Learning Journal

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Course: Software Project Management

Journal URL:

Week 1:

Date: 20th January to 24th January, 2023

Key Concepts Learned:

- Growth of IT and software sector in present and future,
- Job vs project vs exploration
  - Job is repetition of task with very less uncertainty while project.
  - Project lies between job and exploration where there is particular start and end time in which one have to achieve some predefined goals.
  - When there is no guarantee of output then it is called exploration. Exploration is highly uncertain.

- What is project management?
  - Management of project with limited amount resources, budget, and time.
  - Phases involved- project initiation, project planning, project monitoring and control, and project closure.
- What is software project management?
  - Software project management = Project management + Software engineering
  - With different phases it also include requirement development, software design, software construction, software testing, and software maintenance in project planning and project monitoring phase.

- Difference of software project wrt project?
  - Invisibility
  - Complexity
  - Conformity
  - Flexibility

- IT and software difference- IT includes software system, hardware system, and other then it.

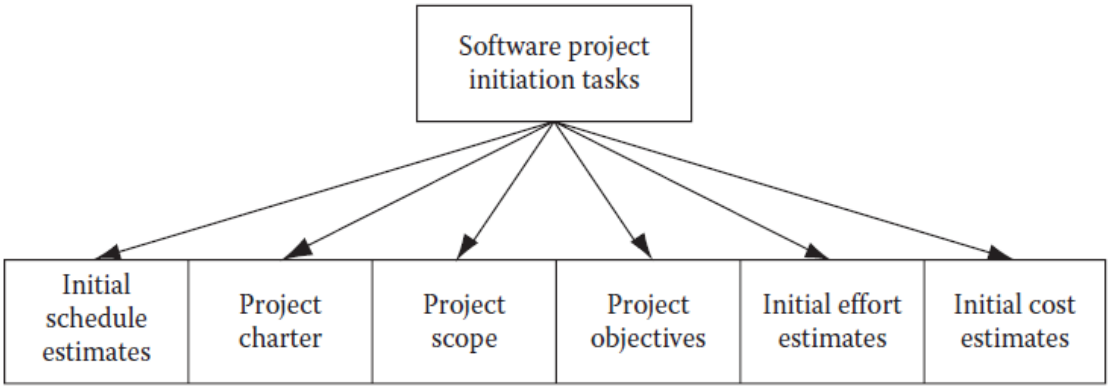
- Software development + software maintenance = software project.

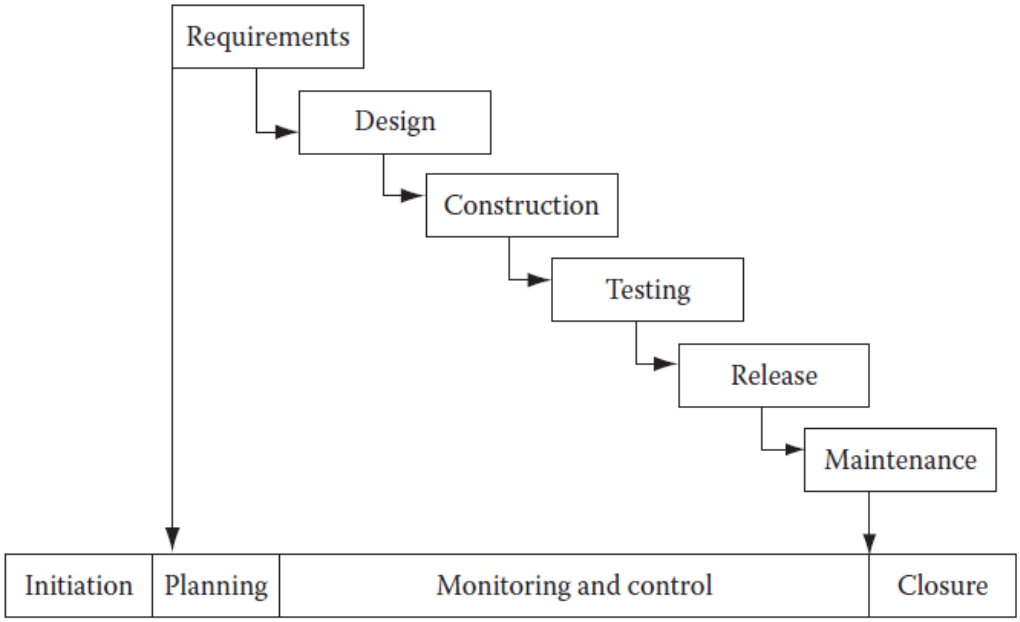
- Software application vs software product
  - When software is developed for the use of organization itself then it is called software application.
  - When software is developed for the purpose of selling to customer and for the organization use then it is called software product. And the organization that develop it is called software vendors.

