



جامعة الجميع الذكية
EVERYONE'S SMART UNIVERSITY

Everyone's Smart University

Project(Spring 2021)

Student Name	موسى أحمد محمد سويد	اسم الطالب
Students I.D	2021200013	الرقم الجامعي

Section

Master

Date

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Course Code

(PMG510)

Project Risk Management

Instructions:

- آخر موعد للتسليم هو يوم السبت 08-05-2021 في تمام الساعة 9 مساءً.
- الإجابة متاحة باللغة الإنجليزية أو اللغة العربية مع مراعاة أن تكون المصطلحات العلمية باللغة الانجليزية.
- 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 ١٢.
- نوع الخط Arial.
- لون الخط أسود.
- المسافة بين الأسطر line spacing 1.5
- عدد صفحات البحث (لا يقل عن ثلاث صفحات ولا يزيد عن ست صفحات).

Instructor's Name: Eng. Mosaab M. Hamed

Project:

Risk Identification and Analysis (Based on the project you chose in APM)

The objective of this report is to identify project risks, prepare a risk probability matrix, and carry out an analysis of selected risks. Referring to the project you select in **Advanced projects management APM course**, your task is to prepare a risk management plan that identifies potential risks in **the selected stage of the project** and identify risk management strategies.

From the course content and readings, you know that the overall purpose of risk planning is to anticipate possible risk events and be ready to take appropriate action when risk events occur—to eliminate or reduce negative impacts on the project.

You may wish to begin this exercise with a brainstorming about potential risks to get candidate risks “on the table” for consideration. And then identify and refine that wording for risks that have some realistic chance of occurring in this stage. For example, potential weather problems present a real obstacle to completing field data collection by the planned completion date. It is also an issue that the project manager will ultimately have to plan for, as opposed to other issues such as a major disaster (e.g., your office burning down), is not a high-enough probability event that requires much time in planning. As described below, you will select several of the identified risks and carry out a risk analysis.

You will use the distilled list of risks to make a risk probability/impact matrix. The matrix will have at least three categories (high/medium/low) for probability and impact.

Remember that it is important to name risks effectively—use words that describe the risk event and point to the impact on the project (e.g., “injury of field technician disrupts data installation work”).

After completion of the risk matrix, document a risk analysis for the selected risks. This detailed documentation for that selected risk will include:

- a description of the risk and potential impacts (schedule, quality of work, cost, etc.) on the project.
- indicators or triggers that would be monitored to help identify the risk as early as possible.
- specific risk response strategies to take.

Using probability and impact matrix calculate the **Expected Monetary Value (EMV)** for all risks that have the impact in terms of cost \$\$.

Best of luck...

المشروع:

التعرف على المخاطر وتحليلها (بحث مبني على مشروعك الذي اخترته في مادة ادارة المشاريع المتقدمة)

الغرض من هذا التقرير هو التعرف على المخاطر المحيطة بالمرحلة التي تختارها المرحلة من مراحل مشروعك (نفس المرحلة التي اخترت التطرق لها في مشروعك لمادة إدارة المشاريع المتقدمة Advanced project management) حيث أن مهمتك هي تحضير خطة متكاملة لإدارة المخاطر تشمل التعريف بالمخاطر المحتملة التي تحيط بتلك المرحلة وتحضير مصفوفة احتمالية المخاطر ومن ثم القيام بالتحليل لهذه المخاطر المختارة وتحديد استراتيجيات إدارة المخاطر المناسبة لكل خطر على حدة.

من محتويات المقرر والمصادر الأخرى المتاحة أصبحت تعلم الآن أن الغرض العام لمرحلة التخطيط للمخاطر هي توقع أحداث المخاطر المحتملة والتجهز لاتخاذ ردة الفعل المناسبة عند وقوع الخطر - لمنع أو تقليل الآثار السلبية على المشروع.

قد تحبذ بداية هذا البحث بعصف ذهني عن ماهية المخاطر التي قد تحيط بتلك المرحلة من مراحل مشروعك, وذلك للحصول على قائمة بتلك المخاطر. ومن ثم تحديد وتصنيف هذه القائمة للوصول إلى قائمة مختصرة بالمخاطر التي لها فرصة واقعية أكبر في الحدوث. على سبيل المثال: المشاكل الجوية المتوقعة والتي تمثل عقبة حقيقية أمام اكتمال جمع البيانات من المواقع في أو قبل الوقت المحدد، هذه تعتبر مشكلة على مدير المشاريع أن يضعها في الحسبان. من ناحية أخرى، فإن المخاطر غير الواقعية مثل الكوارث الطبيعية والأعاصير (تلك التي تسبب حريقاً بمكتبك وفقدان الأوراق المهمة) ليست لها احتمالية وقوع عالية وبالتالي لاتستدعي تضيق الكثير من الوقت في التخطيط لها. كما سيتبين لك، ستقوم باختيار عدة مخاطر من تلك التي قمت بالتعرف عليها لتحليلها.

