**SOEN 6841 - SOFTWARE PROJECT MANAGEMENT**

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**Course:** Master Of Software Engineering

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**Key Concepts Learned:**

There were a couple of topics taught this week, ranging from Risk Management, Risk Categories, Risk assessment, Risk mitigation and its techniques till Risk Reduction Leverage.

First in Risk Categories, I got to know the different type of risks and real-world examples, like,

Technology risks: Possibility of an internet shutdown which can cause damage to the project in terms of deadline.

Organizational risks: Reduction in budget to team building activities that are essential for team productivity.

people risk: Key resources leaving the project midway through which hinders the progress of the project.

Requirements risks: Clients changing the requirements at an unprecedented time which cannot be accommodated due to budget constraints.

Estimation risks: Underestimating the budget which might cause the project to a halt.

I got to know about a few risks and their risk reduction techniques like for example, gold plating which can be avoided by setting deadlines and not having too much perfection on the product.

In Risk assessment, we can use Risk identification to evaluate if there are any possible risks present in the project and avoiding it before development. Like if suppose the project requires the team to get trained on new technology which might not turn out as expected based on the learning curve and technical risks involved the project, it might be better to avoid the project and focus on another one which might be of

risk when compared to a project with unexplored territories.  
  
In Risk analysis, we can either use qualitative or quantitative, but it’s preferable to move towards a quantitative approach because it gives numbers rather than categorizing risks in a label such as low, moderate, significant and high which is qualitative.

We can use this analysis, to measure both the likelihood of a risk or an estimated impact of a risk on the ongoing project or perform both analysis which is done most cases as this would give an insight for the project manager and increases the preparedness of the team members on what approach to adopt and follow to get a minimal risk and high reward.

We can take a graph where we can split it into 4 quadrants having all combinations of benefits and risks like low benefit high risk etc. The best option would be is to choose a low risk and a high reward but ideally it might not be there and there must be a trade-off done whether to choose a high-risk high reward or to be moderate.

I also learned about the quantitative models and their method of calculating estimated loss or reduction in loss if suppose a risk is bound to happen and its available counter measures to reduce it or completely eliminate it.

It is, Risk exposure = risk probability X impact. Let’s assume there is a risk probability of 1% and the impact would be $10 million. Then the risk exposure might be $10,000 since the chances of occurring is 1% and there is a risk of $10,000 impact on the project which might be comparable with the insurance to be obtained to reduce this risk.

Once the risk exposure is calculated, we can rank risk items based on priority and the risks that needs to be dealt with, initially. We then analyse the risk mitigation measures for the specified risks.

We then perform Risk control which consists of Risk planning, resolution and risk monitoring. There are also various risk response strategies that can be adopted, like, acceptance, Avoidance, Transference and mitigation.

In risk reduction leverage which is done after calculating the risk exposure. This is done when a reduction measure is taken to reduce the risk which also adds up the cost of the reducing it. If the RRL value is more than 1 it’s profitable to adopt it but if it’s less than or equal to 1, it’s better not to adopt that as it is not cost effective.

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

After reviewing this week's slides and attending the lecture, I've gained several valuable insights that resonate with me. One crucial lesson is the significance of proactive risk identification and assessment in safeguarding project success against potential setbacks. Understanding the spectrum of risks, such as resource constraints, technological advancements, or inadequate tool selection, equips project managers to anticipate and tackle these challenges effectively.

Furthermore, the ISO/IEC definitions provided a lucid framework for comprehending risk as a blend of probability and adverse outcomes. This framework helped me grasp the importance of evaluating both the likelihood and potential impact of risks on the project, product, and business. Employing qualitative and quantitative methods for risk assessment empowers project teams to prioritize tasks and allocate resources judiciously.

The coursework delving into risk management strategies, encompassing acceptance, avoidance, transference, and mitigation, offered invaluable guidance on navigating identified risks. These strategies present a spectrum of options for managing risks, considering their severity and potential implications on project goals. For instance, the notion of risk transference underscored the significance of delegating responsibility for managing specific risks to external entities, like insurance or contractual arrangements, thereby minimizing the project's overall risk exposure.

Moreover, the discourse on iterative software development lifecycle models emphasized the merits of risk reduction through incremental delivery and user engagement. By involving end-users early in the development phase and iteratively refining product features based on feedback, iterative models mitigate the risk of misalignment with user expectations. This practical application of risk management principles within software development resonated with me.

Overall, this week's coursework, combined with the documentation of project deliverable 1, has deepened my understanding of risk management principles in project management. It has provided practical strategies for identifying, assessing, and mitigating risks to bolster project success. These insights underscore the pivotal role of risk management in steering project outcomes effectively.

**Applications in Real time projects:**The insights I gained from this week's class on risk management in project management provide valuable guidance for real-world projects. For example lets take a software development project creating an e-commerce platform for a retail company, where various risks may emerge throughout the project's lifecycle.

One significant risk could be technology obsolescence, where the chosen technology becomes outdated before project completion, causing compatibility issues or performance constraints. By identifying this risk early, the project manager can assess its likelihood and impact—moderate likelihood due to rapid technological advancements, but significant impact on product quality and timelines.

To mitigate this risk, the project team could employ strategies like avoidance, mitigation, and contingency planning. For instance, opting for a technology stack with proven longevity and ongoing support, continuously monitoring emerging technologies, and developing contingency plans for alternative solutions.

Implementing these strategies requires collaboration among team members, stakeholders, and partners to ensure alignment and timely decision-making. This integration enhances project resilience, optimizes resource allocation, and increases the likelihood of success.

**Collaborative Learning:**

For this week I had the opportunity to attend the quizzes for the previous week’s concepts and which refreshed my understanding of the concepts.   
  
Also, I collaborated with few other colleagues to reflect on risk management and creating scenarios where we had to make choices on whether to proceed with the risk or transfer the risk to a third party contractor.   
  
Similarly, we conducted group meetings for the project deliverable where we went through the slides of risk management and brainstormed to figure out the possible risks for our project. We listed them on risk categories and tried to address them. Some of them were low risks but the estimate was much higher than the actual risk.   
  
We also had a point where we were constantly looking to add features rather than bringing up with an estimate which should be avoided because, this will only delay the delivery of the project and might not be relevant in the market anymore, like the gold plating concept. We confronted this point and assured ourselves not to add more features rather sticking with the initial concepts and mitigating the risks associated with it. We could say the information presented in the class and in the slides were informative and we were able to relate with the market analysis and project initiation aspects of our project.

**Adjustments to Goals:**

Previous week, I think I have achieved my goals which was learning chapter 4 and collaborating with my team members for the project. For next week, I would have to plan on focussing for the upcoming project pitch with my team members and deliver the pitch during the lecture hours. I also plan to focus on reading the chapters from the book as well.

I also have to start going through the previous weeks chapters for the upcoming Midterm Test which is scheduled in two weeks time.