

Lesson 5: Quality and Risk Management

Learning outcomes:

LO#4 - The student has a basic insight in negotiation theories and conflict management models, as well as practice of dispute resolution.

LO#6 - The student is aware of the concept and methodology of risk management

LO#10 - The student can effectively define and articulate, brainstorm and select the most adequate management solutions and evaluate its effects in achieving the project's goals.

Quality Management

Project quality management encompasses the project management and the project deliverables and involves all processes necessary to analyse and achieve the quality required for the project deliverables development. Quality management is applicable to all projects, regardless of their nature and of the nature of the project deliverables. The project management quality is directly linked to what the stakeholders need from the project deliverables, so it can have a rather narrow focus, making it easier to achieve the project objectives. The RMAs generally only aid in overseeing the implementation of the project quality management plan, since typically this is a researcher's task in the consortium. Quality management and the implementation of the project quality management plan is extremely important in order to guarantee that the deliverables are produced according to the stakeholders needs and expectations (Ray, S. 2020; PMI. 2017).

A project quality management plan is composed of three central processes: 1) quality planning; 2) quality assurance; 3) quality control.

Quality planning passes by the identification of the quality requirements for the project deliverables and includes the definition on how the project should be managed, and how the compliance demonstration will be registered and documented. Additionally, in the project quality management plan are detailed the metrics that should be used for the assessment and measurement of the quality of the project deliverables, and is also included a quality assessment checklist to register and organise the baseline achievements that are needed to be met to a successful project deliverables development (Ray, S. 2020; PMI. 2017; Rever, H. 2007).

Essentially the project management plan has a crucial function, that is to provide guidance on how the project deliverables quality will be managed and controlled during the execution phase of the project. The quality management planning is elaborated considering certain inputs (e.g.: project charter, project management plan), tools and techniques, and it should provide a set of outputs, namely the project management plan and quality metrics (PMI. 2017).

Quality assurance is the conversion of the quality management plan into a set of planned and systemic activities, that are put into practice in a quality system in order to achieve the quality requirements of the project deliverables. The quality management process is used to ensure and

increase the probability of the project deliverables being developed with the required quality. Also, it allows us to identify ineffective processes and causes of poor quality in the project deliverables development. The assessment of the quality assurance can be possible through the implementation of quality checklists or audits (Ray, S. 2020; PMI. 2017).

Quality control corresponds to the constant monitoring of the quality metrics and the recording of the quality activities results, both identified in the project management plan. The monitoring and recording of these metrics are required to ensure that the project deliverables are being successfully completed within satisfactory levels and meeting the stakeholders needs and expectations. The process of quality control is implemented throughout the execution phase of the project, in order to demonstrate that the stakeholder acceptance and quality criteria are being achieved. (Rever, H. 2007; PMI, 2017).

Besides internal practices of quality assurance and control, as the ones mentioned above, it is also possible to have external institutions or people responsible for it that complement such internal practices.

Risk management

Risk management is one of the most important processes of a project development and involves identification, planning, analysis, controlling and communication of risks. The risk assessment is essentially a scouting of threats and opportunities to the project's success. In a project there is always a probability of risks occurring that may cause issues and conflicts in the project development and affect each of the project management knowledge areas (Aziz, H. *et al.* 2018; PMI, 2017).

In order to understand the risk management relevance is important to define what are risks and what type of risks we can find. Risks are uncertain events or a condition that can have either a positive or a negative impact on the project outcome. A negative risk may cause disastrous repercussions on a project development, but a positive risk may lead to new opportunities that weren't initially foreseen in the beginning of the project. Apart from the differentiation of positive and negative risks, in a project we may experience two levels of risks: individual project risks and overall project risks (Aziz, H. *et al.* 2018; Bridges, J. 2016; PMI, 2017).

According to PMI (2017):

- Individual project risks are an uncertain event or condition that can have a positive or negative impact in one or more project objectives;
- Overall project risks are the effect of the uncertainty of the project, that can arise from all sources of uncertainty, including the individual risks as well.

