



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:

- 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 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، سنقوم باختيار عدة مخاطر من تلك التي قمت بالتعرف عليها لتحليلها.

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

لانتس 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..

## Introduction

Risk management begins with a thorough examination of all relevant data, especially from integrated risk appraisal, which includes both risk assessment and concern assessment, with the latter focused on risk perception tests, economic impact analyses, and scientific characterization of social responses to the risk source. This data, along with the decisions made during the risk characterization and evaluation process, serves as the basis for assessing, evaluating, and selecting risk management options. Risk management is faced with three possible outcomes at the outset:

- In an intolerable scenario, the risk source (such as a technology or a chemical) must be abandoned or substituted, or, if that is not possible (e.g. natural disasters), vulnerabilities must be minimized and exposure limited.
- Situation tolerable: risks must be mitigated or managed in some other way within the bounds of appropriate resource investments (ALARP, including best practice). Private actors (such as corporate risk managers) or public actors (such as regulatory agencies) may do this, as well as both (public-private partnerships).
- Acceptable situation: the risks are so minor – perhaps even insignificant – that any attempt to reduce them is futile. Benefit-sharing by insurance and/or further risk mitigation on a voluntary basis, on the other hand, are options for action that might be worthwhile to pursue even though the risk is appropriate.

## Steps of Risk Management

### \* Identification and Generation of Risk Management Options

Risk prevention, risk mitigation, risk transfer, and – even an option to consider – self-retention are all generic risk management options. While avoiding risk entails either choosing a route that avoids the risk or taking steps to completely remove it, risk transfer entails transferring the risk to a third party. As a management strategy, self-retention entails making an educated decision to do nothing about a risk and accepting full responsibility for both the decision and its subsequent consequences. Risk control by risk reduction can be achieved in a variety of ways:

- Performance requirements for mechanical and chemical processes, such as minimum temperatures in waste incinerators; Technical standards and limitations that prescribe the acceptable threshold of concentrations, emissions, take-up, or other indicators of exposure.
- Technical prescriptions for reducing exposure (e.g., by protective clothing) or the resilience.

- Governmental economic incentives, such as taxation, duties, discounts, and certification programs. Third-party incentives, such as private monetary or in-kind incentives.

### **Assessment of Risk Management Options with Respect to Predefined Criteria**

Each of the options will have desired and unintended consequences which relate to the risks that they are supposed to reduce. In most instances, an assessment should be conducted according to the following criteria:

- Efficacy: Does the alternative produce the desired result?
- Effectiveness: Does the alternative produce the desired result with the least amount of resources?
- External side effect minimization: does the choice infringe on other desirable products, advantages, or services, such as competition, public health, environmental quality, social stability, and so on?
- Sustainability: Does this choice help to achieve the ultimate aim of sustainability?
- Equity: Does the alternative impose an equal and equitable burden on the subjects of regulation?.
- Is the alternative compliant with legal criteria and political programs in terms of implementation?
- Moral acceptability: Is the alternative morally acceptable?
- Public acceptance: Will the alternative be approved by those who will be impacted by it? Is there a heavy impact of cultural preferences or symbolic connotations on how threats are perceived?

Using these parameters to evaluate management options can result in contradictory messages and outcomes. Many successful interventions may turn out to be ineffective or unfair to those who will bear the brunt of the burden. Other initiatives may be viable, but they will not be approved by the general public or key stakeholders. When coping with global threats, these issues are exacerbated. What appears to be effective in one country might not be effective in another.

### **Evaluation of Risk Management Options**

The available data about how the options perform in terms of the assessment criteria is combined with a value judgment on the relative weight that and criterion should be given, similar to risk evaluation. The assessment of options in realistic risk management is done in close collaboration between experts and decision-makers. As we'll see later, this is the stage where direct stakeholder engagement

and public participation are especially relevant, so it's best to use a variety of approaches to ensure it. **(Rowe and Frewer 2000; Renn et al. 2002).**

### **Selection of Risk Management Options**

Following the evaluation of the various options, a determination must be taken as to which options will be used and which will be refused. Otherwise, trade-offs have to be made that require legitimization **(Graham and Weiner 1995)**. A legitimate decision can be taken using structured balancing instruments (such as cost–benefit or multi-criteria decision analysis), by the decision-makers themselves (as long as their decisions are guided by a holistic view of the problem), or in combination with participatory procedures.

### **Implementation of Risk Management Options**

Risk management is in charge of overseeing and controlling the implementation process. In certain cases, execution is entrusted to others (e.g. when governments take decisions but leave their implementation to other public or private bodies or to the general public). The risk management team, on the other hand, has an implicit mandate to supervise or at the very least control the implementation process.

### **Monitoring of Option Performance**

The final stage entails a thorough examination of the options' results after they have been enforced. The control framework should be constructed to evaluate both expected and unintended effects. A systematic policy evaluation report is often issued in order to investigate the effects of a specific collection of risk management policies on various aspects of what people value.

The monitoring process should provide new information on early warning signs for both new risks and old risks perceived in a new light, in addition to providing input on the efficacy of the options. It is preferable for the agencies conducting the risk and concern evaluations to engage in the monitoring and oversight so that their analytic expertise and knowledge can be used to determine the effectiveness of the management options chosen.

These steps are in a sequential order, but they can be done in any order depending on the situation and circumstance. It may be beneficial to imagine the steps as a circle forming an iterative process in which reassessment phases are interconnected with evolving alternatives, arising crises, or new demands put on risk managers, rather than as a sequential progression. **Aven, T., & Renn, O. (2010).**

## Cost–Benefit Analysis

By comparing and quantifying rewards and risks, cost–benefit analysis (CBA) means precisely balancing the costs and benefits of a range of action choices. This analysis is based on a complete monetarization of both gain and expense categories. **(Fischhoff et al. 1985)**. The advantages and expenses (costs, organizational effort, costs of confrontation, costs for decision-making, etc.) of various choices for action are converted into monetary units using a range of methods (shadow rates, willingness to pay, price standard).

A cost–benefit analysis seeks to quantify the difference in economic wellbeing caused by all of a project's costs and benefits. These would fall into one of three categories: marketed (direct) benefits and costs, A direct benefits and costs, and non-marketed indirect benefits and costs. When it comes to benefits, we try to gauge everyone's ability to pay. The justification for this is based on applied economic welfare analysis. This viewpoint contends that economic wellbeing is derived from preference satisfaction, which is expressed in the consumer's willingness to pay.

In business, public policy, and the judiciary, cost–benefit analysis is critical. This is especially true when it comes to comparing the costs and benefits of a national economy in a way that is independent of the subjective interests of individual members of a community.

Indirect measures, such as the cost of purchasing additional insurance coverage or the cost of restoring health, can be useful in estimating the monetary expenses and benefits that can be expected in the real world. Acid rain, for example, can be quantified in terms of the losses suffered by the forestry industry and the tourism industry **(Wicke 1982)**. However, such an analysis does not account for esthetic or ecological damage. **Aven, T., & Renn, O. (2010)**

## References

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