



جامعة الجميع الذكية
EVERYONE'S SMART UNIVERSITY

Everyone's Smart University

Project (Spring 2021)

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Section

Master

Date

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Project Risk Management

Instructions:

- اخر موعد للتسليم هو يوم الخميس 2021-05-20 في تمام الساعة ٩ مساءً.
- الإجابة متاحة باللغة الإنجليزية أو اللغة العربية مع مراعاة أن تكون المصطلحات العلمية باللغة الإنجليزية.
- يتم تسليم المشروع في صيغة ملف pdf مع الالتزام نموذج الجامعة ولن تقبل أي مستندات أخرى.
- يجب مراعاة أقسام البحث الرئيسية (مقدمة Introduction، دراسات علمية سابقة Literature Review، طريقة البحث Methodology، النتائج والمناقشة Results and Discussion، وأخيراً المراجع References. وان كان هناك ملحقات Appendices يتم إضافتها)
- يجب الالتزام بـ Theme موحد كما يلي:
- حجم الخط 12.
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- عدد صفحات البحث (لا يقل عن ثلاث صفحات ولا يزيد عن ست صفحات).

Instructor's Name: Eng. Mosaab M. Hamed

Table 1: List of risks

No.	Risk	Probability	Impact
1.	Labor shortages	0.3	0.1
2.	Poor project management,	0.2	0.3
3.	Unknown site conditions,	0.5	0.4
4.	Injuries	0.8	0.7
5.	Unexpected increased costs	0.7	0.3
6.	Material costs inflation	0.9	0.2
7.	Natural disasters	0.2	0.9

Table 2: Risk mitigation matrix

No.	Risk	Probability	Impact	Severity	Response plan	Mitigate Action
8.	Labor shortages	0.3	0.1	Low	Plan for an adequate number of workers	Hire more workers
9.	Poor project management,	0.2	0.3	Low	Create a proper project plan	Develop and regularly check the project plan
10.	Unknown site conditions,	0.5	0.4	Medium	Plan to conduct a site survey	Conduct a site survey prior to the project onset
11.	Injuries	0.8	0.7	Medium	Protect the site and provide them with PPE	Provide PPE

12.	Unexpected increased costs	0.7	0.3	Low	Create a budget for the project	Allocate adequate funds for the project
13.	Material costs inflation	0.9	0.2	Low	Create a budget for the project	Allocate adequate funds for the purchase of materials
14.	Natural disasters	0.2	0.9	High	Study weather patterns to prepare for flooding and other disasters	Dig trenches to prevent flooding

Table 3: Expected Monetary Value (EMV) for all risks

No.	Risk	Probability	Impact cost SR	Risk contingency
1.	Labor shortages	0.3	450	150
2.	Poor project management,	0.2	300	450
3.	Unknown site conditions,	0.5	750	600
4.	Injuries	0.8	1200	1050
5.	Unexpected increased costs	0.7	1050	450
6.	Material costs inflation	0.9	1350	300
7.	Natural disasters	0.2	300	1350
	Total		5400	4350

A construction project has several potential risks as it involves the use of various risky tools and equipment. Furthermore, some of the activities involved in the project are quite strenuous and could also cause injury. To reduce the risk levels in the project, the

team should ensure that there is proper planning and organization to avoid the risks. This includes the application of measures such as proper control and monitoring. Some of the potential risks include labor shortages, poor project management, unknown site conditions, safety hazards leading to workers' injuries, unexpected increased costs, material costs, and natural disasters such as site flooding. However, every type of risk has a cost impact on the project. It affects the overall project. According to the agile methodology, applying any changes would disrupt the overall project plan. The risks are experienced in all stages or milestones of the project including during the pre-construction phase of the project and in the process of construction (Szymański, 2017, p. 180). Risk identification is conducted by the project team and stakeholders, such as the clients, design team, advertisers, contractors, and project managers.

The goal of the identification process is to determine all possible risks and any harmful activity that could trigger and affect the project. The risk identification process involves using expertise, professional knowledge from team members, and experiences from the team. It is also important to note that the process evaluates and reviews past projects, with similar make and scope, to understand and identify the likelihood and potentiality of the risks to take place and what should be done to prevent the risks from taking place. The best way to prevent risk from taking place is to manage the vulnerabilities through research information and experience (Szymański, 2017, p. 179). Management of risks is done by holding frequent meetings, such as weekly assessments of the progress and identifying any rising issue that could be mitigated before getting out of hand in the future.

Once the potential risks are identified, assessing the risk is the following process determined by the probability of the risk from taking place or becoming a reality in the future. However, the risk impacts are ranked in various levels, the high, the medium, and the low. High impacts risks are addressed before the low risks, and other risks are reviewed to determine the process of eliminating or preventing them. The process of grouping the risk is also known as risk classification. The risks are categorized based on the nature of the risk and the cause of the risks (Szymański, 2017, p. 179). For instance, risks caused by external and internal factors. The risks are categorized according to the class of effect. Examples include technological risks, economic risks, physical risks, political risks, economic risks, global risks, and local risks.

Grouping is determined by the status of the project. This is informed by factors such as its location, priority, or importance to the people involved. For example, the construction of a house to improve the welfare of homeless people could be considered as a local project. The project risks are classified into organizational risks, external risks, environmental risks, such as unexpected site issues, technical and project management issues, such as poor planning, and budgeting, which raises issues, such as inadequate resources. Some of the external risks include fiscal policies, natural forces (Szymański,

2017, p. 179). Other project management risks include poor estimation risks, insurance projects, delays, quality concerns, poor scoping, contractual issues, and quality concerns.

The risks can be avoided, eliminated, reduced, transferred, or accepted. Negotiating the contract is one way to assist in managing the risks, or decide to transfer the project risk to the required person, such as the clients, or involve an insurance company in case the risks occur. Working with an insurance company assists in understanding the type of risks covered by the policy and other options of protecting the company against risks (Szymański, 2017, p. 181). Eliminating the reduction of risks and accepting risks are other ways of managing the risks such as hiring more laborers, adding required materials to void delaying the project, or disrupting the project plan and schedule. The specific mitigation strategies for the risks identified include:

- ✓ Labor shortages: Hire more workers
- ✓ Poor project management: Develop and regularly check the project plan
- ✓ Unknown site conditions: Conduct a site survey prior to the project onset
- ✓ Injuries: Secure the site and provide PPE for the workers
- ✓ Unexpected increased costs: Allocate adequate funds for the project
- ✓ Material costs inflation: Allocate adequate funds for the purchase of materials
- ✓ Natural disasters: Dig trenches to prevent flooding

Risk management can be conducted using several tools, which depend on the organizational policy, the project management, and the project team members. The risk management process can be conducted through a Risk Assessor Model (RAM). The model, however, provides justifications that are quantitatively provided to avoid the risk of uncertainty. Risk of uncertainties, which are involved in construction projects. The risk management process begins with risk identification, risk analysis, risk evaluation, risk treatment, and monitoring (Raz, and Michael, 2001 p. 6). A risk mitigation strategy is fundamental, especially in reducing the likelihood of the risk occurring again in the future and minimizing the effects and impacts of the risks (Szymański, 2017, p. 176). Risk avoidance assistance involves choosing other alternatives to lower the risk level. In contrast, risk acceptance will involve accepting the outcome of the especially when the causing factors cannot be avoided or eliminated.

References

- Raz, T. and Michael, E., 2001. Use and benefits of tools for project risk management. *International journal of project management*, 19(1), pp.9-17.
- Szymański, P., 2017. Risk management in construction projects. *Procedia Engineering*, 208, pp.174-182.