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PROJECT RISK MANAGEMENT BASED ON A SET OF BEST PRACTICES

The purpose of this article is to present the process of risk management in project management. The analysis was based on a comparison of two best practices of IPMA and PRINCE. Risk management differs significantly between the two approaches, but it is up to the organization to choose its own management, monitoring and methodology tailored to the specific industry or sector. Risk management is an important aspect of the entire project life cycle and must be monitored throughout the project life cycle to protect not only the budget but all areas of the so-called "golden triangle". A very important aspect is the organization's awareness that risk management is everyone's responsibility, not just the project manager. This paper presents two different approaches to project risk management in two different methodologies.

Keywords: risk, risk management, best practices.

1. INTRODUCTION

Risk taking in projects is inevitable as all projects lead to change, and change is accompanied by uncertainty and therefore risk (Trocki, 2012; Drączkowska, 2020).

Risk management should therefore be systemic, rather than haphazard, as it is in some projects. It is about proactively identifying, assessing and controlling those risks that can affect the achievement of project objectives. A cost-effective risk management procedure should be established and maintained in the project.

The essence of risk arises from the fact that decisions are made about the future , making decisions under such conditions of risk is nothing more than making decisions without complete information. In all types of ventures there is a possibility of events that will entail consequences, which are either opportunities for positive benefits or threats to the success of the venture. It is accepted that risk concerns not only the negative but also the positive aspects of an action (Trocki, 2012; Kerzner, 2001).

Risk management is an ongoing activity that is carried out throughout the life of a project. Without an ongoing, effective risk management procedure, it cannot be ensured that the project will be able to fulfil its objectives and that it is therefore worth continuing. Effective risk management is therefore a requirement of the principle of maintaining continuous business case (Kerzner 2001; Malec, 2009)

Risk management protects and adds value to an organisation because it contributes to the achievement of its objectives by: providing a systemic framework, through which the

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organization will be run in a consistent and controlled manner , streamlines processes in the organization , allows more efficient use of the resources at hand , protects and builds the image of the company and improves the efficiency of operations (Marcinek, 2000; Kisielnicki, 2017).

2. SURVEY METHODOLOGY

The risk management analysis was carried out using two approaches depending on the specifics of the project. We are talking about the PRINCE approach, whose management model is based on products, and whose field of application is very wide. Currently, this approach is used primarily for training projects, in non-profit organizations.

A completely different approach is proposed by IPMA methodology, which is very complex and comprehensive. It is widely used to manage not only projects, but also programs or project portfolios. It provides a clear and transparent framework for monitoring risks across the enterprise and defines accountability within the team. Below are the characteristics of both PRINCE and IPMA risk management.

3. RISK MANAGEMENT ACCORDING TO PRINCE2

A risk is an uncertain event or set of events that, if it occurs, will affect the achievement of objectives. In the context of a project, project objectives are exposed to risk. These include the completion of the project along with the achievement of a number of target values, usually relating to time, cost, quality, scope and benefits (Lock, 2013; Prince2tm, 2009).

Risk management refers to the systematic application of procedures to the task of identifying and assessing risks, and then planning and implementing appropriate response strategies. This as much as possible creates a structured environment for proactive decision making. For risk management to be effective it must be: identified, assessed and managed (Pritchard, 2002).

The approach to risk management is based on the so-called MoR. Risk management is based on a number of risk management principles, which in turn are applicable to the project context:

- Understanding the project context.
- Stakeholder involvement.
- Establishing clear project objectives.
- Developing a project risk management approach.
- Regular reporting of risks.
- Clearly defined roles and responsibilities.
- Establishing a support structure and environment to support risk management.
- Monitoring of early warning indicators.
- Establishing a review cycle and continuous improvement.

The starting point for all projects is to establish the organisation's policies and processes or programmes that must be applied. This can take the form of a risk management policy and guidelines for the management itself.

The PRINCE2 methodology recommends that each project should have its own Risk Management Strategy and control tool, i.e. a Risk Register (Prince2tm, 2009).