ستقوم باستخدام هذه القائمة المختصرة لعمل مصفوفة المخاطر (الاحتمالية/الأثر). المصفوفة ستحتوي على الأقل على ثلاث تصنيفات (عالي/متوسط/منخفض) للإحتمالية والأثر.

لاتنس استخدام أسماء تصف طبيعة المخاطر بصورة فعالة - قم باستخدام كلمات تصف الحادثة الخطرة وتشير إلى أثرها على المشروع (مثل: إصابة أحد الفنيين في الموقع مما يؤثر على أعمال التركيب).

بعد انتهاءك من مصفوفة المخاطر، قم بتوثيق تحليلك للمخاطر المختارة. هذا التسجيل المفصل للمخاطر يجب أن يتضمن:

- وصف للخطر واثاره المحتملة (الجدولة، جودة العمل، التكلفة، الخ)
- المؤشرات والمحفزات التي يجب مراقبتها للمساعدة في التعرف على هذا الخطر قبل وقوعه
- تفصيل للاستجابة المقترحة للتصدي لهذا الخطر

باستخدام مصفوفة الاحتمالات والتأثير ، احسب القيمة النقدية المتوقعة (EMV) لجميع المخاطر التي لها تأثير من حيث التكلفة \$\$.

مع تمنياتي بالتوفيق..

Risk in Construction Companies

Consolidated Contractors Company

Introduction

Construction projects are distinguished by their peculiarities and the multitude of factors affecting them. This makes it subject to uncertainty and risks that may affect the project objectives (cost, time, quality and occupational safety). This paper reviews the risks in construction projects, their impact on project objectives, and aims to develop a structure to manage these risks. In this paper, the risks in construction projects were determined based on the reference study and on a number of interviews with experts in the construction industry and Risk management is considered one of the most vital problems that affect the project's progress effectively, so we must know it scientifically because the increase in risk within any project turns into a problem and can be codified. Risks by studying the types of these risks and determining them more precisely. Risk management is considered a tool or A method that can be practiced to avoid losses as much as possible, due to the possibility of continuing the work as it was found inside Building and construction projects to address the results of the remaining risks within the project .

Literature review

Risk management starts with a review of all relevant information, particularly from combined risk appraisal, consisting of both risk assessment and concern assessment where the latter is based on risk perception studies, economic impact assessments and the scientific characterization of social responses to the risk source.(Terje Aven,2010)

Unexpected increase in cost and delays in construction projects are caused by owner, contractor, environments, etc. in which several types of risk factors may occur concurrently. The effect of cost overrun and schedule overrun do not only influence the construction industry but the overall economy as well.(ABD EL-KARIM,2015)

Methodology

This research is conducted to formulate a framework and the descriptive approach for project risk management by evaluating the current understanding and practices. It examines the risk management processes provided by the various standards, frameworks and guidelines available.

Risk Management

The objective of risk management in construction projects is that the implementation of these projects must be according to the approved budget, on time, and with the required specifications.(McNamara,2008)

Risk Identification

This stage aims to discover and identify the potential risks that the project may be exposed to and that could threaten the objectives of the project.

No	Risk Description	Risk		
		P	S	P*S
1	Mismatch of raw materials and building materials	5	5	25
2	High costs of transporting materials	4	5	20
3	The time period required to implement the project	3	5	15
4	Hidden defects	3	5	15
5	Site conditions	3	4	12
6	Unallocated subcontractors	2	5	10
7	Efficiency of the project manager	2	4	8
8	Bad weather conditions	2	4	8
9	Absence of an insurance culture	1	5	5
10	Design errors	1	3	3
11	Lack of coordination	1	3	3
12	Permits	1	2	2

Risk Matrix

		Risk Severity				
		Catastrophic -5	Hazardous - 4	Major - 3	Minor - 2	Negligible – 1
Risk Probability	Frequent - 5	25				
	Occas`ional - 4	20				
	Remote - 3	15 15	12			
	Improbable - 2	10	8 8			
	Extremely improbable - 1	5		3 3	2	

Abbreviation : (low - medium - high)

