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PROJECT MANAGEMENT IN SOFTWARE DEVELOPMENT COMPANY

A CASE OF KAKUNJE SOFTWARE PRIVATE LIMITED

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Abstract:

In current software development market in order to sustain you should be innovative and productive and also cost effective which company can follow project management concept, which is not only managing the software development process but also completing the project within specified time period, active participation of project manager, allocating and utilizing the resources for the project, preparation of cost budget and completing the project within the budget, strategic planning to control the project risk, the teamwork to reach the objectives, managing quality of the work, research and development activities for innovative projects, delivering the output with customer satisfaction are makes the project successful.

Keywords:

Project Management,

Software Development,

Time Management,

Resource Management,

Cost Efficiency,

PERT Chart,

Software Development Project Management.

Introduction

The Project Management is the management activities of initiating, planning, organizing, controlling and closing the assigned project work by satisfying the requirements and manage cost benefit of the project within assigned time period, the word Project is any activity undertaken which involves research design and proper planning with set of interrelated activities to be executed by an individual or by a team to achieve particular purpose over a fixed cost and time frame, the activities of project management is managed by the Project Manager.The Project Manager is a key person who manages the project and he have the overall responsibilities of the success of project by effectively managing the project management activities which includes project initiation to project closure, he must have both technical and non-technical skills to manage a project, the duties of project manager are decision making, developing schedules, project cost management, risk management, project team management, documentation and reporting, contacting with vendors, quality control.

Software development process is assigned project to a software company in order to develop a software based on certain requirements, in order manage these projects normally the large-scale companies appoints a project manager, small and medium scale companies appoints chief technical officer and in some company department heads all together acts as one project manager by sharing the responsibilities.

Company Profile

Kakunje Software Private Limited is located in Mangalore, the company known for providing excellent and innovative customized software and hardware solutions as per the requirements of customers since 2012. The company deals with trading, manufacturing and services which they incorporated to provide e-commerce, technical and project training, website and mobile application designing, software and hardware solutions, electronic and electrical product designing and manufacturing also incubation centers. The current CEO of the company is Mr. Gopala Krishna BhatKakunje.

Literature Review

1. Project Management (Olaf Passenheim: 2009)

Project Management regarded as a high priority as all organizations involved in implementing new undertakings, innovation and challenges. Project may be individually diverse, however over a time, some tools, management techniques and

problem-solving techniques results in bringing project to a successful end.

2. Software Project Management (Bob Hughes and Mike Cotterell: 1999)

Software project management is key ideas about the planning, monitoring and control of software projects. Projects to produce software are worthwhile only if the satisfy real needs and so we will examine how we can identify stakeholders in a project and their objectives.

3. Project Management Journal (Christophe N. Bredillet: 2006)

The project will successful by implementing proper project management technique and by managing the project risk and it is decided by project manager. So, the success of a project directly depends on the project manager.

4. Assessing Project Management Maturity (Young HoonKwak: 1999)

Project management is the combination of project scope management, project cost management, project time management, project quality management, project human resource management, project risk management, project communication management.

5. Project Management (Roger Atkinson: 1999)

Project management is which deals with the pre-determined cost, quality and pre-determined schedule of a project, and is managed by systematic way and the final result should be accepted by others is called success of a project.

6. Gower Handbook of Project Management (J. Rodney Turner: 2007)

A project is temporary activity assigned to a team assigned with resources with scheduled time period that the outcome of that activity should deliver with the goals and objectives which need a strategical management to the success to achieve.

7. Teamwork and Project Management (Karl A. Smith: 2002)

The Project will successful when there is coordination in the management team and executing team, the team coordination and communication should be there with each member to build a project towards its objective and it is the task of project manager.

8. Effective Project Management (Robert K. Wysocki; 2007)

Project management is a critical process for every organization, they should be very quick, reliable and innovative to implement and new projects and introduce new organizational changes then only they can sustain profitably in the market.

