



جامعة الجميع الذكية  
EVERYONE'S SMART UNIVERSITY

## Everyone's Smart University

### Project (Spring 2021)

|              |                              |               |
|--------------|------------------------------|---------------|
| Student Name | Rayan Saeed Abdullah Alokasi | اسم الطالب    |
| Students I.D | 2021200767                   | الرقم الجامعي |

Section

Master

Date

Thursday

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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..

## Facilities management project in technical buildings and the risks facing it

### 1- Introduction :

Facilities management can be defined as the comprehensive management of all parts of the building, including maintenance, operation and manpower management in these facilities, as well as the necessary tests in electrical, mechanical and fire systems, as well as periodic cleanliness . In April 2017, the International Organization for Standardization published the ISO 41011:2017 standard for facility management, defining it as the "organizational function which integrates people, place and process within the built environment with the purpose of improving the quality of life of people and the productivity of the core business." [1].

I chose this project on facilities management for my work in this field and work for many local and international companies in the Kingdom of Saudi Arabia. The goal of these projects is the sustainability in the quality of the existing buildings and the continuity of their work over the years with minimal material damage, and since I work as an engineer in technical building management and infrastructure management, there are many aspects that need a high and good focus. In order to be able to overcome all obstacles in managing this type of project , And as I mentioned earlier that I work as an engineer in the management of technical buildings facilities and we are now in the Execution phase of the project life cycle.

When talking about risk management in general, we will find it by identifying, assessing, arranging and priorities of risks. Risks may occur from several sources such as risks of uncertainty such as financial markets or project failure at a certain stage, credit risks and accidents and there are some risks that are due to natural disasters or global diseases that afflict the world or Wars and we can say that if the results are negative, we classify them as risks, but if the results are positive, we classify them as opportunities. Risk management has been developed from many institutes such as the Institute of Project Management and some international institutions, and the methods and tools differ according to the nature of the risk, such as national security or industrial processes Or engineering or health and safety .

The selected point in the APM research was determined by legislations that may affect the project such as health and safety and because of its great importance in the project and before starting the project.

The operation and maintenance projects of the technical buildings of the communication companies represent the most important element in the success of the project because of dealing with equipment such as electrical power systems, mechanical systems and high communication towers. When talking about electrical systems, we find many risks that may affect health and safety, such as dealing with the reclamer due to the presence of electrical loads. Dealing with rectifier or chemical batteries or dealing with generators

When there is no legislation that defines these issues or the absence of a clear methodology in determining the potential risks, we will find the negative impact on the safety of workers and the impact on the capabilities of the facility and the impact on the entire community due to the failure to properly operate the technical buildings.

## **2-Literature Review :**

Some studies mentioned in risk management processes are identifying potential risks, as risks relate to events when they occur, they may be positive or negative, and after that the risk identification begins and the source must be identified and the source may be external or internal from the organization itself, it may be from the stakeholders or from the employees or from Weather or natural disasters and some studies have listed that there are some methods such as a risk chart by listing all the vulnerable elements that threaten the resources and modifying the factors that may increase or reduce the risks and consequences. Once the risks are identified, all risk management techniques fall into one or more of these The four main categories [2].

Avoidance (eliminate, withdraw from or not become involved) , Reduction (optimize – mitigate) , Sharing (transfer – outsource or insure) , Retention (accept and budget) .

The concept of "contractual risk management" emphasises the use of risk management techniques in contract deployment, i.e. managing the risks which are accepted through entry into a contract. Norwegian academic Petri Keskitalo defines "contractual risk management" as "a practical, proactive and systematical contracting method that uses contract planning and governance to manage risks connected to business activities".[3] In an article by Samuel Greengard published in 2010, two US legal cases are mentioned which emphasise the importance of having a strategy for dealing with risk [4].

## **3-Methodology :**

When talking about the risks at the level of the project in which I work, we will find that dealing with moving equipment such as generators, high-voltage electrical devices, or maintenance work in communication towers. It is also necessary to take the necessary precautions for safety equipment while dealing with the devices and the presence of safety tools close to the site operator Even there is no danger, as the field of communication projects, and lightning or rain may occur, great risks at the level of the organization and disruption of work for long hours, which affects customer requests and their service.

In order to use an organization-wide risk matrix, we will identify the risks and then consider the likelihood and impact of these risks in next page :

#### Risk Matrix :

| probability       |     | Risk score = P*I                                      |                                                                                 |                                     |                                                                                                               |                                                                         |
|-------------------|-----|-------------------------------------------------------|---------------------------------------------------------------------------------|-------------------------------------|---------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|
| certain           | 0.9 | 0.045                                                 | 0.09                                                                            | 0.18                                | 0.36                                                                                                          | 0.72                                                                    |
| Strongly probable | 0.7 | 0.035                                                 | 0.07                                                                            | 0.14                                | 0.28                                                                                                          | 0.56                                                                    |
| likely            | 0.5 | 0.025                                                 | 0.05                                                                            | 0.1                                 | 0.2                                                                                                           | 0.4                                                                     |
| might happen      | 0.3 | 0.015                                                 | 0.03                                                                            | 0.06                                | 0.12                                                                                                          | 0.24                                                                    |
| improbable        | 0.1 | 0.005                                                 | 0.01                                                                            | 0.02                                | 0.04                                                                                                          | 0.08                                                                    |
|                   |     | 0.05                                                  | 0.1                                                                             | 0.2                                 | 0.4                                                                                                           | 0.8                                                                     |
|                   |     | Light injuries<br>(Running the generator during rain) | Non-serious injuries<br>(Cleaning the air condition filter while it is working) | Serious injuries<br>(Short circuit) | Death or permanent disability of one of the operators<br>(Maintaining the rectifier without protection tools) | Several people die<br>(Failure to open automatic doors during the fire) |
|                   |     | Impact                                                |                                                                                 |                                     |                                                                                                               |                                                                         |

#### EMV :

| NO of Risk | P   | I      | EMV    |
|------------|-----|--------|--------|
| 1          | 0.1 | 5000   | 500    |
| 2          | 0.3 | 10000  | 3000   |
| 3          | 0.5 | 25000  | 12500  |
| 4          | 0.7 | 75000  | 52500  |
| 5          | 0.9 | 250000 | 225000 |

#### 4-Results & Discussion :

When we used the risk matrix technique to calculate the budget, estimated cost, and likelihood by impact

the total cost was : EMV = 293500 SR

We can say that using the available methods in the risk management decision shows us the complete picture of dealing with these risks and shows the actual cost of the risks in the facility with the introduction of safety tools and equipment and procedures that help reduce the occurrence of risks. 50 percent in the practices and methods of combating risks, and it was found that the labor culture at the level of the individual and at the level of management did not address these sciences in facing risks, and we must take correct and studied measures such as the risk matrix and the risk register so that we can overcome the risks or reduce their impact on the level of the organization

## 5- References :

- 1-Holmes, Elisa (2005). "Anti-Discrimination Rights Without Equality". *Modern Law Review*. 68 (2): 175–194. doi:10.1111/j.1468-2230.2005.00534.x. ISSN 0026-7961
- 2- Dorfman, Mark S. (2007). *Introduction to Risk Management and Insurance* (9 ed.). Englewood Cliffs, N.J: Prentice Hall. [ISBN 978-0-13-224227-1](#).
- 3- University of Tromsø, [Contractual Risk Management \(C-RM\)](#), accessed 6 January 2021
- 4-Greengard, S. (2010), [The Difference Is in the Details](#), Engineering Inc., September/October 2010, pages 13-15