Learning Journal

Student Name: Shravani Sandesh Kulkarni

Course: Software Project Management (SOEN 6841)

Journal URL: https://github.com/Shravanii25/SPM2024/tree/learningjournals

Week 1: 28th Jan 2024 - 3rd Feb 2024

Key Concepts Learned: This week, I explored Chapter 3 and the concepts in it:

1. Effort and Cost Estimation in Software Projects:
- Software projects are effort-driven, making estimating effort challenging.
- Effort estimation techniques include:
  - *Statistical Techniques:* Using previous project data.
  - *COCOMO Technique:* Best when information is available for the current project but not for previous projects. (There are Basic, Intermediate and Detailed COCOMO)
  - *Function Point Analysis (FPA)*: Utilizes historical data for both previous and current projects.
  - *Wide Band Delphi:* An experience-based technique involving team brainstorming sessions.
- Impossible to Estimate Effort: If no data is available.

2. Effort estimation in:
- *Waterfall Model:* Involves thorough planning, breaking down the project into phases and milestones for better effort estimation.
- *Iterative Model:* Challenges traditional effort and schedule estimation due to iterative nature and high project risk. Benefits from short iteration durations and increased accuracy over time.

3. Cost Estimation:
- Cost calculation is often based on a fixed cost-fixed duration basis.
- Methods include:
  - *Cost Factor Analysis.*
  - *Activity-Based Cost Estimation*.
- Cost estimation for iteration-based projects parallels waterfall models, with total effort serving as a primary determinant for project costs, which are calculated separately for each iteration, major product release, and the entire product development.

4. Schedule Estimation:
- Effort and schedule may differ due to parallel processes.
- In waterfall models, *PERT/CPM* or network diagrams help find the critical path.

5. Resource Estimation:
- Resource requirements are estimated by aligning task skills and experience with available resources.
- Aiming to maintain a loading factor of 1 to avoid overloading, adjustments may be made due to resource unavailability.

- Effort estimates drive project decisions, incorporating costs, duration, and staffing. Accurate outsourcing estimates boost customer confidence, and long-term product development estimates adapt to market conditions with periodic revisions for evolving requirements.

Application in Real Projects:
As I mentioned in the last journal about software development projects, the Wide Band Delphi technique can be used. Engaging in collaborative sessions with the project team for experience-based effort estimation. Brainstorming and collective input from team members can provide a holistic view and improve estimation accuracy.
-However, the effectiveness of Delphi sessions depends on the experience and expertise of the participants. Consensus-building may take time, and biases could influence estimates.
-Although, it harnesses the collective wisdom of the team, promoting collaboration and potentially yielding more accurate effort estimates.
-Also, estimation results in improved planning and setting realistic timelines in large software companies. It prevents over/underutilization of teams and reduces the risk of budget overruns. But, if there is a new technology/ domain then there is limited historical data.

Peer Interactions:
This week, my team focused on our AI-based academic advisor project. During discussions, a team member shared insights from a similar project he had implemented, highlighting its weak points. We analyzed it from a project manager's perspective and brainstormed improvements. Additionally, I collaborated with a classmate on the chapter 3 case study, delving into the SaaS vendor's project progress, specifically on appointment scheduling with complex logic. Having already covered chapters 1 and 2, we plan to discuss case studies weekly and integrate learnings into our project.

Challenges Faced:
Chapter 3 was relatively easier to understand. The various estimation techniques were interesting to study. However, this chapter does have a lot of keywords which are hard to remember. Also, there are equations and calculations associated with the effort estimation techniques which are tough to recall and I often get confused between them.

Personal development activities:
I recently secured a co-op work term, which is a significant step in my career development. I also explored a Shopify apprentice program for a product manager role and plan to search for similar opportunities for further development. Moreover, While working on the Chapter 3 exercise, I deepened my understanding of Agile and Traditional projects, gaining insights into companies' strategic model selection and how they choose which will give them the most benefits based on the project they have in hand. Moving forward, I am committed to ongoing professional growth through targeted programs and opportunities.

Goals for the Next Week:
1. The main focus will be on getting the project initiation and market analysis document ready for the project.
2. For this, need to have meetings with team members and research the topic more.
3. Study and review Chapter 4 which was taught in the lecture and solve the exercise associated with it.
4. Research more on the project topic- AI-based academic advisor. Apply all the techniques learned until now for this project.
5. Quickly review all the chapters studied until now.