



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 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 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.

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..

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CHAPTER I

INTRODUCTION

1.1 Introduction of Risk Management in General

Risk management encompasses the identification, analysis, and response to risk factors that form part of the life of business. Effective risk management means attempting to control, as much as possible, future outcomes by acting proactively rather than reactively. Therefore, effective risk management offers the potential to reduce both the possibility of a risk occurring and its potential impact. Good risk management structure should also calculate the uncertainties and predict their influence on a business.

1.2 Introduction of Specific Project:

My current project consists of Penetration testing of one of leading organization in our country. Following are the two main objective and tasks that need to be concluded in this project.

- **Vulnerability scan:** This scan examines the security of individual computers, network devices or applications for known vulnerabilities. Vulnerabilities are identified by running a scanner, sniffers, reviewing configurations, etc. Vulnerabilities identified are never exploited. This test tends to be less disruptive and also inexpensive when outsourced.
- **Security assessment:** This builds upon the vulnerability assessment by adding manual verification of controls to confirm exposure by reviewing settings, policies and procedures. It has a broader coverage. Assessment of physical security safeguards would be covered here.

1.3 Current Phase of Project: Current Phase of Project is definition and planning, this phase consists of following objectives:

- Scope & Budget
- Work Breakdown Schedule

- Communication Plan
- Risk Management

1.4 Importance of Risk Management in Project Planning:

Effective risk management strategies allow us to identify project's strengths, weaknesses, opportunities and threats. By planning for unexpected events, we can be ready to respond if they arise. To ensure project's success, define how we will handle potential risks so we can identify, mitigate or avoid problems when we need to do.

Successful project managers recognize that risk management is important, because achieving a project's goals depends on planning, preparation, results and evaluation that contribute to achieving strategic goals.

- **Communicating with Stakeholders:** To ensure that projects run smoothly, effective project managers communicate their plan to the project sponsors, stakeholders and team members.
- **Maximizes Results and Meet Deadlines:** By defining risk management processes for your company, you make success more likely by minimizing and eliminating negative risks so projects can be finished on time.
- **Be Proactive Not Reactive:** Having a risk management plan in place allow you to be proactive and take steps to mitigate possible harms before they arise, instead of constantly firefighting.
- **Evaluates the Entire Project:** To evaluate your project's success so you can use the best practices on your next project, assess the impact of your activities on mitigating exposure to problems and exploiting opportunities that capitalize on your company's strengths.
- **Learn from past experience:** In addition to looking through data and information from previous projects, it can be helpful to look at templates. There are many resources available about implementing projects and common risks that occur in projects based on the industry or type of project.

CHAPTER II

Literature Review

2 Project Management Overview:

Project management is the application of knowledge, skill, tools and techniques to project activities to meet project requirement. Project management is accomplished through the use of the processes such as: initiating, planning, executing, controlling, and closing. Project risk management is the art and science of identifying, analyzing, and responding to risk throughout the life of a project and in the best interests of meeting project objectives.

2.1 The main objectives of risk management include

- Risk identification
- Risk Classification
- Risk Analysis
- Risk Response
- Risk Attitude

2.2 Risk Contingency Reserve

An important part of project risk management is developing the contingency reserve. A contingency reserve differs from the management reserve, which is allocated at a high level for the “unknown unknowns,” while contingency reserve is allocated to respond to the “known unknowns”

2.3 Developing the Contingency Reserve

The main inputs in developing the contingency reserve are the risk register and a quantitative analysis technique used to calculate the cost of each risk. EMV is the quantitative analysis technique used in this article due to its simplicity and ease of implementation. Despite its name, EMV doesn't have to be just a monetary cost; it can also measure the expected time delay in terms of person-hours or person-days. The Monte Carlo method is another powerful analytical tool that can be used to determine expected costs associated with risks in simulations of project schedules.

Monte Carlo method works by running projected schedule and cost data over thousands of simulations of a project and reporting the frequency of project results. For example, if work on a particular task is expected to last twenty hours, a Monte Carlo simulation can show how many times the work took more or less time than twenty hours in the simulated projects. This approach is also useful because a project manager can see not only the frequency of the

project hitting its parameters but also the outlying areas, such as the longest or shortest task duration.

The two inputs to EMV are the probability of a risk occurring (expressed as a percentage) and the impact of the risk occurring (expressed in some time or monetary measure).

Obtaining this data through meetings with the project team and stakeholders makes it more realistic. The formula for EMV is:

$$\text{EMV} = \text{probability} \times \text{impact}$$

Figure: 1.1 Sample risk breakdown structure

RBS Level 0	RBS Level 1	RBS Level 2
ALL SOURCES OF PROJECT RISK	1. TECHNICAL RISK	1.1 Scope Definition
		1.2 Requirement Definition
		1.3 Estimates, Assumptions, and constraints
		1.4 Technical processes
		1.5 Technology
		1.6 Technical Interfaces
		Etc.
	2. MANAGEMENT RISK	2.1 Project Management
		2.2 Program/Portfolio Management
		2.3 Operations Management
		2.4 Organization
		2.5 Resourcing
		2.6 Communication
		Etc.
	3. COMMERCIAL RISK	3.1 Contractual terms and conditions
		3.2 Internal Procurement
		3.3 Suppliers and vendors
		3.4 Subcontracts
		3.5 Client/Customer Stability
		3.6 Partnership and joint ventures
		Etc.
	4. EXTERNAL RISK	4.1 Legislation
		4.2 Exchange rates
		4.3 Sites/Facilities
		4.4 Environmental/weather
		4.5 Competition
		4.6 Regulatory
		Etc.

CHAPTER IV

CONCLUSION

In summary, the contingency reserve is a critical component of quantitative risk analysis. Developing a risk contingency reserve, including it in cost and schedule baselines, and tracking its use as the project progresses will help increase the predictability of project outcomes. In addition, it becomes a powerful tool in demonstrating the value of risk management to project sponsors and other stakeholders. Used properly, risk contingency reserve can act as a shield against the damage that a project can sustain through the occurrence of risks. Using EMV to calculate contingency reserve is a simple way to harness the benefits of this powerful tool.

REFERENCES

- *Project Management Institute.(2009). Practice standard for project risk management*
- *Project Management Institute. (2013). A guide to the project management body of knowledge (PMBOK® guide) – Fifth edition. Newtown Square, PA: Author.*
- <https://www.pmi.org/>