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RISK MANAGEMENT IN CONSTRUCTION PROJECT MANAGEMENT

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Abstract

By adopting risk management, savings potential can be achieved in construction projects. To this end, it is valuable for project managers and real estate developers to pay attention to risk management processes. The risk management process consists of 6 steps which will be discussed in more detail below. Integrating a risk management system into a construction project should be tailored to the development and influence of all project areas, functions and processes. The particular importance in this regard is the risks in the field of staff, especially for companies that provide the highest quality of services, the presence of specialized staff is essential for market success.

Keywords: Project Management Process, Error, Probability and Influence Analysis, Risk Portfolio, Risk Team Analysis, Risk Identification, Risk Analysis, Risk Assessment, Risk Policy.

1.Introduction

The economic situation and the enlargement of the European Union (EU) have led to an examination of how more efficient and economical key proposals can be made. This requires a consistent structure of the company and continuous risk management during construction projects. Construction projects are at risk when they occur. At various stages, first of all, it is necessary to consider which factor wants to deal with the risks by taking measures and how costly these measures are. To do this, the risks, potential risk costs, actions and costs of actions must be identified and appropriate actions taken to avoid future mistakes. The willingness of real estate developers to take risks leads to joint costs for all construction projects. Risk costs are often not allowed in advance, thus reducing profit margins. For this reason, it is worthwhile to pay attention to the issue of risk management, trying to minimize the costs of failing precautionary measures or avoiding them altogether. Construction projects vary according to the process of development, planning, implementation and operation. Despite their uniqueness, the sequential processes of these steps can be used as a basis for identifying hazards to accurately address specific and known hazards in the project. Of particular importance in this regard is the implementation and implementation phase. While claims for damages have been made regularly in the past with respect to the precondition for actual or relatively obvious damage or loss to the structure, in the meantime, claims of defects Losses in structures have been defended. Claims for costs incurred and other financial damages incurred by contractors such as inefficient regulations on contractual penalties, errors in cooperation for contract award, errors in controlling invoices are increasing.

Therefore, risk management in architectural and engineering offices should establish itself as an essential part of project management.

2.Risk definition

In theory, risk is usually defined as the positive or negative deviation of a variable from its expected value. In general terms, risk is accepted only as a loss. In addition, the definition of risk is considered specifically for chance.

To turn risk into luck, the business owner must first identify his risk well. Risk management involves a strategy to avoid losses and to take advantage of available opportunities, or rather potential opportunities arising from risk. This strategy requires the individual to take action to carefully consider and evaluate the situation and possible scenarios that may occur in the future. Accordingly, decisions are made in the hope of eliminating all risks and taking advantage of all opportunities. This means recognizing potential risks and avoiding threats by preventing, evading, or reducing their negative effects.

3.Risk management

As shown in Figure 1, risk management is very important in construction projects. Although the introduction of risk management at the beginning of a project imposes additional costs, this can be offset especially by the benefits of risk management. Potential risks in the planning stage can be identified for the success of the next project and by combining these risks in planning, they can be reduced. This has special effects on meeting the set date and deadline and thus maintaining project costs. It is important for a manager to meet the deadline for launching an operational unit.

Risk potential analysis explains the extent to which project risk affects the firm's risk position. Potential estimation should be performed without careful consideration of individual risks and at the lowest possible cost.

Depending on the risk potential assessment, the risk management process begins.

Risk management consists of integrating the basic principles of risk policies, creating a sense of risk awareness as well as organizational integration. This is a motivation for the risk management process and is responsible for risk control with full knowledge of the current risk situation [1]. Through risk management, transparency increases, from the beginning, and through pragmatic behavior, it is possible to avoid problems, and the project can be prepared for unavoidable problems. Through this, it is possible to reduce the consequences and the project manager continues to control his project.

The project control process consists of several steps, which are shown in Figure 2, and we will describe them in the following lines.

