Learning Journal

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Key Concepts Learned:

New Terminologies

Risk: - The probability of occurrence of an event and its negative consequences.

Risk Category: - A class or type of risk. These include technical, legal, organizational, safety, economic, engineering cost, schedule risks.

Risk Identification: Identify risks related to overall project, to the product and the business.

Risk exposure: - It is the product of risk probability and impact.

Risk Reduction leverage: - It is the ratio of reduction in risk exposure to the cost of reduction.

Main concepts

Risks can degrade product quality or rate of production. Product quality relates to quality of software engineers available at hand whereas rate of production is affected by adequate resource allocation on the project. Because of above mentioned reasons **risk assessment** is crucial. Risk assessment comprises of three steps, namely, **risk identification**, **risk analysis and risk prioritization**.

***Risk identification* –** The output of this phase is a collection of risk items.

***Risk analysis* –** This involves **qualitative** and **quantitative** evaluation of the likelihood of occurrence and the impact on project, product and business of each risk item.

Under qualitative assessment, risks with high impact and significant likelihood of occurrence , high impact and high likelihood of occurrence and significant impact and high likelihood of occurrence fall in the category of **high concern risks**.

The quantitative model deals with calculation of risk exposure which is required for ranking the risk items.

Risk prioritization – After identifying and analyzing risk items, these items are prioritized to determine where to focus risk mitigation efforts. The prioritization in quantitative model is calculated by combining two values, likelihood, and impact. Prioritization helps ordering of high risks to the top of list.

Risk control consists of **risk planning**, **risk resolution** and **risk monitoring**.

Risk planning uses 4 types of strategies to manage each negative risk item. These strategies are acceptance, avoidance, risk transfer and risk mitigation.

Acceptance means no changes would be made to the project plan because of inability to identify any suitable response strategy to the risk.

Avoidance is defined as changing the project plan to eliminate the risk to protect project goal and objectives.

Transference involves outsourcing the risk consequence to the third party.

Mitigation involves minimising the impact of a risk to an acceptable level. This can be achieved by reducing the risk exposure factor a given item but this incurs a cost. Risk reduction leverage helps to determine if reduction in risk exposure is viable and more prominent than the cost incurred. RRL >1indicates cost effective measures while RRL < 1 implies the opposite.

Application in Real Projects:

Need of Risk Management in Software Project Management

Risk management is crucial in software project management due to the inherent uncertainties and complexities involved in developing software systems. Software projects often face various risks that can potentially disrupt schedules, exceed budgets, compromise quality, and even lead to project failure. By implementing effective risk management strategies, project managers can mitigate these risks and increase the likelihood of project success. By conducting comprehensive risk assessments, project teams can anticipate potential challenges such as technical difficulties, changes in requirements, resource constraints, and external dependencies. This proactive approach enables project managers to develop contingency plans and allocate resources effectively to address these risks before they escalate.

Furthermore, risk management helps project stakeholders make informed decisions by providing insights into the potential impact and likelihood of risks occurring. It allows them to prioritize risks based on their severity and develop strategies to minimize their impact on project objectives.

Challenges in Software Project Management

Uncertainty in Requirements: Dealing with changing or unclear requirements can make it challenging to identify and address potential risks effectively, requiring constant communication and adaptation.

Complexity of Technology: Software projects often involve diverse technologies, each with its own set of risks, necessitating ongoing education and expertise to manage technological complexities.

Resource Constraints: Limited availability of skilled personnel, budget constraints, and time pressures can hinder effective risk management, requiring careful balancing of resources between risk mitigation and project execution.

Risk Assessment and Prioritization: Accurately assessing and prioritizing risks can be difficult due to subjective judgments and uncertainties, potentially leading to inadequate risk mitigation strategies.

Communication and Collaboration: Ensuring effective communication and collaboration among project stakeholders is essential but challenging, particularly in large and diverse teams, requiring alignment on risk perceptions, priorities, and mitigation strategies.

Peer Interactions:

We really dug into the whole risk management aspect. We defined risk as the likelihood and potential consequences of certain events, covering everything from technical hurdles to legal issues and budget constraints. We talked about how crucial it is to spot and analyze these risks early on, using both qualitative and quantitative methods to get the full picture and prioritizing them based on impact and likelihood.

Challenges Faced:

Predicting and managing risks in real life scenarios where the variable factors are way too many and uncertain most of the times, risk management is little intimidating. Also, there is a lot of terminology and concepts to grasp.

Personal development activities:

Went through working of various risk assessment and management softwares like Diligent High Bond, Camms.Risk etc.

Goals for the Next Week:

In depth study of next software project management phases namely configuration management and project planning .