



جامعة الجميع الذكية
EVERYONE'S SMART UNIVERSITY

Everyone's Smart University Project (Spring 2021)

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Section

Master

Date

Thursday

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Course Code

(PMG510)

Project Risk Management

Instructions:

- آخر موعد للتسليم هو يوم السبت 2021-05-08 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 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 بال**المرحلة** 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 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..

Risk for Replacement of HVAC System from old unit to new unit

1. INTRODUCTION

HVAC stand for Heating, Ventilation, Air conditioning. Air condition basically is a unit of cold or hot air which removing heat and controlling the humidity of the air that can be available in building. Moreover, there are different basic factors to select the unit system of HVAC which are change of the temperature from the building, the location of insulation for the unit, cost of the unit, and the standard requirement of the HVAC. Also, Air condition system have different types such as All air system, All water system, and Air water system.

Risk is a situation that poses a level of threat to life, health, real estate, or the employee's environment in the workplace, such as working with fire or flammable equipment, carrying heavy objects, handling sharp tools, working near streets, working in high areas, or working in closed places. Define these situations as risks to inform employees of potential workplace hazards during the maintenance procedure. The risk management strategy is the key role framing component of risk management process. Also, it help to develop the organization level in specific procedure and methodologies of the project. Moreover, the risk management perform risk assessment, risk response, and monitoring risk as illustrated in Figure 1 .



Figure 1: The risk management perform risk assessment, risk response, and monitoring risk

2. Literature Review

2.1 Risk and Decision Making

The decision making is the key for risk management. The risk management objective, Measures and Actions as illustrated in Figure 2. When employee or people who must make a decision involving risk, they usually involve the possibility of an adverse consequence. The decision making is a tool that can be handle the complexity of risk management problems. All important decision in life entails the possibility of an adverse consequences. There are four steps to undertake risk management which are identify, assess, plan, and review. Also, there are three steps for decision making as per following:

2.2 Risk identification and assessment

Risk identification and assessment is a process of evaluating risk at project, safety and health from workplace hazard. How to identify risks? What is the best technique to obtain a comprehensive list of risks? How to determine which risks are important? The central issue is to determine which risks are important and what are the factors to use to determine the significance of the risks?

2.3 Risk responses.

How much risk are willing to take? What is the best method to address the risks? How to choose the best method? How much resources firms are willing to allocate to manage the risks? The central issue is to address the prioritized list of risks with a concrete risk response planning.

2.4 Risk review.

The background where the decision is made changes over time. The new information or new unusual materializes forcing firms to consider previous decisions. The purpose of risk review is to monitor the effectiveness of the chosen risk response and to monitor new risks.

