



جامعة الجميع الذكية
EVERYONE'S SMART UNIVERSITY

Everyone's Smart University

Project (Spring 2021)

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Section

Master

Date

Thursday

18 / 03 / 2021.

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 الإنجليزية.
- 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..

What is **risk** management?

Risk analysis and risk management is a process that allows individual risk events and overall risk to be understood and managed proactively, optimizing success by minimizing threats and maximizing opportunities and outcomes. Risk management is focused on anticipating what might not go to plan and putting in place actions to reduce uncertainty to a tolerable level. Risk can be perceived either positively (upside opportunities) or negatively (downside threats). A risk is the potential of a situation or event to impact on the achievement of specific objectives. Working with the risk owner, the project professional ensures that risks are clearly identified before moving on to the risk analysis step of the risk management process. The project risk management process reflects the dynamic nature of project work, capturing and managing emerging risks and reflecting new knowledge in existing risk analyses. A risk register is used to document risks, analysis and responses, and to assign clear ownership of actions.

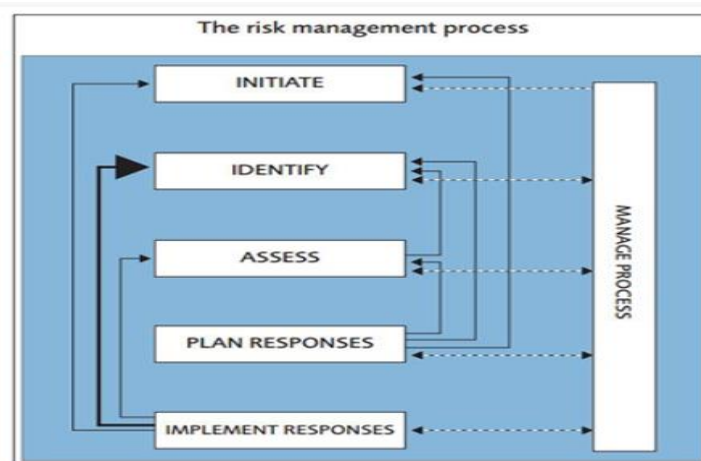


Figure 1

What is **risk** analysis?

Risk analysis provides guidance on where the greatest vulnerabilities lie. Because risk analysis is fundamentally perception based, it is important for the project professional to engage stakeholders early to identify risks. To make sense of differing perceptions, it is important to describe risk events clearly, separating causes (facts now), from risk events

(situations that may occur), from effects (that have an impact on one or more of the project measures). This enables subsequent analysis and management of risks. Effective risk analysis and contingency planning will see planned time and/or contingency used. Unused contingency is most likely caused by overestimation, luck or the efficient management of risk. Insufficient contingency is most likely caused by optimistic estimation, bad luck or inefficient management of risk. Outputs from risk analysis help the project professional to:

- Understand the probability of achieving out-turn dates, costs
- Inform and influence decision-making about the chances of achieving the business case
- Agree the level of contingency to provide the required level of confidence.

Literature review:

Investigating the Application of Risk Management in Greek IT Companies. The objective of risk management is to identify potential problems before they occur and to plan and carry out risk-handling activities in order to mitigate potential risks. Risk management is a continuous, forward-looking process that must be an integral part of day-to-day business activities and processes. Risk management should address issues that could endanger achievement of critical objectives. A continuous risk management approach is applied to effectively anticipate and mitigate the risks that have critical impact on the project. investigate the level of risk management application in 86 Greek IT companies. For this purpose, a structured questionnaire was designed. This paper aims to present the fundamental elements of the risk management concept and reveal the results of the analysis. (Tsiara Eleana¹, Kerstin Siakas²)

relationship between risk and uncertainty in Project Management. The objective of this paper is to explore the concept of risks and uncertainties in the context of project management and innovation, providing a panorama of the literature. The methodological approach selected is a systematic literature review, merging bibliometrics, network analysis, and content analysis. The results present the most cited authors, keywords networks, research trends and gaps. Both definitions, risks and uncertainties, were

analyzed. It could be verified that most publications use the terms as synonyms. This study described the conceptual model that could help research and organizations to understand the main construct and variables related to integrated management systems. (João Walter Saunders Pacheco do Vale, Marly Monteiro de Carvalho)

Methodology:

The Risk Impact/Probability Chart is based on the principle that a risk has two primary dimensions:

Probability – A risk is an event that "may" occur. The probability of it occurring can range anywhere from just above 0 percent to just below 100 percent. (Note: It can't be exactly 100 percent, because then it would be a certainty, not a risk. And it can't be exactly 0 percent, or it wouldn't be a risk.)

Impact – A risk, by its very nature, always has a negative impact. However, the size of the impact varies in terms of cost and impact on health, human life, or some other critical factor.

