

Learning Journal 2

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Course: [Software Project Management(SOEN 6841 W 2244)]

Journal URL: [<https://github.com/Bailin-Xu/Class-6841>]

Dates Range of activities: [0129-0209]

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Key Concepts Learned:

Chapter3:

Chapter 3 discusses **effort and cost estimation** in software projects, introducing various techniques such as **analogy-based estimation, function point analysis, Delphi method, and COCOMO model** to predict project effort, cost, and resources. It emphasizes the challenges of estimation, the need for continuous refinement, and the impact of different software development lifecycle models on estimation accuracy.

Estimation by Analogy: compares a new project to past similar projects to determine expected effort, using size ratios of system components.

Function Point Analysis (FPA): is a structured method to estimate the effort based on the complexity and number of functional components in a system.

Delphi Method: is an expert-based estimation technique where multiple estimators provide independent assessments, followed by consensus-building discussions.

COCOMO (CONstructive COst MODEL): is an algorithmic cost modeling approach that calculates software effort using empirical formulas based on project size, complexity, and other influencing factors.

Chapter4:

Risk assessment involves:

Risk identification – recognizing potential risks related to the project, product, or business environment.

Risk analysis – evaluating the likelihood and impact of each risk, either qualitatively (low, moderate, high) or quantitatively (using probability and financial impact).

Risk prioritization – ranking risks to determine which require immediate attention, often using Risk Exposure, calculated as:

$$\text{Risk exposure} = \text{risk probability} \times \text{impact}$$

Once risks are assessed, risk control strategies can be applied:

Risk acceptance means acknowledging the risk but not taking immediate action, often accompanied by contingency planning.

Risk avoidance involves changing the project plan to eliminate the risk source.

Risk transference shifts risk responsibility to a third party (e.g., through contracts or insurance).

Risk mitigation reduces the probability or impact of a risk through preventive actions, such as additional testing or prototyping.

Chapter5:

Key functions of CM include:

Configuration Identification – defining baseline components of the system and tracking changes.

Configuration Control – implementing a structured process for evaluating and approving changes, ensuring that only authorized modifications are made.

Configuration Status Accounting – maintaining records of all changes, providing visibility into what has been modified and what is pending.

Configuration Auditing – verifying that the actual system conforms to requirements and that all changes have been properly recorded and implemented.

Application in Real Projects:

The concepts learned this week have direct applications in real-world software project management. Effort and cost estimation techniques, such as Function Point Analysis and COCOMO, are essential for accurately predicting resource needs in large-scale software projects, helping managers allocate budgets and workforce efficiently. In risk management, strategies like risk mitigation and transference are crucial for handling uncertainties in agile development, where frequent requirement changes can introduce scope creep. Configuration management plays a key role in version control and change tracking, ensuring seamless collaboration in distributed teams using Git or other SCM tools. A major challenge is adapting these theoretical models to dynamic project environments, where factors like evolving technologies and team variations can impact accuracy. Exploring hybrid estimation approaches or integrating AI-driven predictive analytics could enhance estimation precision and risk anticipation, offering a more adaptive and data-driven project management strategy.

Peer Interactions:	Challenges Faced:	Personal development activities:	Goals for the Next Week:
During discussions, key stakeholder concerns were identified regarding data security and compliance. A teammate with healthcare IT experience provided insights into HIPAA and GDPR, leading to stricter adherence to regulatory standards	As an international student, I realized that project focus varies globally. Having diverse team members presents challenges in aligning shared values	Read materials covered in books related to the lecture	Refine Effort & Cost Estimation Strategies – Apply learned techniques (FPA, COCOMO) to improve project planning accuracy, especially in AI-driven
The team debated between Agile and Waterfall methodologies. Given the unpredictability of AI model training and evolving compliance guidelines, the team collectively agreed on an Agile-based iterative review process with bi-weekly sprint planning meetings	Periodic alignment meetings are necessary to prevent discrepancies in execution across project stages	Did the market analysis with my group members, searched for potential Competitor of our project and made a chart to show it	Prepare for pitch, practice and do a mock pitch within our group
		Take part in group discussion	Enhance communication efficiency in our group