- Project management process
  - There are three kind of process running in an organization to develop software process and application that is software life cycle processes, project management processes, and organization level processes.

- How are these software products made? After all, development of these software products does not start with end-user requirements. ¡e software vendor sees a market opportunity of developing such a product.

- software application is created based on end-user requirements, a software product is made using market research data.

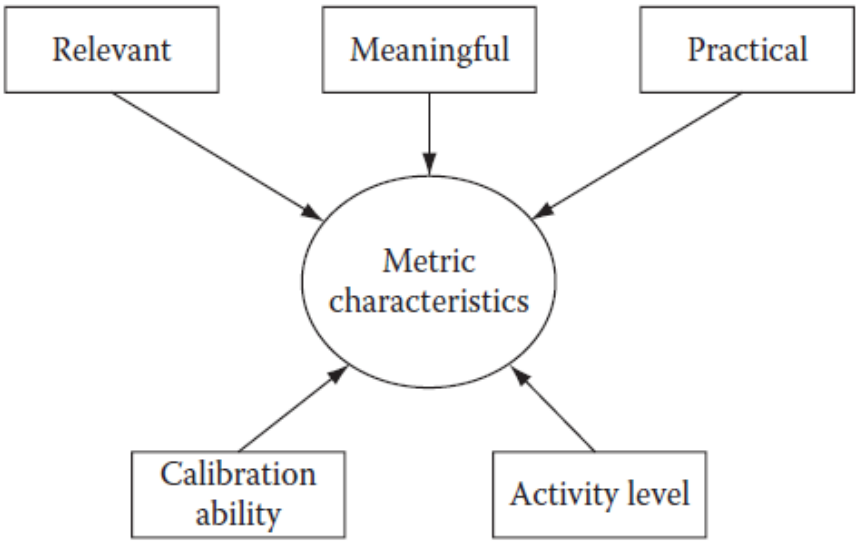




- Configuration and version control management
  - Change in requirement are encountered during project development life cycle. Due to this word done in project development life cycle also need changes. Due to which many versions are produced during all phases of project development life cycle. Managing all these work products is done using configuration and version control.

- The best solution for managing various requirement versions is to have a central repository where all versions of requirements can be stored.

- Management Metric
  - In the case of software development projects, the management metrics are the productivity data for the projects.



  - Measurement should be done at minute level and not at gross level. Gross level measurements fail to point to the root causes of problems.

  - Many of these approaches use statistical process control (SPC) methods.
  - SPC approach is popularly known as the Seven Tools of Quality as it uses 7 distinct techniques.

- Different role of project manage of inhouse and outsource project for initial hiccups and false starts due to unclear project charter, an unclear project scope and unclear requirements.

Project charter

Project charter is made by the top management of the organization for starting a software project. Project charter basically defines the purpose for starting the project.

Project scope

Project scope is developed to define boundaries of the project. The scope will include what functionalities are needed in the software product to be developed. It will also define level of quality needed in the software product.

Project objective

The stakeholders state and set the project objectives. ¡e objectives should be stated in clear language and the set of objectives should be kept as small as possible.

Some of the factors that make project management vary for different projects are as follows:
Project size, Product quality, Technology, Code reuse.

Estimate Initial Project Size

Why Initial project size is needed?
Rough project size should be estimated so that a sketch of the initial project plan can be realized.

Estimate Initial Project Effort and Costs

The initial project cost estimates are determined based on team productivity, effort estimates, hours contributed by software professionals, and their hourly rates. Stakeholders prioritize cost considerations, and if a project exceeds budget expectations, it may be reconsidered or scaled down. Using data from Figures 2.1 through 2.3, a project with a 14-month schedule and 56 man-months effort is estimated. With an average team member salary of $4000/month and 15% overhead costs, the tentative development cost is $268,800. Early cost estimation is crucial for customer satisfaction and project initiation.

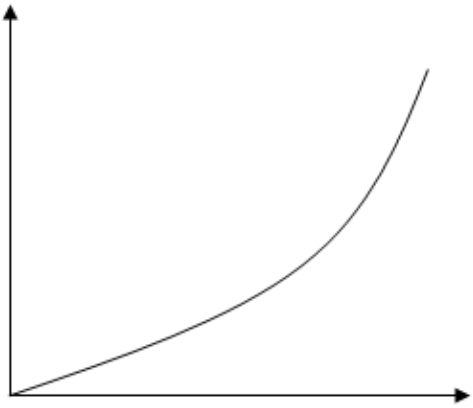
Project schedule

Project schedule is vital for gaining a competitive edge, with time-sensitive objectives driving stakeholders to push for timely software implementation. During initiation, stakeholders may prioritize an accelerated schedule, even if it leads to increased costs. In such cases, the project manager must adjust the plan and resource allocation to meet stakeholders' timeline requirements.

