Learning Journal
Software Project Management

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Key Concepts Learnt:

Chapter 1:

1. Project Management is a way to achieve the specified goals in the **given time frame** by consuming the resources (manpower) and using the allotted budget.
2. A software project manager needs to think not just from engineering perspective but also **from the perspective of management** so that the defined goals of the project can be achieved within the given timeline, within given budget and using limited number of resources.
3. The main phases of software project management include project initiation, project planning, monitoring and control and project closure. The **lifecycle** of software development is included as part of project planning and monitoring.
4. There are many problems in software project management as most of the times requirements are not clear. Moreover, software engineering **practices are not fully mature** since software engineering is relatively new as compared to other fields.
5. The skills of the developers who are going to work on the product are not always up to the mark. There is ample amount of time and resources required to train them.
6. Team working on the project might be present in **different locations of the world**, might have different time zones which will decrease their collaboration and time of interaction amongst the team members also decreases which impact the project in a negative way.
7. It is very important for a software project manager to do a **risk analysis** during the project initiation phase and have some plans ready for the scenarios like if an employee leaves the organization, falls sick or if there is an extreme dependency on a particular technology, improper team collaboration, conflict resolutions, accommodating shifts in market requirements or other environmental factors.
8. During the project closure phase all the artifacts should be correctly **placed inside the repositories** and the learning throughout the project development should be documented because these will form the basis during the initiation of some other project.

Chapter 2:

1. A lot of times in the software project the stakeholders have some idea of what kind of project they are looking for but themselves do not have the complete knowledge of **all the requirements**. Project manager plays an important role during this time and plans for the items that can be started and later other requirement can be incorporated in the project.
2. The **project charter** provides a bigger picture of the project, what will be achieved after developing this project and how it will be helpful for the customers.
3. The **project scope** provides the estimate of the completion of project in terms of time along with the features that will be delivered as part of this deliverable.
4. Poor definition or understanding of **project requirements** could lead to several changes in the project scope which might impact the cost, timelines, and quality of the project.
5. The **project objective** provides a set of expectation which will be achieved at the delivery of the project and how this will make a positive impact for the customers of the organization and these objectives should be clearly stated.
6. The study of previously completed project can help the project managers to estimate the **cost, size, and time** of project. Time required to deliver the project not only depends on the size of the project but also the technology stack the team is going to work on, their level of expertise in the technology, reusability of the written code and the expected quality of the project.
7. The project plan can be divided at different levels for example the complete project with all the features will be delivered over the course of 2 years. However, an updated working model can be delivered **every quarter** for the customers to use and at the project team level the plan could be divided at **sprint** level (2 weeks) for the selected action items.
8. **Stakeholders influence** over the time decreases in the project if project keeps progressing in a positive direction.
9. It is very important to consider **feasibility study** at the early stages of the project. If it is not done at the right time, we might end up abandoning the project and there will be huge loss of resources, capital, and time.

Chapter3:

1. It is good to use **COCOMO** model for effort estimation if we have enough information available for the project we are currently working and no information available from previous projects.
2. However, if data is available from previous projects as well as current project **Function Point analysis** is a good choice because it uses old data to derive the adjustment factor.
3. There is another technique known as **Wide Band Delphi** which involves the people who will be working on the project along with other team members and comes to conclusion after numerous discussions.

4. Function Point Analysis (FPA) technique requires **a lot of time** and complex; however, it is used a lot in the real-world projects.
5. Wide Band Delphi technique is mostly used in small-medium sized projects and this technique requires some prior knowledge and experience.
6. COCOMO model used the **Line of Code** required to form a given product as the amount of work to be done by the team and generates estimate, since this technique does not require any historical data. However, the formulas required for computing it keeps on changing with the growth in the development models in the industry.
7. Project Managers always make sure that the productivity of the team working on the project is as maximum as possible as resources consume the major portion of the allotted budget to the project.
8. There may be **multiple processes** running in parallel, for instance development of a feature and testing of the so far developed feature. In such cases efforts are more as compared to the time.
9. **Resources** are assigned to a project based on different factors like the level of experience required, technology being used and other skills.
10. In all the cases of effort estimation product manager should include **risk factor** that might impact the project.

Application in Real Projects:

1. The learning that requirements are not clear during the initial stages of the projects has been faced by me while working at a MNC where there is an abstract idea of what kind of product the organization is looking for which increases the role of project manager to provide some **baseline for the project** to progress.
2. The division of the bigger project plan at yearly, quarterly and biweekly level is done so that the stakeholders, technical managers, and software development teams respectively have clear idea of their tasks.
3. **Respecting the deadlines** is an important aspect of project management otherwise project might end up consuming more time and resources.
4. There is a huge **importance of risk analysis** as most of the times employees working on the project leaves the organization which puts the pressure on other team members.

Peer Interactions:

1. Interacted with many new classmates who were not only from Software Engineering but also from Computer Science who want to understand the overall management of products rather than just focusing on the development part of it.
2. The **healthy discussions** during the lecture where everyone expressed their own thought process and realizing that everyone has their own viewpoints of looking at software products and their management.

3. Group projects team formation made us know the background of different individuals and how their experiences can contribute to the success of our course project.

Challenges Faced:

1. There was an initial though that every manufacturing process is a project. However, there is a difference between creating a product and doing a **job repeatedly**.
2. Challenges in learning poster creation for the first time.
3. Difficulty in understanding **COTS** (Commercial off the shell) products.
4. Managing the sync-up of the team members by considering their busy schedule and involvement in multiple activities.

Personal development activities:

1. Trying to solve all the exercises in the given textbook.
2. Reading the case studies of real-world projects of how they have evolved over the time.
3. How conflict resolution amongst team members can be managed from the perspective of project manager.
4. How work life management happens in the product management in during tight deadlines?
5. Explored different initiatives taken by the government in the field of information technology by introducing new projects across the nation.
6. At the end effort, cost, resources, everything is an estimate and estimates could be wrong. What to do if your estimates are far away from reality?

Goals for the Next Week:

1. Learn more about the **cost estimation** and project planning phase.
2. Consider scenarios and real-world studies where project costs have increased the **estimated budget**.
3. What happens if product doesn't meet the expected quality despite **sufficient testing**?
4. Involve team members to do **market analysis** for the project, what all software are already present in the market, what things can be done better from the perspective of customer and product owner?
5. Read papers on real-world effort and cost estimation of software projects.

References:

1. Ahmed, A. (2012). *Software project management: a process-driven approach*. CRC Press. Retrieved January 22, 2024, from https://concordiauniversity.on.worldcat.org/oclc/774289078