**LEARNING JOURNAL**

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**Course:** Software Project Management

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**Week 2 & 3:** 25/01/2024 – 03/02/2024

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**Key Concepts Learned:**

The summary of key concepts learned in week 2 & 3 sessions are:

* **Cost Estimation Techniques**

It consists of two of the following methods:

1. **Experience-based techniques:**

In this segment, it is further divided into two approaches, and they are: -

* **Estimation by Analogy**

Under this approach, the idea is to identify projects that share similarities in terms of scope, complexity, technology, and other relevant factors, and utilize the historical information from those projects to estimate the cost of the new project. However, it is important to consider that such estimates carry their limitations that impact the accuracy.

* **Estimation by Expert Judgement**

It consists of a team of experts with relevant knowledge and expertise in the specific domain and they carry out educated assessments of the project’s cost, resources, time, and effort required to complete it. However, there would be individual conflicts about the conclusion, and they would have to work together in reviewing and reaching the final mutual conclusion as a single entity.

Example: - DELPHI Technique

1. **Algorithmic based techniques:**

It involves mathematical models and algorithms to estimate the cost of developing a software project. It aims to provide a quantitative prediction of the resources, time and efforts required for completing the project.

Example: - COCOMO, FPA Techniques.

* **COCOMO V1 vs V2**

COCOMO V1 is a more straightforward model primarily focused on project size, suitable for quick and early estimates. COCOMO V2 is a more sophisticated model that considers a broader range of factors, making it suitable for detailed project planning and estimation in various project phases. The choice between COCOMO V1 and COCOMO V2 depends on the level of detail and accuracy required for the specific software project being estimated.

***Note*: -** When we are building an application with everything in our control, then the estimate is developed using COCOMO V2.

* **FPA vs COCOMO**

When the data for both the current and previous projects is available to us, then we use the **Function Point Analysis (FPA)** technique. However, if the historical project data to derive adjustment factors and productivity is unavailable this technique is difficult to use. In the case of no previous project data being available, we use the **COCOMO** model as it depends upon the current project data and uses **LOC (Lines of Code)** as one of the attributes of size to estimate the cost.

* **DELPHI Technique**

The wide-band Delphi model is used when we have some or all the data available from the current project. It involves brainstorming sessions among a team of experts to derive estimation and falls under the Experience-based technique.

* **Key factors for Risk Management**
* Budget
* Productivity
* Delivery Time
* Resources
* Quality Assurance
* Technology
* **Intensity of Risks**

Risks are identified, sorted category-wise and marked priority-wise. The intensity of risk is analyzed by quantitative and qualitative analysis, which then, results in setting up risk priority as low, moderate, significant, and very high. Depending on the intensity the risks are managed and taken care of by an organisation. If the treatment is not in case, then the project might not be taken into consideration as well to prevent damages.

* **Risk**

Risk is a consequence that if happens leaves bad damage and it is something if not avoided or managed would lead to the consequence. ***Note*: -** Some of the causes are disinterest, bad negotiation, human error, poor management, etc. Therefore, the Risk Management team finds these risks at the top management level itself.

* **Risk Assessment**

It is performed at the beginning of the project development and re-assessed at the beginning of the iterations. It consists of the Waterfall model as mentioned below:

1. **Risk Identification**
2. **Risk Prioritization**
3. **Risk Analysis**
4. **Risk Control**

It consists of **Risk Planning**, **Resolution** and **Monitoring** and the strategies used are as follows:

* **Acceptance**
* **Avoidance**
* **Risk Transfer (Insurance)**
* **Mitigation**

**Reflections on Case Study/course work:**

Insights gained from the course work have been reflected in our Group-25 Project, where we had lots of ideas to differentiate it from being an operation but not every idea could be considered due to factors such as cost estimation and risk management influencing it in the future. Therefore, we are currently working on filtering out ideas accordingly while framing our identification and market analysis for the project.

**Collaborative Learning:**

Our team stayed after the class and planned how we would like to proceed further before distributing responsibilities to each member. We decided to have an online meeting at a mutually agreed time where we discussed the project description and consulted our doubts with each other. After the next class, we brought up what we researched about existing similar projects in the market and shared a wide range of ideas. We decided to consider future factors that might affect our initialization and market analysis and agreed to filter out the ideas that are not much bothered by cost estimation and risk management. Thus, our meeting ended up with the distribution of tasks with a given deadline.

**Further Research/Readings:**

I simply visited existing similar projects online and noted what they have to offer to their clients. For now, my team and I considered ourselves as the clients and found what is missing, what would make us be their consistent client, build trust and refer others to use their services. This is the base of the research we have initiated right now, and, in the future, I have planned to visit others externally to know if our version of the project satisfies random users.

**Adjustments to Goals:**

My adjustment to the goals is adding up baby steps one by one according to the plan or ideas and reactionary adaptations according to the situations as we move further. For example, this would include considering external audiences and finding a meeting with an established organization in the market to understand their piece of work.