3.1. Step 1 Identify the risks

Unrecognizable hazards cannot be assessed and monitored. However, full coverage of the risks is impossible.

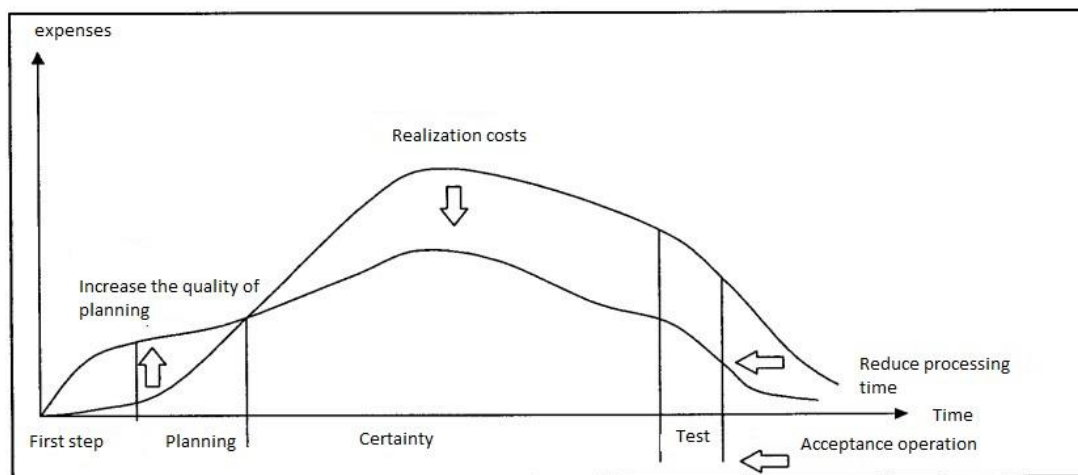


Figure 1: Potential of using risk management in construction projects

Therefore, the task of risk management is to cover the main risks as much as possible. Therefore, risk identification should be done in a way that takes into account both forward and sustained progress. Because not all risks are fully identifiable before the project begins, more risks may occur during project implementation. Figure 3 shows an overview of the different methods of risk identification. In principle, creative and guided methods are prominently identified. The first type offers the possibility of discovering different types of danger. Guided methods identify hazards using a checklist and with the help of case studies of conceivable types of hazards. In projects, the following hazards occur specifically, which are classified according to the type of risk:

Quality hazards

Defects in provisional results

Lack in use of project methods

Very few controls / tests

Personnel risks

Lack of skills

Disagreement in the team

Cost risks

Planning changes

Complex project conditions

Customer inability to pay

Risks of determining the desired date / deadline

Failure to deliver at the right time

Delaying project completion

Risks of strategic decision making

Inability to identify odds

Lack of ability to use chance consistently

External hazards

Natural events

Political change

Changes in society

Changes in the market / new markets

Legal developments

Changes in the sectoral process

Technological changes



Figure 2: Risk management elements

3.2. Step 2 risk analysis

The goal is to describe as completely and accurately as possible the risk situation and their prioritization. To do this, the risks are identified and examined by considering the exact probability and its effects on the project. In the first place, portfolio valuation and risk costs are used for classification purposes, respectively. The criteria should be based on what the risks can be assessed and compared.

A risk must always be described as an event that includes losses or casualties and can be assigned a specific value. Therefore, damage or loss can be assessed in terms of cost and probability of occurrence and the value of the risk.

For example, Risk assessment methods include:

3.2.1. Error probability and penetration analysis

This is a largely formal analytical method for systematically covering all possible errors and estimating the risks associated with them. In this method, in a team, potential errors are determined with the help of a standard form of probability analysis and error penetration; The consequences are examined and the causes are assessed.

In the next step, the causes of errors are regularly evaluated in terms of their probability of occurrence, importance to the customer and the probability of their identification. Finally, the appropriate actions begin.