After reviewing the organisation and programme level documents, and before taking any action regarding risk management, a Risk Management Strategy should be developed for the project.

A key decision to be recorded in the Risk Management Strategy is the Steering Committee's own approach to risk taking, which in turn will dictate the degree of risk that is considered acceptable. This information is recorded in the form of risk tolerances representing that level of exposure to risk which, if exceeded, will lead to the production of an Emergency Report for communication to the Steering Committee of the situation.

PRINCE2 recommends a risk management procedure with five steps:

1. Identify (context and risks).
2. Assess (estimate and evaluation).
3. Plan.
4. Implement.
5.Communicate.

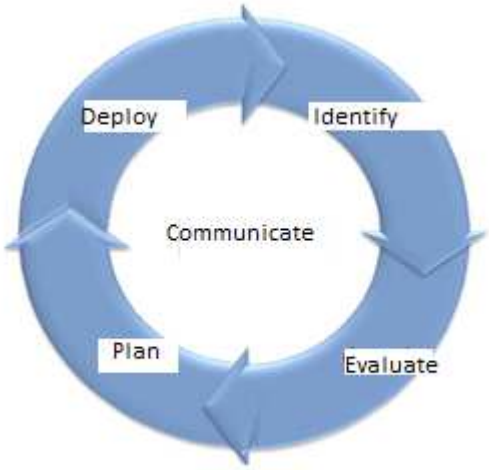

Figure 1. Risk management procedure

Source: (Trocki, 2012).

PRINCE2 recommends that when identifying risks, the identified risks and opportunities should be recorded in a Risk Register, early warning signals should be prepared to monitor critical aspects of the project and provide information on potential sources of risk, and the opinion of stakeholders on specific risks should be sought.

An effective way to identify risks is to use a so-called risk workshop. This is a group session designed to identify risks and opportunities. This session should be conducted by a person who is well versed in creative thinking techniques. The aim of the workshop is to work out the widest possible range of risks and their potential owners (Trocki, 2012).

PRINCE2 recommends that in the case of risk assessment, special attention should be paid to the following issues: assigning categories to probabilities and opportunities, ocean-going each risk and opportunity in terms of the project, materialising the risks and

opportunities, and determining the extent to which the impact of the risks and opportunities will change over the life of the project.

In the case of evaluation it is necessary to make a net assessment of all identified risks and opportunities in the project if they were to be combined. This makes it possible to assess the overall risk weights and whether they are within the tolerance set by the Steering Committee and whether the project still has a business case.

The main purpose of planning is to prepare specific management responses to identified risks and opportunities, ideally with the aim of removing or reducing the risks and thereby maximising the opportunities.

The next stage is implementation. An important element here is to ensure that there is a clear allocation of roles and responsibilities to support the Project Manager in managing project risks. The roles are the risk owner, the person responsible for managing, monitoring and controlling all aspects, and the risk response contractor (Lock, 2013; Prince2tm, 2009).

Risks are communicated through management products

- Checkpoint reports.
- Interim reports

end of Phase Reports.

Reports from checkpoints

- Periodic reports.
- Final Stage Reports.
- Final Project Reports.
- Experience Reports.

Special care should be taken when using these reports for external stakeholders, bearing in mind that the Communication Management Strategy is always the overriding document in this case **(**Prince2tm, 2009).

Summarizing the topic of risk management based on the PRINCE2 methodology, one cannot forget about the roles and responsibilities of individual people involved in the project. Thus, in turn:

- The management of the organisation or programme is responsible for establishing the organisation's risk management policy and provides guidance on the risk management process.
- The Chairperson is responsible for all aspects of risk management and in particular for ensuring that there is a Risk Management Strategy for the project. He/she also ensures that risks directly related to the Business Case are identified, assessed and controlled.
- The Main User shall ensure that risks associated with users are identified, assessed and controlled.
- The Main supplier ensures that risks associated with suppliers are identified, assessed and controlled.
- The Project Manager is responsible for developing the Risk Management Strategy, establishing and maintaining the Risk Register and ensuring traceability of risks throughout the project.
- The Project Supervisor reviews risk management practices to ensure compliance with the Risk Management Strategy.
- Project Support works with the whole team in maintaining the Risk Register for the project.