Facing these probabilities of risk (negative or positive - individual or overall) it's important to have strategies that allow us to cope with each type, in order to know how to implement exploitation strategies when we are facing a positive risk and how to implement mitigation strategies when we have negative risks. Unmanaged negative risks may lead to consequences such as project

delays, cost overruns and low project performance. On the other hand, positive risk (opportunities), when duly addressed, may lead to benefits such as time and cost reduction and improvement of the project performance (PMI, 2017).

Project management risk has the objective of identifying and managing risks that aren't considered in the other project management processes, with the focus being the project success optimization. In risk management, the project success optimization is achieved by increasing the probability and/or impact of the positive risks and reducing the probability and/or impact of the negative risks (PMI, 2017).

Project risk management encompasses the following processes: 1) risk management planning; 2) risk identification and analysis; 3) response planning and implementation; 4) risk monitoring.

Risks can occur during the project life cycle in any of the ten areas of knowledge of project management. Each knowledge area has its particularities, so the risks that can happen in each of the areas will be different. The project risk management is an iterative process that is applied during the project development. In a first phase risks are identified and addressed in the planning of the project and with the project execution should be monitored and managed to ensure the project is developed as planned (PMI, 2017; Aziz, H. *et al* 2018).

Risk management planning

The risk management plan is the process where it's defined on how the risk management activities will be conducted during the project. This plan should be detailed during the project planning phase and it may be needed to be updated and revised during the project development, if some significant changes occur during the project life cycle (PMI, 2017).

Risk identification and analysis

Risk identification consists in documenting the existence of individual and overall sources of project risks, gathering information so the project team can duly identify the risks during the project development and correctly address and manage them. The identification of the risks is an iterative process that can occur during the project life cycle, since new individual project risks may arise during the project development and the level of overall project risks can change as well.

The description and documenting of the individual project risks must be made in a coherent and consistent manner to make sure that the risk is clearly understood in order to be a viable tool for the risk analysis and response (PMI, 2017).

Risk analysis consists in the prioritization of individual project risks by assessing their occurrence and impact probability, throughout the project development. It's important to make notice that the assessment of the risks is subjective since they are based on perceptions of the risks by the project stakeholders. Therefore, it should be tried to identify and correct the bias induced by the risk perception. An effective risk assessment requires the complete and explicit identification and management of the risks. In risk assessment it's also important to have some visualization tool

to increase visibility of risks and assist management decision making. The risk matrix, as shown on figure 5, is therefore a visualization tool used to determine the level of risk taking in consideration the impact and probability of risk events (PMI, 2017; Aziz, H. et al. 2018; Lavanya, N; Malarvihi, T. 2008).



		IMPACT				
		VERY LOW 0.05	LOW 0.1	MEDIUM 0.2	HIGH 0.4	VERY HIGH 0.8
PROBABILITY	VERY LIKELY 90%	0.05	0.09	0.18	0.36	0.72
	LIKELY 70%	0.04	0.07	0.14	0.28	0.56
	POSSIBLE 50%	0.03	0.05	0.10	0.20	0.4
	UNLIKELY 30%	0.02	0.03	0.06	0.12	0.24
	RARE 10%	0.01	0.01	0.02	0.04	0.04

Figure 5 - Risk Assessment Matrix (Wilson, F. 2021)

Risks responses planning and implementation

Planning the risks responses consists in the development of options, selection of strategies and the agreement on the actions to be undertaken in order to address individual and overall project risks. Through this process the project team will have documented the identification of the appropriate ways on how to face and address the risks that may arise during the project development (PMI, 2017).

According to PMI “effective and appropriate risk responses can minimize individual threats (negative risks), maximize individual opportunities (positive risks), and reduce overall project risk exposure. Once risks have been identified, analysed, and prioritized, plans should be developed (...) for addressing every individual project risk the project team considers to be sufficiently important, either because of the threat it poses to the project objectives or the opportunity it offers”.