9. Project Management Journal (Bent Flyvbjerg, Dr. Techn: 2006)

Project manager should aware of the project risk involved to complete the project successfully, to manage that he can predict and control the risks by taking reference from similar projects which will save the investment and time.

10. An Introduction to Project Management (Kathy Schwalbe: 2015)

The past project management system is related to providing time and resource report to the top management in military and construction industries, the present project management is related to time, quality, resource, and risk management in all projects.

OBJECTIVES:

The objectives of the study are as follows:

To analyze implementation and importance of project management and project manager concept in software development companies and to analyze the time and cost effectiveness using project management concept.

METHEDOLOGY:

The data collected for the analysis is subjected to the data available from the primary sources and the secondary sources as the follows:

- The primary sources of data are collected by direct interviewing the CEO and Managing Director, departmental heads and employees of Kakunje Software Private Limited.
- The secondary sources of data are collected by referring books related to project management concepts, by referring articles and literature reviews relating to project management and software project management concepts, by referring websites which provides concepts of project management and by referring finance and cost data of Kakunje Software Private Limited.

The tools and techniques used in this study in order to analyze the collected data for labor and resource management, time management and cost management in the project management process in software development company are as follows:

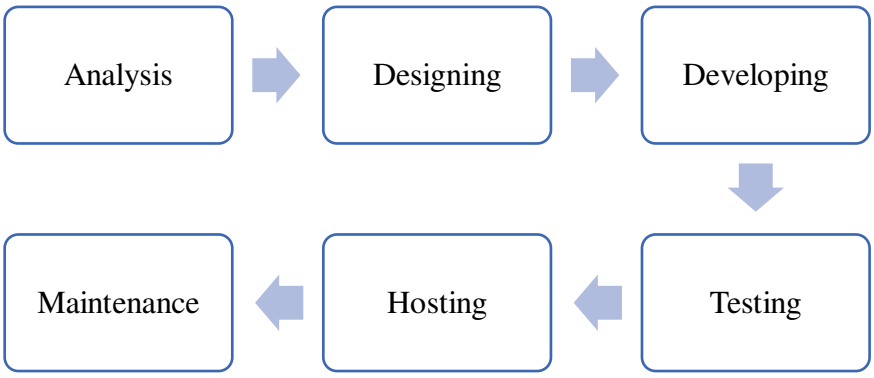
- Gantt Chart: To represent the project schedule for each activity with respect to time periods.
- Resource Histogram: Torepresent graphically and by horizontal bar chat in order to represent the number of resources.
- PERT Chart: To describes the project as network diagram which is capable of graphically representing important events in both consecutive and parallel way.

- CPM Chart: To recognize independent tasks in the project.
- Cost sheet Analysis: To analyze the cost minimization and profit maximization in project management portfolio.

FINDINGS:

Software companies and information system companies are mainly dealing with inventing, updating and developing software and hardware technologies, it involves hardware products, computer software designing, mobile application designing, web-designing, which the work involved, developing or creating these products or services for their business purpose and developing for customer requirements is called a project. In order to manage these projects, the concept of project management is required, it is helpful to execute the in systematical way.

Software Development Project Management Process:



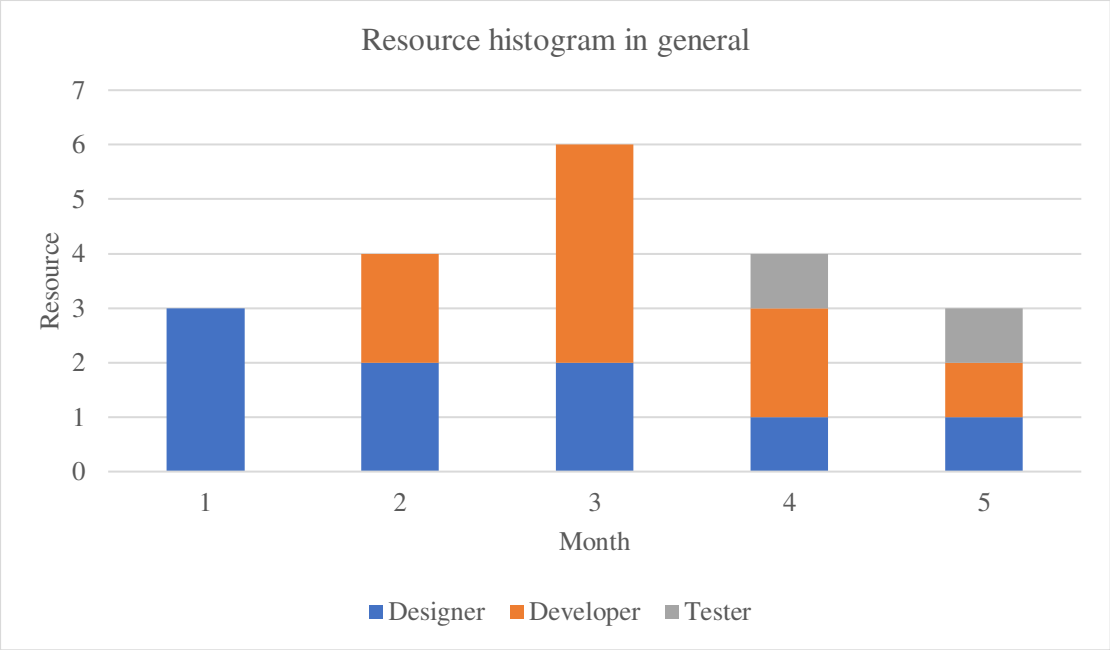
Resource Histogram for Software Project Management:

Resource histogram is a bar chart and number table representor of required resource for managing the project, in software development projects it is used for planning and allocating the technical staff based on schedule to the project.

Resource allocating table in general project management:

Month	1	2	3	4	5
Resource					
Designer	3	2	2	1	1
Developer	0	2	4	2	1

Tester	0	0	0	1	2
Total	3	4	6	4	4



- In software projects the human resource is allocated based on system of that company's software development process
- The above resource histogram shows a five-month small project resource allocation in general as the company follows general software development process
- The Resource Histogram is used here is only technical employees requires to a development process. Apart from these employees there will be project manager or management team and also some non- technical employees.
- The resource histogram will help project manager to analyze to labor cost involved in the development process which is the major area of cost in the cost sheet of software company

Software Development Project Schedule Management:

The project management major objective is to manage project schedule that will be from the time of acceptance to hosting the software project by managing and completing individual activities and bringing together to complete the project with in the scheduled time period. The main two techniques apart from project

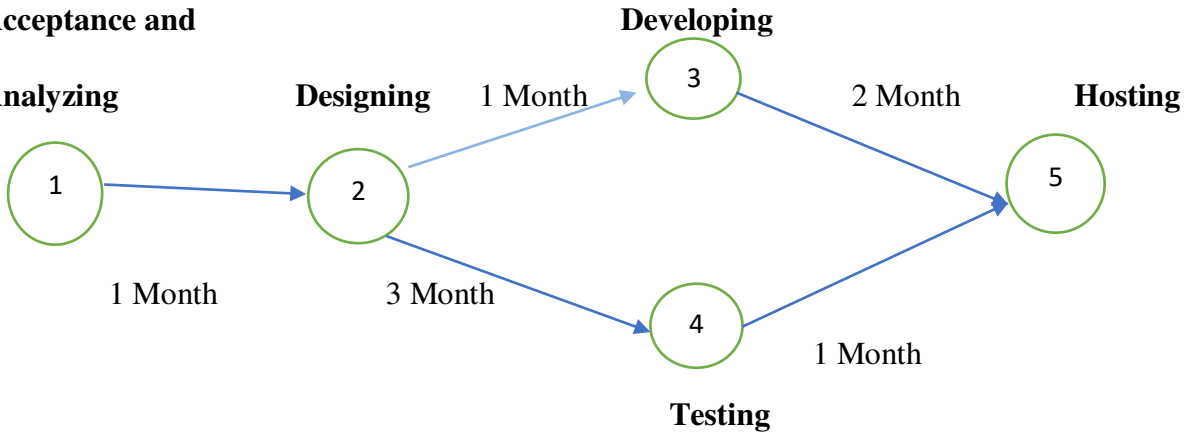
management software are Project evaluation and review technique and Critical path method and these methods are mainly supported with variance analysis of project schedule and Gantt chart and it changes based on the software development process.

