



جامعة الجميع الذكية  
EVERYONE'S SMART UNIVERSITY

## Everyone's Smart University

### Project(Spring 2021)

|              |                   |               |
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Section

Master

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(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 1.5 line spacing
- 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 عتبة 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 لا تستدعي 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 وأثاره 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 Risk Management

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# Introduction

Risk is defined as an incident that has a likelihood of occurring, and could have either a positive or negative influence to a project should that risk occur.

Even though the activity is usually referred to as project risk management, it covers both risk and opportunity management. Potential positive and negative results deserve equal attention. So, the purposes of project risk management are to rise the probability and/or influence of opportunities and to decrease the probability and/or influence of risks, to develop the likelihood of project success. Risks and opportunities signify two sides of the same coin, but with a very dissimilar influence. The definitions of risks and opportunities have to focus on the differences and similarities, as follows:

- **Risks** are denoted as uncertain future actions or conditions that, if it occurs, could *negatively* impact the achievement of business, or project, aims.
- **Opportunities** are denoted as indeterminate future actions or conditions that, if it occurs, could *positively* impact the achievement of business, or project, purposes.

## Project Risk Management

Project risk management do cover all the activities and procedures of planning for risk management, documentation and examination of project risks, reply planning and implementation, and risk regulating on a project.

The seven steps are as follows:

**Step 1 - Plan Risk Management:** This comprises finalizing the methodology to be used for a project's risk management. Details can vary from one project to project.

**Step 2 - Identify risks and opportunities:** The procedure of recognizing personal project risks and chances in a manner that makes analysis possible;

**Step 3 - Perform qualitative risk analysis:** The process of evaluating and giving priority to individual project risks and opportunities for additional analysis or operation, according to their probability of occurrence and potential results;

**Step 4 - Perform quantitative risk analysis:** The procedure of accomplishment of numerical analysis to decide the most likely result of recognized high priority risks and opportunities;

**Step 5 - Plan risk responses:** The development of risk reduction alternatives, strategy selection, and agreement on defensive and likelihood actions in order to reduce the complete project risk exposure;

**Step 6 - Implement risk responses:** The process of achieving agreed-upon risk response plans by the risk owner, based on the agreed upon timeline; and

**Step 7 - Monitor risks:** Monitoring the development with the achievement of agreed-upon risk response plans, recognizing and analyzing new risks, and assessing risk process efficiency throughout the project.

Unmanaged risks may consequence in problems like schedule and/or cost overruns, achievement shortfall, or reputation loss. Opportunities which are exploited can lead to benefits like schedule and/or cost reductions, enhanced overall project performance, or reputation enhancement. [1]

## Risk Assessment

Risk assessment is process of determining the probability that a risk will occur and the influence that incident would have, should it occur. This is fundamentally a cause and effect analysis. The cause is the event that can occur, while the effect is the probable influence to a project, if the event is occur.

Evaluation of a risk comprises of two factors. First is the likelihood which is the measure of certainty that an event, or risk, will occur. This can be measured in a number of ways, but for the project will be allocated a probability as defined in the table below.[2]

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<sup>1</sup>PMI (Project Management Institute, Inc.), 2017, A guide to the project management body of knowledge (PMBOK Guide), 6th ed. PMI Book Service Center, Atlanta.

<sup>2</sup>Risk Management Plan. <http://www.phe.gov/about/amcg/contracts/documents/risk-management.pdf>. Retrieved 15 May, 2021.

| Probability of Occurrences |                                                                                                                                                                                                                                          |       |
|----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|
| Definition                 | Meaning                                                                                                                                                                                                                                  | Value |
| Frequent                   | <ul style="list-style-type: none"> <li>Occurs frequently</li> <li>Will be continuously experienced unless action is taken to change events</li> </ul>                                                                                    | 5     |
| Likely                     | <ul style="list-style-type: none"> <li>Occurs less frequently if process is corrected</li> <li>Issues identified with minimal audit activity</li> <li>Process performance failures evident to trained auditions or regulators</li> </ul> | 4     |
| Occasional                 | <ul style="list-style-type: none"> <li>Occurs Sporadically</li> <li>Potential issues discovered during focused review.</li> </ul>                                                                                                        | 3     |
| Seldom                     | <ul style="list-style-type: none"> <li>Unlikely to occur</li> <li>Minimal issue identification during focused review</li> </ul>                                                                                                          | 2     |
| Improbable                 | <ul style="list-style-type: none"> <li>Highly unlikely to occur</li> </ul>                                                                                                                                                               | 1     |

The second factor is estimate of the impact on the project. This might be rather subjective valuation, but must be quantified whenever possible. The assessed cost, the duration of the potential delay, the changes in scope and the deduction in quality are in most cases factors that can be assessed and documented in the risk statement and then measured by using the standard project management tools.