EMV

No. Risk	P	I (cost SR)	EMV
1	50%	10000	5000
2	40%	18000	7200
3	30%	50000	15000
4	30%	15000	4500
5	30%	10000	3000
6	20%	50000	10000
7	20%	50000	10000
8	20%	30000	6000
9	10%	25000	2500
10	10%	30000	3000
11	10%	20000	2000
12	10%	15000	1500
Total EMV = 69700			

Risk and triggers

No	Risks	Project stage	The Description	Impact	Mitigation measure	Impact on project
1	Mismatch of raw materials and building materials	-Execution	The possibility that the materials provided or supplied on the site do not meet the required conditions	It led to a lot of downtime as a result of the difference in quality	- Specifications must be clear - Monitor supplies periodically	- Not adhering to the schedule - Increase project cost
2	High costs of transporting materials	- Visualization and initial studies -Execution	No suitable places have been allocated for storage inside or outside the site	It delayed supplies and then delayed site work	Security allocation for storage before starting the project	- Not adhering to the schedule - Increase project cost
3	The time period required to implement the project	-Execution	Failure to start and finish work according to the schedule	-Delay with which it is not possible to start the business according to the schedule - Delayed by differences	- Performance monitoring - Appointing a body to approve the achievement	- Not adhering to the schedule - Increase project cost
4	Hidden defects	-Execution	Damage caused by hidden defects in equipment and facilities	The effect on the project construction activities and can be stopped until the defects are resolved and remedied	- Facilities are designed and constructed according to specifications - Exhibiting the legal necessary care through the necessary studies and examination of the facilities	- Not adhering to the schedule - Increase project cost
5	Site conditions	- Visualization and initial studies	Site conditions are taken into account from unexpected traffic and density	Delaying the project schedule and thus delaying the project entirely	Updating the schedule and redistributing the work in a way that does not affect the delivery time	- Not adhering to the schedule
6	Unallocated	-Execution	The risks of liquidating the	The effect on the project	-The subcontractor	- Not adhering

	subcontractors		subcontractor's business or not being able to fulfill its contractual burdens	construction activities and can be stopped until the defects are resolved and remedied	must have the necessary experience and expertise - Obtaining the prior approval of the regulatory authority	to the schedule - Increase project cost
7	Efficiency of the project manager	- Visualization and initial studies	The right choice for the project manager (competence + experience)	- The lack of a plan to implement the project - Lack of control or problem solving	Change the project manager or support him with the required competencies	- Not adhering to the schedule
8	Bad weather conditions	- Visualization and initial studies	Weather fluctuations are not taken in schedule	This led to the disruption of work on the site and the delay of the project	Update business timesheets (monthly or weekly)	- Not adhering to the schedule - Increase project cost
9	Absence of an insurance culture	- Visualization and initial studies -Execution	The project may face a serious problem in securing the site because it is open without fences and difficult to define and or control	Disruption of work on the site, as well as the difficulty of transportation and storage	- Presence of security personnel - Make an integrated system (surveillance cameras + fire extinguishing)	- Not adhering to the schedule - Increase project cost
10	Design errors	- Visualization and initial studies -Design stage	Not making sufficient studies for the site or making an incomplete design	Possibility of mismatch between designs or project output specifications	- Preparing clear designs and drawings - Consult with the owner to approve designs - Hire the services of an independent consultant	- Increase project cost
11	Lack of coordination	- Visualization and initial studies -Execution	Lack of coordination between the project parties (electrical - plumbing - air conditioning)	It led to many disputes between technicians and workers	Treating holes and crushing works in concrete	- Not adhering to the schedule - Increase project cost
12	Permits	- Visualization	Failure to obtain permits, delay or	It causes difficulty in delivering the	Obtaining all approvals before	- Not adhering to the

		and initial studies	approval in obtaining them	project in a timely manner and negatively affects the schedule	concluding the project contract	schedule - Increase project cost
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Results and Discussion

- 1- Inflationary risks (cost of materials - permits - insurance - transportation costs) are among the main risks facing general contracting companies.
- 2- Decreased ability to schedule work phases in time as a result of sudden and unexpected events that may appear suddenly.
- 3- At the beginning of any project, any risks that may affect the project must be identified and ranked in terms of impact (highest - average – lowest).
- 4- The absence of a risk management culture is a major threat because it keeps the bulk of the risks unknown, and thus its effects and consequences unknown.

References :

- 1- Terje Aven, Ortwin Renn ,Risk Management and Governance, 121-158,(2010)
- 2- ABD EL-KARIM, M; NAWAWY, O; ABDEL-ALIM, A. Identification and assessment of risk factors affecting construction projects. (2015)
- 3- McNamara , Authenticity Consulting. (2008)

4- Fundamental Risk Management.