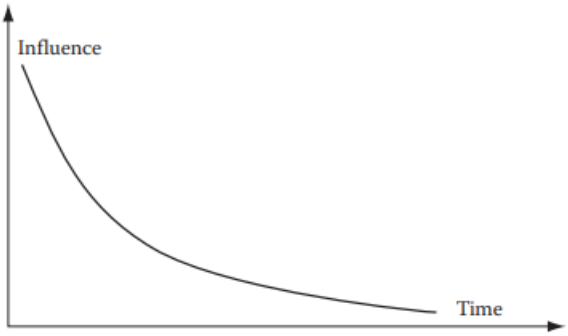
Tentative Project Plan

- **Project schedule**
- **Project cost**
- **Communication Plan**
- **Resource Plan**
- **Quality Plan**
- **Tool Plan**
- **Risk Plan**

Tentative Project schedule



Stakeholder Influence graph



Application in Real Projects:

- Third-party logistics service providers (3PL) to get instant information about the need to have trucks for transportation of goods by its customers.
- It can be used in a very sophisticated appointment scheduling of trucks at both receiving and shipping warehouses.
- Project charter, Project scope, and project object should be clearly define so that initial hiccups and false starts can be prevented up to greater extent.

Benefits

- The warehouse staff just has to execute as per available details.
- There will be no loss of time anywhere right from truck arrangement for loading to unloading of truck.

Peer Interactions:
Interaction about case study and software project management concepts, its importance and role of project manage.

Goals for the Next Week:
Go through chapter 3,4 and 5

Week 2: 28th January – 3rd February

Date: 3rd February

Key Concepts Learned:

- Effort estimation techniques like Function Point Analysis (FPA), COCOMO, and Wide Band Delphi are crucial for project planning and resource allocation in software development projects.

- Resource allocation and loading factors play a vital role in optimizing workforce capacity for efficient task handling.

- Continuous product development in software projects emphasizes the iterative nature of development, requiring ongoing effort and cost estimation for long-term project success.

- A case study of a Software as a Service (SaaS) vendor provided practical insights into estimating project size, incremental software development, and continuous operation.

- Introduction of new terms and methodologies such as loading factor, continuous product development, and SLOC (Source Lines of Code) enhanced understanding of effort estimation and project management in software development.

- Started with project and made survey for market analysis.

Application in Real Projects:

- **Resource Allocation and Budgeting**: Effort and cost estimations guide the allocation of resources such as personnel and equipment, as well as budgeting for various project activities, ensuring efficient resource utilization and financial planning.
- **Project Planning and Risk Management**: Estimations aid in creating realistic project schedules, identifying potential risks, and developing mitigation strategies, enabling proactive planning and management of project timelines and potential challenges.
- **Performance Measurement and Continuous Improvement**: Estimations serve as benchmarks for measuring project performance, facilitating analysis of deviations and informing continuous improvement efforts to refine estimation techniques and enhance future project outcomes.

Collaborative Learning:
During collaborative learning, we discussed the market analysis phase and collaboratively created a market survey form to facilitate our market analysis efforts.

Challenges Faced:
Understanding effort estimation techniques such as Function Point Analysis, COCOMO, and Wide Band Delphi, as well as comprehending concepts related to resource allocation and loading factors in optimizing workforce capacity for efficient task handling. These areas required further clarification and additional effort to grasp fully and apply effectively in project planning and management.

Reflections on Case Study
The case study of the SaaS vendor shows how important it is to estimate the effort needed for a project. This helps with planning the project, assigning resources, and managing finances in real-world software development. The vendor initially estimated they'd need 500,000 lines of code (SLOC) and used incremental development, which allowed them to adapt to changes in the market and use their resources efficiently. They regularly checked their costs to make sure they could keep going financially, and they focused on making continuous improvements to ensure the project's success. Overall, the case study highlights how crucial it is to estimate effort accurately to make good decisions and improve project outcomes in the ever-changing world of software development.

Personal development activities:
Engaged in learning sessions focused on effort estimation techniques like FPA, COCOMO, and Wide Band Delphi to enhance my project planning skills.

Adjustments to Goals:
Complete 1st and 2nd chapter in 1st week and gone through 3rd chapter in 2nd week. Also done market analysis through survey form for project.

Goals for the Next Week:
Reading risk management chapter and going to work on project initiation.