisions, calling meetings, or reviewing artifacts. When a team member is assigned a job on theproject, he/she is given certain responsibility and the authority to require action or make decisions. On most projects, responsibilities usually make up process steps.

Project Responsibilities:

Initiate: Start action on a project track, project phase, artifact, or task. As long because the action taken is within the scope of the project, the one who is given authority to initiate action can do so without being directed by management. Usually, initiating action takes place before a completed plan is in situ. The output of initiating is moving to the design responsibility. The identical person may or might not even be attached the design role. Example., the project manager may initiate a project track and switch it over to the project track lead for detailed planning.

Plan: Some roles require planning. The roles related to planning are project manager, project track lead, and artifact owner. The person doing planning can use other persons (business process SME, technical SME, project sponsor) to form effective plans. Major outputs of planning responsibilities are an approved plan, an artifact, or the project.

Implement: Roles that are liable for implementing a plan are usually those related to completing tasks on the project plan. Some of these roles are Team lead, Author, Developer, and Tester. The output of implementation is work produced to form an artifact that ends up in building the finished product.

Monitor: The monitoring responsibility is assigned to a range of roles. Monitoring isn't to be confused with reporting. A standing report may capture a number of the results of monitoring. However, monitoring might also involve problem solvingand training. For instance, a team lead will monitor the progress of the artifact owners and developers engaged on the tasks of the plan. If the artifact isn't being produced to plan, that person has the responsibility of understanding what problems exist that prevent implementing the plan. It's going to be that the plan needs revision. If that is the case, the problem is often escalated to the role that had the planning responsibility and people who approved the plan.Conversely, the individual who is implementing the plan might not fully understand the specifications, plan, or objectives of the project. In this instance, the monitoring individual can coach the implementer with a review of the specifications, plans, or project objectives. Outputs of the monitoring responsibility are verification that the plan is on the right track, minor coaching, reporting, and requests for assistance.

Control: The roles that assume responsibility for controlling are those who own a process or artifact. for instance, the project track lead, team lead, or artifact owner can take corrective action when the monitoring indicates the project or artifacts aren't beingcreated or produced as designed or planned. Controlling could be a reactive responsibility. The identical person may have the role of monitoring and controlling an artifact. Once monitoring responsibilities are fulfilled, the request for assistance can cause a choice, counselling, new planning, and resetting scope. One aspect of controlling is that theresponsibility for preventing the project scope from changing after it's been baselined. Thiscan be accomplished through the core processes of change management and risk management. The owners and administrators of those two core processes have the responsibility for administering the processes. The scope change control and responsibility are constructed into the process and isn't assumed by an individual. However, within the process, certain roles are identified that have the responsibility of constructing scope change decisions.

Close: It is the responsibility to close out anything that was initiated. A project track, project phase, artifact, or task needs closure. It's usually the responsibility of the role of owner to conduct closure. Some tasks related to closure are archiving drafts and baselined artifacts, contract closure, celebrating, reviewing, lessons learned, knowledge transfers, and hand-offs to the subsequent user of the artifacts.

Literature Review

According to Turner (1999), a project is "An endeavor in which human, financial, and material resources are organized in a novel manner to undertake a unique scope of work, of a given specification, within cost and time constraints, so as to achieve beneficial change defined by quantitative and qualitative objectives." A project, as defined by A Guide to the Project Management Body of Knowledge (PMI, 2000), is a temporary endeavor undertaken to produce a one-of-a-kind product or service. Temporary implies that each endeavor has a distinct beginning and end. Unique implies that the product or service is distinguishable from all other products or services in some way.

Gittinger (1972) defines a project as a comprehensive set of actions involving the utilization of resources to generate advantages. Gittinger (1982) emphasizes that in most cases, projects are a discrete and distinct element of a wider, less precisely characterized programme. It is possible to analyze the entire programme as a single project, but it is often preferable to keep projects relatively modest, near to the minimal size that is economically, technically, and administratively feasible. If the scope of a project approaches that of a programme, there is a risk that high returns from one component will obscure low returns from another. A project is an activity for which funds will be expended in anticipation of returns and which logically lends itself to planning, financing, and executing as a unit. It is a specified activity with a beginning point and an end point that is designed to achieve specific goals.

According to Nilsson and Soderholm (2005), planning and planning are integral components of projects. Plans are intended to organize and direct project team members as they work to achieve whatever project objectives have been established. However, a plan can only be of a given level of sophistication. When day-to-day project management techniques are studied, plans appear to melt and become less prescriptive.