Gantt Chart for Software Development Project Schedule of 5 Month:

Month	1	2	3	4	5
Activities					
1. Analysis					
2. Design					
3. Development					
4. Testing					
5. Hosting					

- The above figure represents the Gantt chart of Software development 5-month project which is followed by all companies for medium scale software development projects which involves less research and development activity
- The figure also shows that for a five-month schedule project how a company can divide their total time in to individual activity schedules and the management team allocates minimum and maximum time that an individual activity can use that will impact on their project completion time period, PERT and CPM also depends on this schedule.

PERT and CPM diagram for software development project schedule management:



This will help to know critical path (CPM) to complete the project shortest way and we can say that 1-2-3-5 is shortest than 1-2-4-5. So, 1-2-3-5 is the critical path of this software development project.

Software Development Project Cost Management:

Cost management is one of the major objectives of software development project management and it is the major responsibility of project manager or project management team. The cost management concept includes cost estimation and budgeting, cost control, cost reduction, pricing decision, profitability management, cost risk management, cost recording. The project manager and finance department will prepare the cost budget based on feasibility study and they record the cost in each stage and compares the actual cost with budgeted cost in order to take cost control and cost reduction decisions.

Project cost management in organized and unorganized company:

Table showing comparative cost and income records for medium scale project in organized and unorganized small-scale company:

Particulars	Amount in INR Lakhs	Amount in INR Lakhs
COMPANY TYPE	**ORGANIZED**	**UNORGANIZED**
TOTAL PROJECT WORTH	**10.00**	**10.00**
(LESS) EXPENSES:		
Employee Cost	4.50	5.40
Telephone and Internet Charges	0.10	0.12
Electricity Charges	0.10	0.11

Server Charges	0.05	0.08
Maintenance Charges	0.75	0.80
Transportation Charges	0.05	0.08
Stationary Charges	0.05	0.06
System Maintenance Charges	0.25	0.30
Miscellaneous Expenses	0.25	0.30
Marketing Expenses	0.10	0.15
PROJECT INCOME	**3.80**	**2.90**

5.1: CONCLUSION:

The analysis, interpretation and findings of this study convey that by adopting project management system the software development process of the company can manage the business in efficient, systematic and profitable manner. As the history of project management reminds that most of the industries started to implement this concept by observing the success of mega engineering projects because of the effective utilization of project management system.

The project management will help to finish the project within time frame by managing time schedule, run the business profitably by managing cost effectiveness and profitability of the project, increase the performance and by maintaining good communication flow within the company with effective team management and with customer and best utilization of resources to get good quality product, to manage overall internal and external risks of the project of any type of software development projects.

The large-scale software development companies are effectively use the project management concept and it helps them to manage mega projects and multiple projects efficiently and help them to manage the portfolio with good profit.

In medium scale and small-scale software development companies all departmental heads together work as project manager but it will lead conflicts between departments and there will be less effective communication which will leads to decrease in the overall performance.

In un structured small-scale software development companies who are getting small and less projects they do not go for project management but they do only cost and time management and that will affect the quality of the product.

Hence, in the modern days the companies want to reduce the number of employees

and they also wants to reduce the human efforts and human errors by adopting robotics and artificial intelligence technology. Project management software will reduces the project manager's efforts and human errors to manage multiple projects currently large-scale companies are utilizing this technology but in medium and small-scale software companies this software might remove the requirement of project manager where the employees themselves utilize the technology and manage the project as they were getting less number and small projects compared to large scale companies.

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