4. RISK MANAGEMENT ACCORDING TO IPMA

Risk management according to IPMA differs slightly from the PRINCE2 standard not only because of the nomenclature used, but also because of the approach to risk management itself.

In the case of IPMA there is definitely more emphasis on risk analysis in particular phases of the project. Therefore the analysis presented below will also be based on the analysis of risks in the phases (Trocki, 2012).

As a reminder in the case of the phase model we distinguish 4 phases: initiation, planning, implementation and termination.

In the initiation phase we can therefore distinguish the following risks: inaccurate specification of customer requirements, lack of accurate feasibility analysis, poor budget planning, selection of incompetent project manager and team members.

In the planning phase we can therefore distinguish the following risks: project manager without support from above, poor motivation of team members, poor structure of work division, poorly developed project schedule, poorly executed plan of resources and their availability, poor execution technology, poor selection criteria of subcontractors

Thus, in the implementation phase we can distinguish the following risks: lack of communication between the team, lack of methodology for introducing and handling changes, project manager focused on his own goals instead of project goals, lack of an early warning system, Delays in delivery, lack of quality supervision, poor cost control in relation to the schedule and work progress (Lock, 2013; Prince2tm, 2009).

In the completion phase we can distinguish the following risks: lack of effective supervision of the removal of defects, too early release of resources, lack of complete documentation, delayed acceptance by the customer, lack of documentation of the project experience.

During project implementation it is often the case that risk management is only triggered when a risk actually occurs or can be foreseen. It is then used as crisis management – when it is already too late. Risk analysis and management should be undertaken before the start of a project and should be considered throughout the project process.

For IPMA we can distinguish two approaches to risk analysis:

- Quantitative analysis – determines the numerical (monetary) values of the probability and consequences of the occurrence of individual risks, as well as the risk of the whole project, and operates on monetary values.
- Qualitative analysis – consists of assessing the probability and impact of the identified risks, used for initial risk estimation or when it is not possible to quantify it precisely.

For both methodologies different risk management strategies are used as shown in Table 1.

Transfer – is the transfer of responsibility or consequences associated with a given risk to another group of stakeholders; risk transfer rarely leads to risk elimination, but rather forces others to mitigate, accept or avoid it; risks can be transferred to contractors, suppliers, customers or insurers.

Avoidance – involves changing the project plan to eliminate the risk or related conditions or to protect the project objectives from the possible consequences of the risk.

Table 1. Risk Management Strategies

Risk as	Chance	Avoidance Minimalization Active acceptance Passive acceptance
	Danger	Utilization Strengthening Sharing up Acceptance

Source: (prepared by author).

Passive acceptance – consists of accepting the risk without taking any action other than documenting it.

Active acceptance – consists of creating a retreat plan to be implemented when the risk event occurs. The turnaround plan includes detailed instructions on how to proceed and how to make a budget provision for the project.

Reducing – involves selecting solutions with less risk than others. It is accepted because it involves potentially less adverse conditions. This strategy involves reducing the probability and/or consequences of an adverse event to an acceptable level. Taking timely action to reduce the probability or consequences of risks is preferable to fixing them (Kerzner, 2001; Prince2tm, 2009).

The risk management plan as in PRINCE2 methodology contains some common elements. In the case of IPMA, the Project Manager is responsible for this plan.

The basic Risk Management Plan consists of:

1) Introduction

Project description 3.

3) Risk management strategies and methods

4. organisation

5. Risk management processes and procedures

6. Risk management planning

7. risk analysis and assessment

8. risk response plan

9. risk monitoring

10. documentation and reporting

A very important aspect for each organisation is to take an individual approach and choose the right methodology for its own needs. When managing risks it is essential to know the tools and nomenclature, which in turn allow the communication process to be improved throughout the organisation (Wyrozębski P., Jachniewicz M., Metelski W., 2012).