The knowledge field of Project Management is both an art and a science (Bredillet, 2004 a&b) According to PMI (1994), project management is the application of knowledge, skills, tools, and procedures to project operations to meet or exceed the needs and expectations of stakeholders. It is the art of directing and organizing people and material resources over the course of a project's lifecycle to achieve the project's objectives within predetermined limits.

Lock (2003) notes that a large industrial project necessitates multiple distinct operations that must be centered on a single objective. From the beginning of the project to completion and delivery of the plant, the organizational structure must be based on cooperation and interaction inorder to meet the client's commitments. With this objective in mind, it is crucial for a business to have a high level of skill and experience in planning and optimizing the various project activities, as well as highly advanced management tools and methodologies to control time and cost constraints and meet the demanding demands of increasing efficiency.

According to Seymour et al. (1992), project management is a crucial technique in the transformations many organizations are facing as they transition from a stable, machine-like paradigm to a more dynamic one in response to environmental volatility and change. Both cultivating flexibility, adaptability, and the acceptance of change as a permanent state, and giving support for team members to enable them to live with a process they may see as unpleasant and disorienting, is a challenging responsibility for project managers.

Kerzner (2003) defines project management as the planning, organizing, directing, and regulating of a company's resources for the completion of a generally short-term purpose with specific goals and objectives. Project Management is the application of information, skills, tools, and procedures to project activities to achieve project specifications. The steps of initiating, planning, executing, controlling, and closing are utilized to accomplish project management. Sometimes, the phrase project management is used to represent an organizational method to managing ongoing activities, also known as management by projects. Similarly, many components of ongoing operations are viewed as projects to facilitate the application of project management methods.

Project verses Operations- Nature of project: Every organization acts according to two fundamentals modes:

1. An operational mode, aiming at the exploitation of competitive advantage and current position on the market and providing profits and renewal or increase of resources and

2. An entrepreneurial mode, or project mode, focusing on the research of new position and new competitive advantage, consuming money, and resources. To ensure their sustainability and development, all organizations need to combine both modes. (Declerk in Ansoff, Declerk, & Hayes, 1976). As stated by Gittinger (1982), project provide an important means by which investment and other development expenditures foreseen in plans can be clarified and realized. Sound development plans require good projects, just as good projects require sound planning.

According to Kulkarni et al. (2004), projects, particularly those with a longer lifecycle, could be divided into numerous phases based on their functions. For the sake of convenience and simplicity, the three commonly recognised phases are employed:

(1) Procurement phase: From inception to financial close and work commencement (tendering; dealing with governments, lenders, insurers, pressure groups, experts)

(2) Project execution phase (site installation till routine processes are reached, significant completion)

(3)Operation and handover phase: From substantial completion to the conclusion of thedefect liability period and handover.

According to Flaatten, McCubbrey, O'Riordan, and Burgess (1992), 'project execution' (also known as 'project implementation' phase) is the phase in which the project manager is responsible for allocating work to the various team members, ensuring that team resources are used where they are most needed, and balancing the workload. As intermediate deliverables are completed, they are reviewed for verification (that they are accurate and conform to the project's specifications) and validation (that they conform to previous work).

Research Methodology

The Study examines the duties and responsibilities of managers and staffs in an organization that is extremely project-based. It addresses the study's title, its necessity, its objectives, and its scope. The primary objective of this study is to understand the project descriptions in the software industry.

1. To study the Project roles and responsibilities of Software projects in anorganization.To know the various project departments in the organization.
2. To provide Project Roles and Responsibilities to the employees in the company.
3. To know employee's designation and to review the project roles and responsibilities.
4. To search out the expectations of the project roles and responsibilities for the employees.

A structured questionnaire was designed consisting of close-ended questions and were distributed to the respondents personally to get their responses. The questionnaire was administered through direct contact with respondents. The study covers a sample of employees of companies. The Respondents were selected on a Sample Random basis from the following categories of the employees,

a) Project Manager
b) Team leaders
c) Developers/Programmers

Most respondents are chosen from the Project management category. Therefore, the Sample Size is limited to 40 due to worker availability and therefore their hectic schedules.

Simple random sampling technique used for sampling. This sampling technique is used because respondents were chosen at random. Most of the sampling unit was comprised of Executives and non-Executives. The sample size is fixed at 40 respondents, and the sampling technique is the respondents' responses. Sample percentage was used as statistical tool.

The scope of the study includes individuals from several departments in order to determine their titles and assess project responsibilities. The scope also aids in identifying the expected roles andduties of the project's staff

Limitations of the study

1. This study could not include all personnel with a specific classification
2. Some individuals had difficulty articulating their precise duties and responsibilities,and the study was confined to a small number of department personnel.
3. The obtained data are primarily primary data, and the correctness is contingent uponthe responses received.

