foRMAtion

Lesson 5: Quality and Risk Management

Keywords

- Quality planning, assurance and control
- Individual/Overall project risks
- Project success optimisation
- Risk identification and analysis
- Risk response strategies and implementation
- Conflict management models
- Negotiation

Learning Objectives

④ ⑥ ⑩

Scan for complete LOs

Go to the exercise
https://learningapps.org/watch?v=po79cj03j22

Quality Management

Project quality management encompasses project management and project deliverables and involves all processes necessary to analyse and **achieve the quality required for the development of the project's deliverables**.

Quality management applies to all projects, regardless of their nature and of that of the project deliverables. Project management quality is directly linked to what stakeholders need from the project deliverables. It can have a rather narrow focus, making it easier to achieve project objectives. Generally, RMAs only aid in overseeing the implementation of the project quality management plan since this is **typically a researcher's task from within the consortium**. Quality management and the implementation of the project quality management plan are extremely important to guarantee that 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:

- **quality planning;**
- **quality assurance;**
- **quality control**.

Quality planning

Involves the identification of the **quality requirements** for the project deliverables and includes the definition of how the project should be managed, and how the **compliance demonstration** will be registered and documented. Additionally, the project quality management plan details the metrics that should be used for the **quality assessment** of the project deliverables. It also includes a **quality assessment checklist** to register and organise the baseline achievements required for a successful development of project deliverables (Ray, S. 2020; PMI. 2017; Rever, H. 2007).

Essentially, the project management plan's crucial function is to advise on how the quality of project deliverables will be managed and controlled during the execution phase of the project. 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

Refers to the conversion of the quality management plan into a set of planned and systemic activities, that are put into practice in a **quality system** 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 the **identification of ineffective processes** and spots causes of poor quality in the development of project deliverables. The assessment of quality assurance occurs through the implementation of quality checklists or audits (Ray, S. 2020; PMI. 2017).

Quality control

Corresponds to the **constant monitoring of quality metrics** and the **recording of 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 completed within satisfactory levels and **meet the stakeholders' needs and expectations**. The process of quality control is implemented throughout the execution phase of the project, to demonstrate that the stakeholder acceptance and quality criteria are being achieved. (Rever, H. 2007; PMI, 2017).

Internal practices of quality assurance and control, as the ones mentioned above, may also be **supported and complemented by external institutions or actors** who perform similar assessments.

Figure 37 - The four main components of a quality management system
(Source: https://info.docxellent.com/blog/main-components-quality-management)

Risk management

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

What are risks?

Understanding the relevance of risk management is important to define what risks are and what type of risks we can find. Risks are **uncertain events** or conditions that may have either a positive or a negative impact on the project's outcomes. A negative risk may cause disastrous repercussions on project development, but a positive risk may lead to new opportunities that weren't initially foreseen at the beginning of the project. Apart from the differentiation of positive and negative risks, a project 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 **uncertain events or conditions** that can have a positive or negative impact on one or more project objectives.
- **Overall project risks** stem from the **uncertainty of the project *per se*** and depend on all sources of uncertainty, including individual risks.

Project success optimisation

To face these probabilities of risk (negative/positive – individual/overall) it's important to have **risk-specific coping strategies**: knowing how to implement exploitation strategies when faced by a positive risk and how to implement mitigation strategies when tacking a negative risk. **Unmanaged negative risks** may lead to consequences such as project delays, cost overruns and poor 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's performance (PMI, 2017).

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

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

Project risk management encompasses the following processes:

- **risk management planning;**
- **risk identification and analysis;**
- **risk response planning and implementation;**
- **risk monitoring.**

Risk management planning

The risk management plan defines how the **risk management activities** will be conducted during the project. This plan should be detailed during the project planning phase and may be updated and revised during the project development phase if significant changes occur during the project lifecycle (PMI, 2017).

Figure 38 - Risk Management: definition, strategies and processes

Risk identification and analysis

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

For it to be a viable tool for risk analysis and response, the description and documenting of the individual project risks must be made coherently and consistently to make sure that the risk is clearly understood (PMI, 2017).

Risk analysis involves the **prioritization of individual project risks** by assessing their occurrence and impact probability throughout the project's development. It's important to note that the assessment of the risks is subjective since it is based on risk perceptions of the project stakeholders. Therefore, **bias induced by risk perception** should always be considered. An effective risk assessment requires the complete and explicit identification and management of the risks. In risk assessment, it's also important to use some visualization tools to highlight the risks and assist decision-making. The **risk matrix**, as shown below, is a **visualization tool used to determine the risk level**, considering both the **impact** and the **probability** of risk events (PMI, 2017; Aziz, H. et al. 2018; Lavanya, N; Malarvihi, T. 2008).

Figure 39 – Risk assessment matrix (Wilson, F.2021)

Risk response planning and implementation

Planning risks responses involves the development of options, selection of strategies and the agreement on the actions to be undertaken to address individual and overall project risks. Through this process, the project team will have documented the identification of the

appropriate ways to face and address risks that may arise during the project's 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 due to the opportunity it offers.*

Risk responses must be adequate to the level and magnitude of the risk and realistic in facing the project's specific context. A **person responsible** to carry out the risk response should be appointed. He/she should identify specific actions 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 these types of risks arise as a consequence of the application of the primary risk response (PMI, 2017).

The implementation of 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 the entire project execution phases, allows the rolling out of the planned risk responses to address the **overall project risk exposure**, including increasing the positive risks and reducing the negative ones (PMI, 2017).

Several types of exercises will be proposed to present students with **diverse options of 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);
- **assessing potential solutions** (use the graph: low effort, high effort, low impact, high impact);
- **chronograms** and **Gantt charts**;
- proposing adjustments to **overcome a problem**.