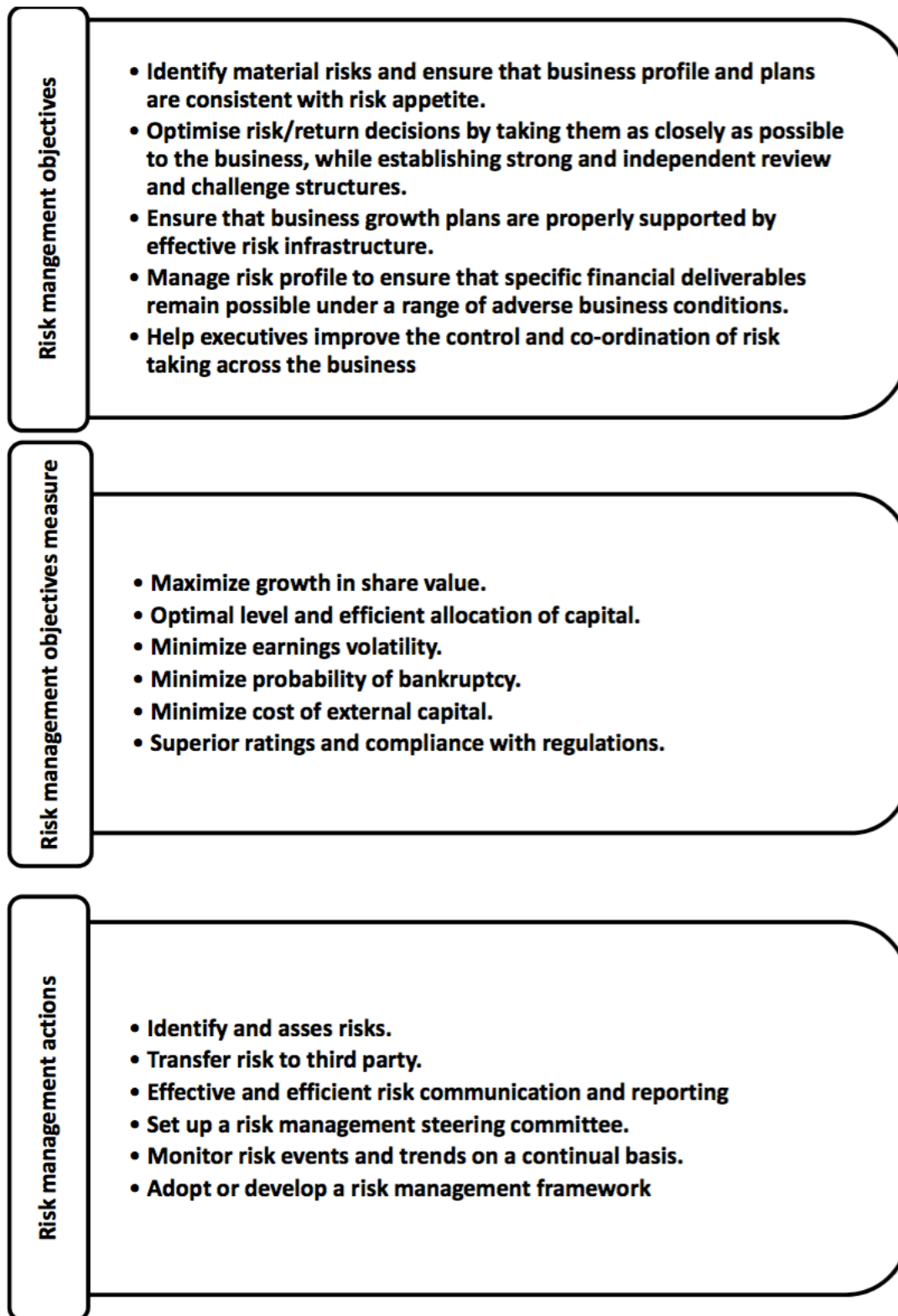


Figure 2: Risk Management Objectives, Measures and Actions

3. Methodology

3.1 Identifying of risks:

No.	Activity	Type of risk	Risk			Likelihood	Impact	Control Measure
			Probability	Severity	PxS			
1	Commissioning system for new unit	Hazard: Exposure to dust/ debris	2	4	8	Med / Low	Cuts, abrasions, eye injuries, and breathing difficulties	Comply with special Procedure, wear masks, gloves, and eye protection by worn during commission
2	Loss of load during cran lift	Fall of equipment	3	4	12	Med/ High	Death, and Serious injuries-possibly if threatening	Acceptance and review plan with all involved with the lift. Inspect rigging. Detail rigging plan, Verify wind speed prior to lift, Inspect crane prior to use, and Load test crane
3	Operating electrically power hand tools	Electrical shock	4	5	20	High	Major, Life threatening	Special training, wear PPE, comply with standard, and damage tools not allow to use.
4	Using an abrasive wheel	Contact with disc during use, Disc shattering due to incorrect mounding.	3	4	12	Med/High	Death or Serious injuries	Carry out and check of the equipment before start. Special training, wear PPE and gloves.
5	Working adjacent to occupied building	Noise	1	1	1	Low	Stress, anxiety	Works programmed to reduce the number of people exposed

3.2 RISK MATRIX

Likelihood	1 Insignificant	2 Minor	3 Moderate	4 Major	5 Catastrophic
	Risk Rating				
5. Most Certain	5	10	15	20	25
4. Likely	4	8	12	16	20
3. Possible	3	6	9	12	15
2. Unlikely	2	4	6	8	10
1. Rare	1	2	3	4	5
Risk Rating	Legends	Guidelines for Risk matrix			
15 to 25	(Ex): Extreme	Eliminate or avoid and implement action plan			
9 to 12	(H): High	Proactively manage			
4 to 8	(M): Medium	Actively manage			
1 to 3	(L): Low	Monitor and manage			

3.3 Calculate Expected monetary value analysis:

No. Risk	P (%)	I	EMV
1	20	800	160
2	30	5000	1500
3	40	6000	2400
4	30	3000	900
5	10	600	60
Total of EMV			5020

The Total of EMV means you should have risk budget to help offset uncertain risk which might outcome during the life cycle of the project. Also, its budget to help for contingency funds it might need. The EMV is very important for risk management which use for any project. Furthermore, it relies on calculation of probability and impact of

each risk. Moreover, it forces the project manager to same money during the execution, and this technique does not cost money.

There are two important tools and techniques for risk which are strategies for negative risk (Hazard) and strategies for positive risk (opportunity). In negative risk there are several techniques to response to risk, which help risk management to deal with negative risk as per following: Avoid Transfer, Mitigate, and Accept. On other hand, the positive risk has three techniques which are Exploit, Share, and Enhance.

4. Results and Discussion

The advantage by using project risk analysis and management techniques and tools serve the project and other part during the life cycle to plan and how to reduce to rise before and after occurring. It is important from risk management to understand of the strategies to make success to the organization and gain benefit. Risk Management Objectives, Measures and Actions illustrated in Figure 2. It's show the role of risk management and the key of decision making.

5. References

- 1.Stephen D. Gantz, Daniel R. Philpott, in FISMA and the Risk Management Framework, 2013
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- 3.Cartlidge, D. (2019). Estimator's Pocket Book (Routledge Pocket Books) (2nd ed.). Routledge.