



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 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 ادارة المخاطر المناسبة لكل خطر على حدة.

من محتويات المقرر والمصادر الأخرى المتاحة أصبحت تعلم الان أن الغرض العام لمرحلة التخطيط للمخاطر هي توقع أحداث المخاطر المحتملة والتجهز لاتخاذ ردة الفعل المناسبة عند وقوع الخطر – لمنع أو تقليل الاثار 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..

## Project finalization procedure – Build a new branch for Al Rajhi Bank in Ohad rofaidah

- Introduction:

As project manager for Build a new branch for Al Rajhi Bank in Ohad rofaidah .The project is one of Alrajhi bank expansion plan in 2021. Project contains a new Alrajhi bank branch and remittance center on total built up area 600 M<sup>2</sup>. Project aim to increase efficiency in services provided to customers and reduce crowd in other branches in Ohad rofaidah. The project now in closing stage and our team work in current procedure for finalization.

Construction is a risky business. Each construction project is unique and has its own group of challenges and opportunities. Identifying and managing construction project risks is tricky and need to planed carefully. Risks are not always a negative. Risks can be positive. Identify and manage risks effectively lead to increased profits and decrease loss. For proper construction risk management, you need to know the types of risks inherent in construction projects. These can be caused by both internal and external sources.

During the closeout phase, The successes and failures of the risk management plan are summarized and saved with the project documentation to add to the lessons learned.

- Literature Review:

The first step in creating an effective risk-management system is to understand the qualitative distinctions among the types of risks that project face. A field research shows that divided to three categories. The three categories are preventable risks, strategy risks and external risks. Risk events from any category can be fatal to a company's strategy and even to its survival. After categorized risks we have to analyzed their probabilities and impact and applied proper risk response. (Managing Risks: a new framework, Robert S. Kaplan And Anette Mikes, 2012)

Avoid is best strategy to manage a risk. If avoid is not an option we can use following options:

- Mitigate
- Transfer

- Escalate
- Accept

Develop a risk response plan may cause another risk. This risk is called a secondary risk. Keep maintaining these risks and do necessary action to avoid them. If you can not avoid a secondary risk, you will analyze it and develop a risk response plan.

- Methodology:

Qualitative risk analysis has applied in this research. Risks will assess based on probability of occur and their impact on the project by using probability impact matrix. probability impact matrix rates risk as low (green), moderate (yellow), or high (red) impact on the project.

The risk probability scale, risk impact scale and Probability impact matrix defined for the project are presented on Table 1, Table 2 and Table 3, respectively. Relation between the project risk impact and the adequate risk response presented on table 4.

Table1: Probability scale used on the project.

|             | Very Low<br>0.1                   | Low<br>0.3        | Moderate<br>0.5 | High<br>0.7          | Very High<br>0.9 |
|-------------|-----------------------------------|-------------------|-----------------|----------------------|------------------|
| Probability | A very minute chance of occurring | Unlikely to occur | May occur       | Very likely to occur | Almost here!     |

Table 2: Impact scale used on the project.

| Project objectives | Very low (VL)<br>0,05               | Low (L)<br>0,1                           | Moderate (M)<br>0,2                             | High (H)<br>0,4                              | Very High (VH)<br>0,8              |
|--------------------|-------------------------------------|------------------------------------------|-------------------------------------------------|----------------------------------------------|------------------------------------|
| Cost               | Insignificant increasing            | <5% cost increasing                      | 5-10% cost increasing                           | 10-20% cost increasing                       | >20% cost increasing               |
| Chronogram         | Insignificant delay                 | <5% total delay on the chronogram        | 5-10% total delay on the chronogram             | 10-20% total delay on the chronogram         | >20% total delay on the chronogram |
| Scope              | Almost unnoticeable scope reduction | Minor scope areas are affected           | Relevant scope areas are affected               | Unacceptable scope reduction                 | Unsuitable final product           |
| Quality            | Almost imperceptible degradation    | Only more demanding application affected | Quality reduction requires client authorization | Quality reduction unacceptable to the client | Useless final product              |