Data Analysis and Interpretation:

1. Training required after hiring in a project: After being hired for the project, training isnecessary for the individuals to conduct responsible/risky tasks. As more people require training, more are involved in project baseline activities. 76% of respondents said thattraining is necessary after hiring a project.
2. The mode of getting information about the project

Options	No. of Respondents
Written material	6 %
By Project Manager	4 %
Visual differentiation	90 %

The mode of acquiring information about the project is a crucial aspect of its execution, since thecorrect mode of acquiring information determines the quality of the project's output, and performance by supervision implies that the project will be well-executed under the supervision of superiors.

3. Analyzing information of processing the activities related to project

Options	No. of Respondents
Decision making	24 %
Coding / decoding	02 %
Processing information	68 %
No such activities	06 %

Analyzing the employees' information processing activities is an important aspect of project analysis. There are numerous information processing methods. Approximately sixty percent are engaged in division-making activities.

4. Interactions involved with other people in a project

Contacts	Occasional	Periodic	Frequent
With Project manager	12 %	16 %	28 %
Contact with clients	16 %	06 %	26 %
With bottom level executives/staffs	54 %	14 %	16 %
Others	18 %	02 %	02 %

Most responders communicate often with their project manager. It demonstrates the ongoing oversight of the work. This supervision improves Performance. Also positive are client interactions and their effects on client satisfaction. Interpersonal connections within an organization with the project manager provide a pleasant working environment.

5. Personnel requirements for the project

Options	No. of Respondents
Specific skills	56 %
Specific education & training	38 %
Specific physical characteristics	04 %
Non – complicated work	02 %

The quality and output of performance are based on the specific requirements required tocomplete a project. For approximately 90% of respondents, specific education / is required to complete the project. This demonstrates the quality of their work.

6. Physical requirements for the project

Options	No of Respondents
High temperature	07
Radiation	09
Machinery (PC works)	28
Non – complicated work	56

The working environment of the employee needs to be adequately analysed. The hazardousworking conditions need to be handled with caution. About 50% of employees operate in potentially hazardous physical conditions where even a tiny mistake can have serious repercussions.

7. Unusual sensory demands required in a project

Options	No. of Respondents
Vision	32
Smell	04
Hearing	12
No such demands	52

Risky/unsafe projects necessitate unusual sensory demands. It indicates that they are doing responsible/sensible work.

8. Physical efforts required for the project

Options	No. of Respondents
Heavy	24
Moderate	30
Mild	46

It's important to monitor a worker's physical activity. excessively exhausting work. can result in occupational accidents

& health risks. Baseline employees engage in vigorous physical activity, while relatively higher-level management engages in light physical activity.

9. Mental skills/activities to perform

Options	No. of Respondents
Heavy	10
Moderate	24
Mild	66

Top-level management requires a great deal of mental effort because they are responsible foroverseeing the performance of the entire firm.

Findings

1. After being recruited for the project, training is necessary for the individuals to conduct responsible or risky tasks. As more people require training, more are involved in project baseline activities.
2. The way in which you gather information for a project is crucial to its success because the right way to do so determines the quality of your output. If you obtain information while being supervised by seniors, you can be sure that your project will turn out well.
3. A key component of project analysis is examining the worker's information processingactivity. The processing of information can be done in a number of ways. 60% of them are engaged in division-related operations.
4. Most respondents reported having frequent interactions with their project manager. It illustrates how the work is continuously supervised. Such oversight improves performance. Customer happiness is affected by good customer interactions. The working atmosphere is amicable because of interpersonal interactions with the project manager within one firm.
5. A thorough analysis of the worker's working conditions is required. The hazardous working conditions need to be handled with caution. About 50% of employees operate in potentially hazardous physical conditions where even a tiny mistake can have serious repercussions.
6. It's important to control a worker's physical activity. excessively taxing work. can result in occupational accidents & health risks. Baseline employees engage in vigorous physicalactivity, while relatively higher-level management engages in light physical activity.
7. Top level management requires intense mental effort because they are responsible for overseeing all of the company's performance-related tasks.

Suggestions

Identifying project roles and responsibilities too early hinders project success. Inevitably, a project or activity will conflict. Use our project management abilities to deliver and senior management relationships to test project priorities. Explore project management software. Need business case, though. Many project managers utilize Excel spreadsheets or Word charts to deliver projects.

Review your project to see if it's still producing original benefits. If not, reshape or abandon the project. Don't fear dropping a project. Better to stop now than lose time, money, and resources. Ifyou close a project early, review it to identify learning.

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