3.2.2. Risk basket

In a risk basket, risks are arranged according to the amount of damage or loss and the probability of their occurrence. Based on this, the effects on the project and the need for action are estimated.

3.2.3. Risk team analysis

Risk assessment is performed by the project manager in the project control text. To analyze the risk team, the risks must be determined and examined depending on the type, and risk indicators must be created. Therefore, possible actions are described in detail and the persons responsible for monitoring and informing the risk are identified.

3.3. Step 3 Risk Assessment

Risk assessment involves qualitative assessment and quantitative measurement of unique risks, including the dependence of their effects. With the help of the results of risk assessment, for example, a risk portfolio of the project can be shown and compared with others. While accurate mathematical and statistical methods in banking and the statistics industry are useful for risk estimation, they cannot meet the typical risks in the construction industry. The following methods can be used to assess and compare risk in construction projects.

3.3.1. Important (key) performance indicators

Key performance indicators cover quantitatively measurable conditions and thus provide a basis for comparison. If they need to compare large amounts of data and figures, they prefer to use advice and consultation to assess risk. Hazard threshold values are set for key performance indicators. Sample and key performance indicators in the real estate sector are: average operating costs, average rent and the amount of job opportunities or average interest in foreign capital.

3.3.2. quality evaluation

If objective data are not available, the risks must still be measurable. One of the methods is quality and weight estimation. In this method, the risks are estimated based on the probability of occurrence and the amount of damage or loss.

3.3.3. Maximum possible loss

The purpose of the risk quantification process is primarily to assess the likelihood of hazards occurring in a risk scenario. In risk assessment, a serious injury or loss is determined, for example, the maximum possible or probable risk or loss.

3.3.4. ABC analysis

ABC analysis is based on the knowledge that often a relatively small number of factors make up the largest share of a total. Therefore, the purpose of this analysis is to find the factors that make up the largest part of the project value and therefore the larger planning and control costs can be justified.

3.3.5. Risk map

Risk map shows the risk characteristics of a company and is called as risk perspective, risk map or risk matrix [1]. From a risk map it can be seen what priority the risks should be approached. Unbearable risks that could jeopardize the continued existence of the company are prioritized. Then, the risk classification in a risk matrix leads to different considerations of two classification criteria: probability of occurrence and value of expectation.

3.4. Step 4 control risk step

Risk control is the active influence of certain risks in the field of risk analysis. The measures required to face the risk can be divided into two categories of actions depending on the cause and effect. Cause-dependent measures are considered to prevent or reduce risks, while effect-related measures are used to reduce or protect against the expected amount of damage or loss in an accident or accidents, including damage and loss [3]. Risk control strategy is based on the following:

avoid

Decrease

Risk acceptance

Bearing risk by yourself

3.5. Step 5 Risk Monitoring

Risk monitoring is an effective and continuous control of the effectiveness of risk control measures. The purpose of risk monitoring is not to eliminate them completely in the project. Risk monitoring helps ensure that the risk position in the project depends on what the risk situation is trying to achieve.

This is supported as a tool through the analysis of discrepancies. The internal control system is part of the risk monitoring. Continuous monitoring of the initial indicators and confirmation of the recurring risk is carried out by the responsible persons in each case, which should not be later than the deadline of the relevant stage. The structure of the report and meetings in the organization and for the project is a prerequisite for this. In addition to tracking the risk situation and taking action, new risks must be considered. Risks must be documented with the relevant amount of damage or loss. Critical conditions of management staff should also be reported.

3.6. Step 6 Goals Control

After identifying, analyzing, and evaluating hazards, control measures should be considered for the purposes. Control processes should be divided into several sub-processes: determining the value of the target, determining the actual value, comparing the target / reality, and analyzing the variables. As an ongoing process of monitoring, risk identification, analysis, and control should be considered to determine whether risk control is properly implemented. In the event of a discrepancy between the actual state of the risk and what the risk is for, steps must be taken to identify the causes. Based on their identification, the risk strategy should be adjusted or revised. As a result, by monitoring the risk, consideration of the standard set of risk management is guaranteed.

