



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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Course Code

(PMG510)

Project Risk Management

Instructions:

- اخر موعد للتسليم هو يوم السبت 2021-05-08 في تمام الساعة ٩ 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 12.
- 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 ادارة 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 وتصفية 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 الى 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..

**Al-Sadafa Roundabout Develop and
Rehabilitation
Project Risk Management
(PMG510)**

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Introduction:

This paper reviews the Risk of the project and identification of the anticipated hazards followed to achieve the desired goal. My role as Project Manager in this research will be to present a clear methodology for preventive and response risk control. whereas; the project is (Al-Sadafa Roundabout Develop and Rehabilitation) in Dammam city , on AL Khaleg Road. Construction projects are always unique and risks raise from a number of the different sources Construction projects are inherently complex and dynamic, and involving multiple feedback processes. A lot of participants – individuals and organizations are actively involved in the construction project, and they interests may be positively or negatively affected as a result of the project execution or project completion.

Different participants with different experience and skills usually have different expectations and interests.

This naturally creates problems and confusion for even the most experienced project managers and contractors. Risk management in construction is designed to plan, monitor and control those measures needed to prevent exposure to risk. To do this it is necessary to identify the hazard, assess the extent of the risk, provide measures to control the risk and manage any residual risks.

The nature of the construction projects makes the industry unique in that the manufacturing facility or plant must move to the construction site (Dammam).

There are many different descriptions of the construction industry, drawn from different specialist disciplines. This vagueness is compounded by the fact that the construction involves such a wide range of activity that the industry's external boundaries are also unclear. For example, the term "construction" can include the erection, repair, and demolition of things and diverse as roundabout, offices, shapes, dams, etc.

Construction is difficult to comprehend fully because the relationships between the parts are not always clear and the boundaries of the industry may be characterized as:

- It is fragmented
- It is sensitive to economic cycles
- There are extraordinary diversity of professions, specialists and suppliers

It is largely affected by external environments Construction Risk Management Process

The image below shows a risk assessment procedure and illustrates the concept of residual risk, that is, those risks that have not been identified or that remain/persist following risk control measures.

Concept of Risk management (RM) is used in all industries, from IT related business, automobile or pharmaceutical business, to the construction sector. Every business/industry has developed their own RM standards; however, the overall concepts or the idea usually stay the same regardless of the sector. According to the Project Management Institute (PMI) (2004), Project risk management is one of the nine most crucial elements of project authorization. This indicates a strong relationship between managing risks and project success. While RM is delineated because the most troublesome space inside construction management (Winch, 2002; Potts 2008) its usually, the construction projects are exposed to risks at the time of their coming into existence. In the various stages, it must first of all be considered what risks the principal would like to counter with measures and how costly these measures are. For this, risks, possible risk costs, measures and costs of the measures must be identified and suitable measures must be found in order to avoid errors in the future. The willingness of the real estate developers to take a risk that causes costs is common to all construction projects.

The importance of risk identification stems from the fact that as a business owner, it pays to be prepared for all possible risks that could occur for your business. Businesses that are proactive in implementing stringent inlying and outlying risk identification protocols are more like to gain a valuable understanding of the evolving needs of their operations.

Whether that has to do with future expansions, upsizing, downsizing, or relocations, there are a lot of potential risk factors that need to be taken into consideration. As the saying goes, hindsight is twenty-twenty, but foresight is better. That's where risk identification and management come in handy. Here are some of the benefits of risk identification.

Literature and review:

The need for risk management recent decades have been characterized by a vast proliferation of risk management. There are a number of potential explanations for the increased interest in this subject.

They are many and varied and include:

- ✧ increases in technology.
- ✧ tighter financial constraints.
- ✧ location of the project.
- ✧ more consequential risks.
- ✧ projects growing larger and more complex.
- ✧ more public interest to decrease risk and improve safety.
- ✧ familiarity with the type of work.
- ✧ environmental factors.

Risk management in Project includes the processes concerned with risk identification, its analysis, and responding to project risk. The process also includes maximizing the results of positive events and minimizing the consequences of adverse events.

Generally, risk is a choice in an environment rather than fate.

The objective of this research and the overall aim of this study is to let everyone know what risk is management. Realize the course of action of risk management in the construction project and have a deeper study on the application of risk management in the construction industry during the entire phase of construction not just the scope of the work but from the Estimate to the execution state.

The other objectives of the research are as follows:

- ✂ To assess and understand the most common and major risk which may cause delay, accident, or any other major loss in the process of construction.

- ✂ To recognize and evaluate current risks and uncertainties in the construction industry.