Conflict management models

It is very common for conflicts to emerge during the development of a research project, especially since these involve different actors with different ideas, backgrounds and cultures. Risk assessment phases, when potential threats in the project's 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 **how conflict emerges**.

Lately, Karen A. Jehn and Elizabeth A. Mannix developed several studies on the subject and proposed **three macro types of conflicts**:

1. **Task conflict:** conflicts about the **content and/or outcomes** of the team's task.
2. **Relationship conflict:** conflicts deriving from **interpersonal issues** within the team, with no relation to the tasks.
3. **Process conflict:** 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 **task conflicts increase the quality** of decisions and performance in projects, while **process conflicts reduce team productivity**, team performance and team morale. Levels of relationship conflicts are low in high-performance teams. Often conflict tends to cascade from tasks to processes to relationships, so it is not always simple to identify the original conflict type. Nevertheless, it is important to acknowledge that different types of conflicts must be addressed in different ways.

The same article also lists 10 of the **most common conflicts taking place in projects**.
1. **Shared/common resources**
2. **Differences in project goals/objectives**
3. **Cultural differences**
4. **Differences in values**
5. **Personality issues**
6. **Differences in technical opinions**
7. **Differences in approaches**
8. **Schedules**
9. **Costs**
10. **Administrative procedures**

Different authors have provided input on different **techniques to handle conflicts**. With regards to typical conflicts arising within the project implementation and management, the following approaches seem relevant (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***: creates a **win-lose situation** for the parties in conflict (Lam et al., 2007).
- **Integration style**: effective approach for project performance, creating a **win-win situation** for all parties involved (Leung et al., 2005; Lamet al., 2007).
- **Avoiding**: the **most disruptive** style of conflict management in projects (Brahnam et al., 2005). In this style of conflict resolution, one party is indifferent to the feelings of the other party and avoids contact (Barki et Hartwick, 2001).
- **Accommodating**: **one party sacrifices** its own needs, desires and expectations to satisfy the other party.
- **Compromising** style of conflict resolution: both parties **give and take**; winning something and losing something (Barki et Hartwick, 2001; Ohlendorf, 2001).
- **Confrontation** or **problem-solving***: tries to **satisfy all parties** in conflict by keeping all the facts and figures in the picture and using **scientific problem-solving** techniques. It creates a win-win situation for all parties in conflict (Verma, 1998; Ohlendorf, 2001; Heldman, 2003; Mosaic, 2012). Understanding each party's standing through a **pre-caucus** is a foundation of conflict management (Billikopf, 2003).

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

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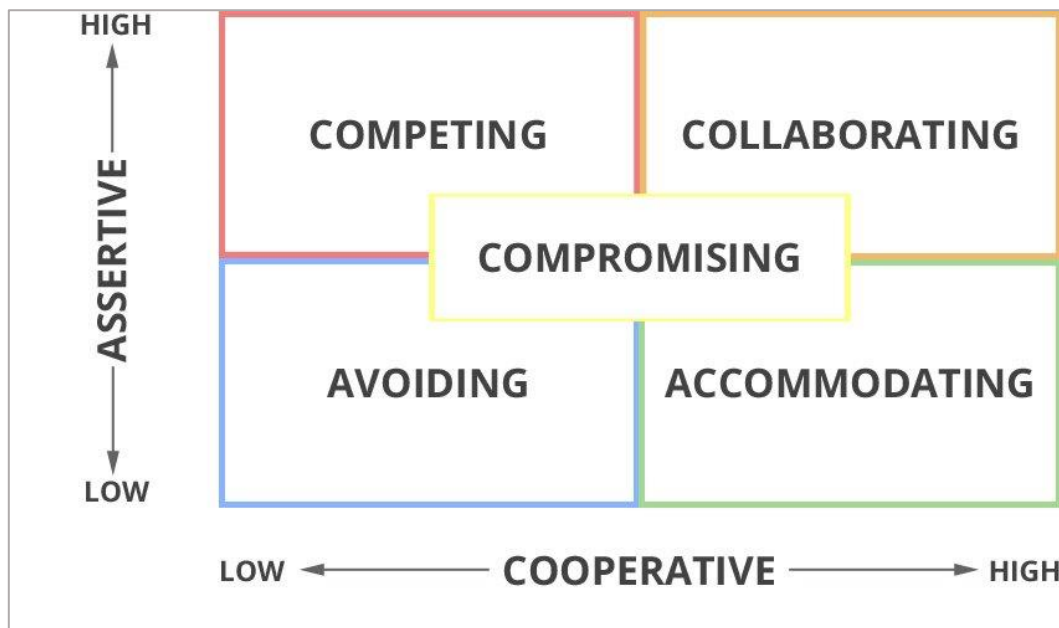4. **Accommodating**
5. **Smoothing**

Figure 40 – Conflict management techniques
(Source: https://www.projectmanagementqualification.com/blog/2019/04/01/conflict-management-guide/)

Does conflict always generate a negative outcome? Not necessarily! Often, a conflict presents opportunities for improvement and many authors have emphasized the importance of **constructive conflict**. Embracing different ideas and views and clarifying common work issues can be an exercise in which people learn more about each other and consider new solutions to move their institution toward its goals and mission.

Applying **constructive criticism** at the RMA workplace can bring lots of challenges but also lots of positive results. Of particular relevance are the 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 tactical characteristic found in high-performing teams**:

- They work with more, rather than less, information.
- They develop multiple alternatives to enrich the 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 project implementation, the **RMA** acts as a **facilitator of conflict** with an ultimate goal: reaching 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 by pursuing a collaborative approach/integration style. Successful negotiators will make both sides feel winners as negotiations tend to go much better if both sides perceive they are in a win-win situation.

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