4. Risk management in project progress

The project manager is responsible for managing the chances and risks. The task of project management, if identified, is to detect any emerging hazards in a construction project and place them on the risk list. To do this, in practice, checklists, which must be set based on the empirical values of comparable construction projects, are considered a common auxiliary tool. In the field of project control, the following should be considered:

Service plan

Track dates / deadlines and progress

Track costs

quality guarantee

Contract analysis

To encourage the tendency to adopt risk management in the construction industry, standard risk checklists should be set with the help of what the project manager only needs to control the occurrence of standard risks.

One quick guideline for project managers and teams is that ease of implementation should make it easier to deal with project risks.

The need to install the risk management system as quickly as possible stems from the fact that risk potentials exist and are identifiable, at least in the initial form before or at the beginning of the project, however, effects and damage appear only in subsequent project developments. For this reason, the risk management process should be created and integrated into the entire project process as a (sub) permanent task of project management. Each item of the entire project should be equipped to identify, analyze and evaluate hazards and specific aspects of the individual project stages. In general, project progress can be divided into three stages:

Startup stage

Management stage

The end stage

In this, sample risks occur at the relevant stages.

They must be integrated into the risk management process in order to prevent the development of interference in the project. To meet the opportunities and risks of the project, the following principles must be applied:

The project manager is responsible for managing the chances and risks.

Only risks that can affect themselves are considered.

Avoid or protect against risks that affect others, customers, subcontractors).

Follow the risk as much as possible

Attention to chance and risk is part of the project report.

Below, with specific questions about the separate steps, a location is shown where the risk management tasks are integrated with the project progress. Some questions are considered as examples that can be expanded or supplemented at will. In this case, the project division is performed by summarizing the project steps from the scope of project management services [1], which has been developed by the AHO Expert Commission for Project Management in three stages:

4.1. Project management tasks

4.1.1. Start-up phase (project preparation; planning)

The commissioning step is related to steps 1 and 2 of the service domain in project control. In the start-up phase, the focus of risk management is primarily on reviewing the contractual conditions and the overall project environment. The task of risk management is to identify potential hazards that could disrupt the actual progress of the project. Here, risk management should consider the following sample questions to identify potential risks:

Are the project objectives clearly defined?

Is there transparency about the project structure?

Have future planners, consultants and consultants been selected and assigned missions?

Are there any specific contractual features?

Is there a gap in the services available in the contracts?

What is the meaning of application availability?

Has the date / deadline set for the use of subsidies been agreed?

The scope of project control services is designed to provide specific minor services, such as creating a user needs program, and currently includes the analysis and assessment of related risks [2].

4.1.2. Management stage (preparation for implementation and execution)

The task of risk management in separate stages of project implementation is determined by the content of the project development goal. Basically, during the implementation of the project, there is basically a problem in observing the known risks in the start-up phase and their changes.

The effect of measures taken for a risky dream should be evaluated and additional risks examined regularly and in a conclusive manner.

For the management phase, the following questions are specified:

Are all resources available on a scheduled basis?

Does the manager agree to his duties for cooperation?

Does the general manager accept the project without serious flaws?

4.1.3. The end stage

We achieve the end of the project with the efficiency of the service and the delivery (acceptance) of the structure to the manager (for example, the real estate developer). It is very critical that the manager is not willing to accept the completed solution due to the inconsistency of the project results with his goals. Project management can prevent such omissions by following the following questions in the final stage:

Are the contents of the contract and obligations fulfilled?

Are the project documents complete?

(Registration of meetings, correspondence, publication of project documents, etc....)

Are the services included in the contract acceptable?

To further develop the risk management system, it is important to consider the contribution of increased reflection in the project. Questions related to this item include:

What identified hazards have occurred?

Which problems occurred in the project were not considered as hazards and why?