## Plan risk management - System requirements

Real risk management needs a conducive company culture, and the essential risk management processes, structures and budget to classify, evaluate and address potential opportunities and adverse possessions.

In the planning step, the risk management methodology, valuation tools, responsible parties and timing of risk management activities are static. This suggests that the typical risk and opportunity categories are denoted, the processes to be used for recognizing risks are identified and risk valuation tools, like a project specific risk matrix, are finalized. Responsible parties for driving the overall risk management process are recognized and the timing and occurrence for risk management activities are scheduled. As a minimum, the risk management planning step must comprise management commitment, clear roles and responsibilities, clear risk statements, pre-determined risk categories, a custom risk matrix and a risk register. It must also permit for risk prevention and the reporting of residual risk. These are deliberated in more detail in the following sections.

## Project risk management plan

The output of the planning for risk management step is seized in a project risk management plan. The risk management plan defines how risk management activities will be structured and achieved for a specific project. The risk management plan may comprise some or all the following elements:

- Risk philosophy
- Methodology
- Roles and responsibilities
- Funding
- Timing
- Categories of risk
- Risk probability and impacts definitions
- Formatting Reporting
- Tracking and auditing

## Risk Response

For each identified risk, a response has to be identified. It is the accountability of the project team to select a risk response for each risk. The project team will require the best possible evaluation of the risk and description of the response options to select the right response for each risk. The probability of the risk event occurring and the influences will be the basis for deciding the degree to which the actions to mitigate the risk must be taken. One way of assessing mitigation strategies is to multiply the risk cost times the probability of occurrence. Mitigation strategies that cost less than risk likelihood calculation must be given serious consideration.

## Example Risk Assessment Matrix

| Probability of Occurrences |                                                                                                                                                                                                                                         |       | Catastrophic | Critical | Moderate | Minor | Negligible |
|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|--------------|----------|----------|-------|------------|
| Definition                 | Meaning                                                                                                                                                                                                                                 | Value | (A)          | (B)      | (C)      | (D)   | (E)        |
| Frequent                   | <ul style="list-style-type: none"> <li>Occurs frequently</li> <li>Will be continuously experienced unless action is taken to change events</li> </ul>                                                                                   | 5     | 5A           | 5B       | 5C       | 5D    | 5E         |
| Likely                     | <ul style="list-style-type: none"> <li>Occurs less frequently if process is corrected</li> <li>Issues identified with minimal audit activity</li> <li>Process performance failures evident to trained auditors or regulators</li> </ul> | 4     | 4A           | 4B       | 4C       | 4D    | 4E         |
| Occasional                 | <ul style="list-style-type: none"> <li>Occurs sporadically</li> <li>Potential issues discovered</li> </ul>                                                                                                                              | 3     | 3A           | 3B       | 3C       | 3D    | 3E         |
| Seldom                     | <ul style="list-style-type: none"> <li>Unlikely to occur</li> <li>Minimal issue identification during focused review</li> </ul>                                                                                                         | 2     | 2A           | 2B       | 3C       | 3D    | 3E         |
| Improbable                 | <ul style="list-style-type: none"> <li>Highly unlikely to occur</li> </ul>                                                                                                                                                              | 1     | 1A           | 1B       | 1C       | 1D    | 1E         |

## Conclusion

Risk management is a continuing process that remains through the life of a project. It comprises processes for risk management planning, identification, analysis, monitoring and control. Various of these processes are updated through the project lifecycle as new risks can be recognized at any time. It's the objective of risk management to deduct the probability and influence of events adverse to the project. On the other hand, any event that could have a constructive influence must be exploited.

# References

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