- ✂ To investigate the nature of risk and uncertainty in a construction company arising from the projects it undertakes.

- ✂ To investigate the link between project and company risk.

- ✂ To assess the efficiency of current methods, and techniques employed to manage those risks.

Methodology

There is never a time when a construction project is not going to take at least a little risk with their project. In that sense, it is no exaggeration to claim that an exhaustive risk management plan is a 'must have' in this construction operation.

Nevertheless, putting together a functional risk management plan isn't always that easy. Each project needs to determine if the potential risks for each project worth their time and possibly some of their profits.

The proposed risk methodology shall contain the following steps:

- Identify processes and situations that may cause harm, particularly to people.
- Determine how likely it is that each hazard will occur and how severe the consequences would be.
- Decide what steps the project manager shall take to stop these hazards from occurring or to control the risk.

Moreover, in this project here are some of the most crucial risk factors that construction companies encounter on a day-to-day basis and we aim to follow these general risk factors in our project which are as follows:

- Providing an analysis of possible threats
- Preventing injuries or illnesses
- Meeting legal requirements
- Creating awareness about hazards and risk
- Creating an accurate inventory of available assets
- Justifying the costs of managing risks
- Determining the budget to remediate risks
- Understanding the return on investment.

Risk Management Strategy:

This risk management strategy will be followed in Al-Sadafa Roundabout Develop and Rehabilitation and we will have a risk management team of a construction that will weigh all of the above as well as create a plan to lower the risk of the project by using clear methodology for preventive and response control. The team will then monitor and control every item within the plan to ensure that the risks stay at a minimum.

Identify the risk & Risk Matrix

Brainstorming is the first step to identify all the possible risk. So, the team will go through the process by setting up a table consisted of the risk that the project might encounter during the selected phase and this will help us to find out the risk probabilities and its impacts.

The second step will be the risk matrix by making risk Assessment Matrix in our project and it is also known as a Probability and Severity risk matrix, the team designed to help us to minimize the probability of potential risk to optimize project performance in each phase and in all the aspects.

Essentially, a Risk Matrix is a visual depiction of the risks affecting a project to enable us to develop a mitigation strategy.

As detailed above things will go awry, and when they do the bottlenecks created in projects impact the bottom-line not to mention the delivery timelines.

Therefore, the team including myself as Project manager we set up the below table which identified the types of the risk, why is it risk, what is likelihood of the risk, how great is the impact and what strategy we will use for each risk.

The risks facing by (Al-Sadafa Roundabout Develop and Rehabilitation Project)	Why is this risk	What type of risk is it?	What is the likelihood of the risk? How great is the impact	What strategy or policy does the risk management team in the project & PM use to manage the risk?
- Work permit to establish the required job & other legal issues	- Governmental procedures and processes which may	- Legal and compliance risk	- Moderate likelihood - Impact moderate to high	- Liaising with the concerned parties early in the project inhiation and

	- lead to delay the project - Administration overhead			assign government relation officer.
- Logistics and Supply chain issues	- Interruptions in the supply chain, fluctuation in prices, geopolitical issues.	- Operation and Inflation risk	- Moderate likelihood - Impact moderate to high	- Conduct early meeting and purchases and make reserve for important materials. - Create a preliminary agreement with the several suppliers
- Safety & Workplace accidents	- slips and trips, transportation accidents, structural failure, mechanical breakdowns	- Health and safety risk	- High likelihood - High impact on the project execution	- Assign a safety officers around the campus - Create a strong safety plan and procedures.
- Money flow & financing of the project	- The budget may overrun	- Financial risk	- High to moderate likelihood - High impact on the project completion	- Review short- and long-term debt. Determine the affect for interest rates rise. - Identify any clients who represent more than 10% of

				your total revenues. - Carefully review the client.
- Environmental hazards	Natural disasters such as flooding, tornadoes, hurricanes, earthquakes, fire, etc.	Environmental risk	- Low to Moderate likelihood - Moderate to high impact	- Keep close eye on the weather forecast and local news regarding climate change.
- Project duration & Critical path	- Delay in the project plan & project closure deadline	Dispute and contractual risk	- Moderate to high - High impact on the project	- calculate the SPI and CPI and monitor the activities duration on regular biases - conduct project processes in parallel

Result and Discussion

From the above table which indicates how to mitigate the risk and the probability of it's impact. It is significant to monitor and document all of the risks which shall have an impact on the project delivery, keeping in mind all of which can help us to achieve the required result and milestones.

The table illustrate and summarize which risk to encounter, it's impact and how to mitigate it. The colors identify the level severity of each risk (Green, yellow and Red).

Following the suggested strategy by the PM and the project team.

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