4.2. Risks in the personnel department

Structural changes in the world of technology as well as dynamic changes in sales markets can only be successful if a company's employees are familiar with and committed to it. Especially for companies that provide high quality services, the seriousness of employees specialized in relevant responsibilities is essential to market success. For this reason, personnel risk management is essential to avoid the lack of tactical / effective competencies and innovative potentials due to staff turnover. Affected areas of risk can be divided into 4 regions above all: Throat risk area, exit from the risk area, compliance with the risk area and motivation in the risk area [3]; These are summarized in the following sections.

4.2.1 Throat in risk area

It is a matter of identifying at the right time which areas the top performers will not be in the future. To examine this, the following questions are in the background:

What are the key competencies of the future?

Is the position of important employees strategically protected?

How will the little need for staff change in the future?

How do the quality requirements created by employees change according to new service or technology goals?

4.2.2. Exit from the risk area

The outflow of top performers creates high risk potential overall, especially in long-term projects where the project manager is a trusted person for the real estate developer. The main reasons why employees leave a company are: new challenges, more responsibility for decisions, better professional expectations due to the development of position and a better perspective for new companies.

The following factors reduce the risk of exit and should be considered by business management: good business climate, favorable conditions for employee development, major non-financial incentives in a part of the company, performance-appropriate pay structures, appropriate organizational structures and the symbolic allocation of power potentials.

4.2.3 Risk compliance

Employees who are mistakenly recognized as eligible for compliance risks. Avoiding leave is essential as a step towards regaining new competence or competencies. Here, in construction projects due to technical and legal changes, more training courses are needed for employees. In the field of changing construction project management services, strengthening services in the implementation of construction work should be considered.

4.2.4. Motivation in the field of risk

Different services in many cases pose a major risk. Burnout of employees or people who are only called by the name of the employee are typical examples. The following behavioral hazards indicate those who have quit:

Lack of initiative

Excessively consistent behavior

Avoid antagonism

Lack of constructive criticism

Accepting responsibility for work cases is easier

Show less competencies available

Possible tools to reduce risks in the personnel department include: developing progressive people in a targeted manner, leading management and employees, forcing the company to identify itself through the relevant organizational culture, and motivating it by giving it more freedom and self-development.

5. Conclusion

Effective risk management must permeate all areas, functions and processes of a project. Therefore, the goal should include dealing with (negotiating) risks, assessing risks or even making the risks available in the market and definitively reducing them. In this case, the determining factor in its success is displayed at the end of the interaction of all elements. All project stakeholders who have adopted and experienced a risk culture are influenced by a communication classification that can protect the effectiveness of structural and organizational risk management measures. The key is the parties involved in risk management. Effective risk management requires commitment as well as the conscious behavior of each individual towards risk. The motivation as well as the interaction of the involved parties in the project at the end, determines the quality of work and consequently the success of the project.

If risk management is successfully installed in the project, it will provide a chance to achieve a clear understanding of the goals, tasks and contents of services and feasibility of the project. It provides information based on quantitative data that is sorted by size to support decisions, for example, such as choosing between costs and product implementation or comparing several possible options. However, this requires a high quality of information status to always be available so that decisions can be made based on usable and comprehensive information. Therefore, risk management can be effectively implemented and enforced if communication channels are created in companies that ensure the guidance of information in the relevant places to each case.

Using risk management, the overall risk of a project is divided into separate risks. To do this, you can use the relevant measures. However, the remaining risks still exist. This is a strategic decision: are the risks considered and can they be tolerated if they occur?

Reference

- Ewelina Gjewaska & Mikaela Ropel 2011. *Risk management practices in a construction project*
- Elkingtin P. and Sallman C. 2002. *Managing project risks*
- Dhillon B.S. 1989. *Life Cycle Costing*
- Lester A. 2007. *Project management, planning and control*
- Potts. 2008. *Construction cost management, learning from case studies*