The risks responses must be adequate to the level and significance of the risk, realistic facing the context of the project and should have a person responsible to carry out the response. It should identify specific actions to be developed in order to implement the risk response strategy, defined in the risk management plan, including primary and backup strategies. Backup strategies are needed if the primary risk response strategy isn’t fully successful. In this case, secondary risks must be considered, since this type of risks arise in consequence of the application of the primary risk response (PMI, 2017).

Implementation of the risk responses consists in the application of the risk response strategies, defined in the risk management plan. The process of risk response implementation, applied during all the project execution phases, allows the execution of the risk responses planned in

order to address the overall project risk exposure, increase the positive risks and reduce the negative risks (PMI, 2017).

Several types of exercises will be proposed to give students diverse of options to deal with risk management and mitigation:

- mind map for risk management and mitigation;
- brainstorm for solutions;
- the Kanban board (<https://kantree.io/blog/tips/2016/08/kanban-board>);
- assess potential solutions (use the graph: low effort, high effort, low impact, high impact);
- chronograms and Gantt charts;
- propose adjustments to overcome a problem.

Conflict management models

Conflicts are very common to emerge during the development of a research project, especially since they integrate the participation of different actors with different ideas, backgrounds and cultures. Risk assessment phases when possible threats in the project viability and implementation are discussed and solutions are collaboratively developed, are moments when conflict management skills are crucial for the RMA. To manage conflicts successfully, the RMA must start by understanding the ways in which conflict emerges.

Karen A. Jehn and Elizabeth A. Mannix developed several studies about this subject on the last years and proposed three types of conflicts:

1. **Task conflict:** that represents conflicts about the content and/or outcomes of the team's task.
2. **Relationship conflict:** that represent conflicts deriving from interpersonal issues within the team, with no relation with the tasks.
3. **Process conflict:** that represents conflicts about how tasks will be accomplished, who's responsible for what, and how things should be delegated.

In the 2015 article [A Review of Conflict Management Techniques in Projects](#) the author states that task conflicts increase the quality of decisions and performance in projects, while process conflicts reduces the team productivity, team performance and team morale. As well, the level of relationship conflicts is low in high performance teams. In many circumstances conflict cascade from tasks to processes to relationships, so it is not an easy task to identify the type of conflict of departure. Nevertheless, it is important to acknowledge that different types of conflicts must be addressed differentially.

We can find in the same article a list of the most common conflicts found in projects. We highlight the 10 most common ones:

1. Shared/Common Resources
2. Differences in Project Goal/Objective
3. Cultural Differences

4. Values Differences
5. Personality Issues
6. Differences in Technical Opinions/
7. Approaches
8. Schedules
9. Costs
10. Administrative procedures

Different authors have provided inputs about the different techniques on how to handle conflicts. In regards to the typical conflicts within the project implementation and management, we have the following (citation from the 2015 article [A Review of Conflict Management Techniques in Projects](#)):

- *Asserting* - ensures the win to one party at the expense of the other party. It is a one-way solution (Barki et Hartwick, 2001).
- *Domination and forcing* create a win-lose situation for the parties in conflict (Lam et al., 2007).
- *Integration* style is an effective approach for project performance, and it creates a win-win situation for the parties (Leung et al., 2005; Lam et al., 2007).
- *Avoiding* is the most disruptive style of conflict management in projects (Brahnam et al., 2005). In this style of conflict resolution, one party is indifferent to feelings of the other party and one party keeps away from participating in contact at all (Barki et Hartwick, 2001).
- In *Accommodating*, one party sacrifices their own needs, wants and expectations to satisfy the other party.
- In *Compromising* style of conflict resolution, both the parties give and take, and they win something and lose something (Barki et Hartwick, 2001; Ohlendorf, 2001).
- *Confrontation or problem solving* tries to satisfy all the parties in conflict by keeping all the facts and figures in picture and uses science techniques in solving the problem. It creates a win-win situation for all the parties in conflict (Verma, 1998; Ohlendorf, 2001; Heldman, 2003; Mosaic, 2012). Understanding each party standing through a pre-caucus is a foundation of conflict management (Billikopf, 2003).

