Learning Journal

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Course: Software Project Management (SOEN 6841)

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Week 2: 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.

Reflections on Case Study/course work:
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.

Collaborative Learning:
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.

Further Research/Readings:
I read and explored some material related to project management specifically focused on my project topic of AI-Based Academic Advisor.
1. "Project Management for AI Projects" by Möslein & Senn: This book has tailored techniques for AI projects covering stakeholder management, risk assessment, and project planning.
2. Managing AI Risks" by EY: Discusses unique risks like data privacy, bias, and compliance crucial for AI project management.

These resources offer in-depth insights into various aspects of project management and AI, complementing the course material.

Personal development activities:
I recently secured a co-op work term, marking a significant step in my career development. Additionally, I explored a Shopify apprentice program for a product manager role and aim to pursue similar opportunities for further growth. Moreover, while working on Chapter 3 exercises, I deepened my understanding of Agile and Traditional projects, gaining insights into strategic model selection for companies.

Adjustments to Goals:
1. The main focus will be on getting the project initiation and market analysis document ready for the project.
2. For this, I 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.
6. As per last week's goals, I worked on my project and also reviewed chapters 1 and 2 again.