5. A PRACTICAL APPROACH TO RISK MANAGEMENT IN THE ORGANIZATION

After an in-depth analysis of both methodologies each organisation has to reflect on and decide which is the most appropriate for their organisation and which tools their employees will want to work with on a daily basis.

The risk register (risk log) should be based on the analysis of the types, consequences and criticality of errors in identifying all potential risks:

- Each risk listed is assigned an identification number;
- space is left for the entry of the individual action steps to be taken in case of risk occurrence.

An example of a risk register that can be used in an organisation is summarised in Table 2.

Table 2. An example of risk register

Risk category	Risk	Probability of occurrence (L)	Effect (E)	Value V=L*E	Strategy

Source: (prepared by the author).

The risk register, risk analysis should be reviewed regularly and corrected throughout the project. It is also very important to appoint a person responsible for carrying out the risk register, so that there is no double analysis or lack thereof.

The table presented above can be adapted to different types of organisations and modified according to the needs.

The risk analysis was carried out on the basis of one project in the automotive industry.

The case concerns the introduction of a new type of component for a selected customer X. The component has to be introduced due to technological and construction problems as well as due to the lack of efficiency of the customer's flow, not achieving the required quantities. An additional factor is that the price of the new component will be approx. 15% lower than previously, plus a reduction in costs for special transports.

6. CONCLUSIONS AND DIRECTIONS OF FURTHER RESEARCHES

Regardless of the project management method chosen, the traditional approach distinguishes between risk management models and processes that are an integral part of them. While the methods themselves are different, the associated risk management processes have no significant differences. They share similar or even the same tools, techniques for identifying, assessing and even responding to risks.

In hard-core projects (PRINCE2, IPMA), although there are risk management processes divided into strategic project management (which emphasises day-to-day activity, risk response and risk management), and teamwork (where risks are identified, analysed and assessed in an iterative approach), the process itself does not address the critical success factors that contribute to potential threats or opportunities in these types of projects.

Each organisation wishing to manage in a project-based manner should individually select a methodology for itself and apply it to all process levels. It seems necessary for all members of project teams to know theoretical basics and to develop one reporting standard.

Some tools from PRINCE2 or IPMA can be directly implemented in an organisation. Therefore, it is worth getting to know both methodologies and using them successfully to improve your organization and to increase work effectiveness and efficiency.

REFERENCES

Drączkowska, E. (2020). *Wybrane aspekty zarządzania procesami, projektami i ryzykiem w przedsiębiorstwie*. Łódź: Wydawnictwo Uniwersytetu Łódzkiego.

Kerzner, H. (2001). *Project Management: A Systems Approach to Planning, Scheduling and Controlling.* Hoboken: John Wiley &Sons.

Kisielnicki J. (2017). *Zarządzanie projektami badawczo-rozwojowymi*. Warszawa: Wydawnictwo Nieoczywiste.

Lock D. (2013). *Podstawy zarządzania projektami*. Warszawa: Polskie Wydawnictwo Ekonomiczne.

Malec P. (2009). *Zarządzanie ryzykiem projektu* [w:] *Strategiczne zarządzania projektami*, Warszawa.

Marcinek K. (2000). *Ryzyko projektów inwestycyjnych*. Katowice: Wydawnictwo Uczelniane AE w Katowicach.

Pritchard C. L. (2002). *Zarządzanie ryzykiem w projektach. Teoria i praktyka*. Warszawa: WIG-Press.

Prince2tm – Skuteczne zarządzanie projektami (2009).

Stowarzyszenie Project Management Polska, *Zarządzanie projektami*. Podręcznik.

Trocki M. (2012). *Nowoczesne zarządzanie projektami*. Warszawa: PWE.

Wyrozębski P., Jachniewicz M., Metelski W. (2012). *Wiedza, dojrzałość, ryzyko w zarządzaniu projektami*. Warszawa: Oficyna Wydawnicza, SGH w Warszawie.

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