The author identifies the most common conflict management techniques, with the 5 most common being:

1. Avoiding/ Withdrawal
2. Compromising
3. Confronting/Problem Solving
4. Accommodating
5. Smoothing

More information about such techniques can be found at <https://www.hrpersonality.com/resources/conflict-management-techniques>

But does conflict always bring a negative outcome? Not necessarily. Often, a conflict presents opportunities for improvement and many authors have emphasized the importance of the constructive conflict. Embracing differing ideas and worldviews, clarify of common work issues can be an exercise where people learn about each other and consider new solutions to move the institution toward its goals and mission.

Applying constructive criticism at the RMA workplace can bring lots of challenges but also lots of positive results. For that we highlight insights provided by Kathleen M. Eisenhardt, et.al in the article [How Management Teams Can Have a Good Fight](#) where the authors distilled a set of six tactics characteristic of high-performing teams:

- They work with more, rather than less, information.
- They develop multiple alternatives to enrich debate.
- They establish common goals.
- They try to inject humour into the workplace.
- They maintain a balanced corporate power structure.
- They resolve issues without forcing a consensus.

Negotiation

During the project implementation the RMA acts as facilitators of conflict with a goal: reach a solution that benefits both parties. This is what matters in negotiation. If we look again at the conflict management techniques, we can conclude that the most successful negotiators start off assuming a collaborative approach / *integration style*. As thus, successful negotiators will make both sides feel they won as negotiations tend to go much better if both sides perceive they are in a win-win situation.

Bibliographic references

- Aziz, H., Munir, S., & Sufian, M. (2018). Conflict Handling In Project Management: A Risk Assessment Analysis. *2018 12th International Conference on Mathematics, Actuarial Science, Computer Science and Statistics (MACS)*, 1–7. <https://doi.org/10.1109/MACS.2018.8628332>
- Bridges, J. (2019, December 9). *Risk Analysis 101: How to Analyze Project Risk*. ProjectManager.Com. <https://www.projectmanager.com/training/how-to-analyze-risks-project>
- *Conflict Management Techniques*. (n.d.). Retrieved January 13, 2021, from <https://www.hrpersonality.com/resources/conflict-management-techniques>
- Eisenhardt, K. M., Kahwajy, J. L., & Bourgeois, L. J. (1997). How management teams can have a good fight. *Harvard Business Review*, 75(4), 77–85.
- Jehn, K. A., Greer, L., Levine, S., & Szulanski, G. (2008). The Effects of Conflict Types, Dimensions, and Emergent States on Group Outcomes. *Group Decision and Negotiation*, 17(6), 465–495. <https://doi.org/10.1007/s10726-008-9107-0>
- Kourounakis, N., & Maraslis, A. (2016). *PM² project management methodology guide: open edition*. Publications Office. <https://data.europa.eu/doi/10.2799/957700>

- Lavanya, N. & Malarvizhi, T. (2008). Risk analysis and management: a vital key to effective project management. Paper presented at PMI® Global Congress 2008—Asia Pacific, Sydney, New South Wales, Australia. Newtown Square, PA: Project Management Institute.
- Project Management Institute (Ed.). (2017). *A guide to the project management body of knowledge / Project Management Institute* (Sixth edition). Project Management Institute.
- Ray, S. (2018, May 9). *Project Quality Management - A Quick Guide*. ProjectManager.Com. <https://www.projectmanager.com/blog/project-quality-management-quick-guide>
- Rever, H. (2007). *Quality in project management--a practical look at chapter 8 of the PMBOK--® guide*. PMI® Global Congress 2007, North America, Atlanta, GA. <https://www.pmi.org/learning/library/practice-three-project-quality-management-7198>
- Sudhakar, G. P. (2015). A REVIEW OF CONFLICT MANAGEMENT TECHNIQUES IN PROJECTS. Brazilian Journal of Operations & Production Management, 12(2), 214. <https://doi.org/10.14488/BJOPM.2015.v12.n2.a3>
- Wilson, F., 2021. How To Use The Risk Assessment Matrix In Project Management? - Ntask. [online] nTask. Available at: <<https://www.ntaskmanager.com/blog/risk-assessment-matrix/>> [Accessed 16 January 2021].