Table 3: Probability impact matrix.

| Probability            | Impact  |      |      |      |      |
|------------------------|---------|------|------|------|------|
|                        | 0,05    | 0,1  | 0,2  | 0,4  | 0,8  |
| <b>0,9</b>             | 0,05    | 0,09 | 0,18 | 0,36 | 0,72 |
| <b>0,7</b>             | 0,04    | 0,07 | 0,14 | 0,28 | 0,56 |
| <b>0,5</b>             | 0,03    | 0,05 | 0,10 | 0,20 | 0,40 |
| <b>0,3</b>             | 0,02    | 0,03 | 0,06 | 0,12 | 0,24 |
| <b>0,1</b>             | 0,01    | 0,01 | 0,02 | 0,04 | 0,08 |
| Color code constraints | between | 0,00 | and  | 0,05 |      |
|                        | between | 0,06 | and  | 0,14 |      |
|                        | between | 0,15 | and  | 1    |      |

Table 4: Relation between the project risk impact and the adequate risk response

|  | Project impact | Monitoring             | Response                     |
|--|----------------|------------------------|------------------------------|
|  | High           | Urgent attention       | Preventive: Avoid            |
|  | Moderate       | Periodic risk revision | Contingency: Reduce/Mitigate |
|  | Low            | Control                | Corrective: Mitigate/Accept  |

- Results and Discussion:

We applied probability impact matrix based on table 3. Which give us the level of each risk in below table 5:

Table 5:

| Risk Description                                                                        | Probability | Impact | Score | Risk level |
|-----------------------------------------------------------------------------------------|-------------|--------|-------|------------|
| Façade glass breaking during installation, delaying the project                         | 0.3         | 0.4    | 0.12  | moderate   |
| Inability to obtain government permits                                                  | 0.1         | 0.8    | 0.08  | moderate   |
| Loss of project documents                                                               | 0.5         | 0.4    | 0.2   | High       |
| Failure to supply long-term materials, which delays the operation of the entire project | 0.5         | 0.8    | 0.4   | High       |
| There is no water supply from municipality                                              | 0.1         | 0.4    | 0.04  | low        |

We calculate the Expected Monetary Value (EMV) for all risks that have the impact in terms of cost on the below table.

Table 6 :

| Risk Description                                                                        | Probability | Cost Impact | Risk Contingency |
|-----------------------------------------------------------------------------------------|-------------|-------------|------------------|
| Façade glass breaking during installation, delaying the project                         | 0.3         | 25000       | 7500             |
| Inability to obtain government permits                                                  | 0.1         | 100000      | 10000            |
| Loss of project documents                                                               | 0.5         | 10000       | 5000             |
| Failure to supply long-term materials, which delays the operation of the entire project | 0.5         | 150000      | 75000            |
| There is no water supply from municipality                                              | 0.1         | 8000        | 800              |
| Total                                                                                   |             |             | 98300            |

Now we will set response plan as shown in below table.

Table 7:

| Risk Description                                                                         | Risk Response Plan                                    |
|------------------------------------------------------------------------------------------|-------------------------------------------------------|
| Façade glass breaking during installation, delaying the project.                         | Follow site safety plan and installation direction.   |
| Inability to obtain government permits.                                                  | submit all requests and documents needed early.       |
| Loss of project documents.                                                               | upload documents in cloud system to avoid loss paper. |
| Failure to supply long-term materials, which delays the operation of the entire project. | approved and schedule long-term materials early.      |
| There is no water supply from municipality.                                              | supply water from private sector.                     |

Based on previous calculation we can prioritize risk according to their level. Also we calculate EMV and we set risk response plan.

## References:

-Managing Risks: a new framework, Robert S. Kaplan And Anette Mikes, 2012.

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-Risk Response Strategies in Project Management, Fahd Usmani, 2018.

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-Project Risk Management Methodology: A Case Study of an Electric Energy Organization JoanaPeixotoa, AnabelaTereso, GabrielaFernandes and RuiAlmeidab, 2014.

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