The chart allows you to rate potential risks on these two dimensions. The probability that a risk will occur is represented on one axis of the chart – and the impact of the risk, if it occurs, on the other. The Risk Impact/Probability Chart provides a useful framework that helps you decide which risks need your attention. See Fig.2,3 & 4

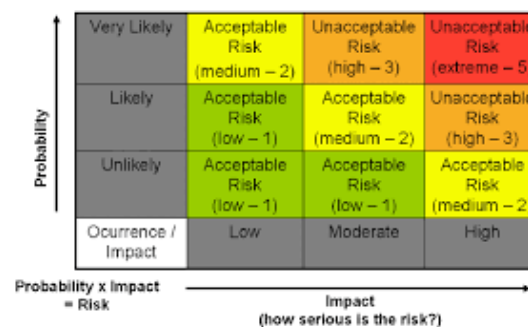


Figure 2

Likelihood level	Score
Very low	0-20
Low	21-40
Medium	41-60
High	61-80
Very high	81-100

Figure 3

Magnitude of impact	Impact definition	Score	Rating
High impact / High probability	Very high They are the biggest risks that entrepreneurs should pay attention.	5	A
High impact / Medium probability Medium impact / High probability	High These risks have either a high probability of occurrence, or a significant impact	4	B
Medium impact / Medium probability	Medium There is a medium chance that the risks appear noticeable impact.	3	C
Medium impact / Low probability Low impact / Medium probability	Low These risks can occur in some situations and have a low to medium impact.	2	D
Low impact / Low probability	Insignificant There are risks with low probability of occurrence and low impact. Can therefore be neglected.	1	E

Figure 4

Now, we will implement this study to address the risk of building shopping mall.

Risk identification.

Define 10 major risks according to 4 categories. External, Technical, Organizational, and PM. See RBS fig. 5

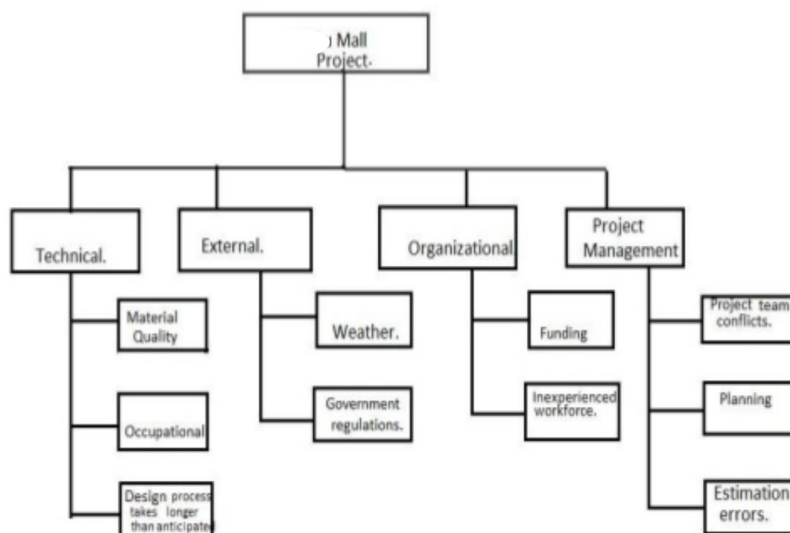


Figure 5

Material poor quality -T1, Occupational health and safety risk – T2, Weather – E1, Governmental regulation – E2, Funding risk – O1, Inexperienced workforce – O2, Project team conflict – PM1, Planning – PM2, Estimation errors – PM3, Design process risk – T3.

Risk Assessment

After determining assessment of each risk define risk assessment for finding risk level and probability of risk.

ID	Risk Event	probability	impact	EMV
T1	Poor quality	30%	4	1.2
T2	Occupational, injuries, damages	15%	3	0.45
T3	Design process delay	35%	3	1.05
E1	Adverse weather	55%	1	0.55
E2	Governmental regulation	40%	2	0.8
O1	Lack of budget	25%	5	1.25
O2	Inexperienced workforce	10%	3	0.3
Pm 1	Team conflict	75%	4	3
Pm 2	Wrong planning	10%	5	0.5
Pm 3	Time and cost estimation error	35%	2	0.7
Total				9.8

Table 1

Then apply risk severity matrix to determining the impact and probability of risk:

Impact	Very high 5	Pm2	O1			
	High 4		T1		Pm1	
	Moderate 3	O2 T2	T3			
	low 2		E2 Pm3			
	Very low 1			E1		
Impact		Rare 1	Occasionally 2	Somewhat frequent 3	Frequent 4	Very Freq 5
Probability Matrix		Probability (likelihood)				

Figure 6

Risk Response

Risk event	Risk response	contingency plan	trigger	who is responsible
Poor quality of Material	Testing Operation	Change suppliers	Low features of materials	Project team
Occupational health and safety risks	Training and Orientation	Application of emergency plan	Poor safety condition of construction area	Health and safety engineers
Design takes longer than anticipated	Parallel method Application	Increase project duration	Some activities delay project	Project manager
Adverse weather	Overworking in suitable days	Delay some non critical activities	Affecting working condition physically	Project Manager
Governmental regulations (tax change)	Transfer risk to project sponsor	Change scope of the project (cost)	Increase general and administrative cost	Project team
Lack of funds (budget)	Share risk with contractor	Getting financial support from upward	Estimation of total cost of project	Financial Accounter
Inexperienced workforces	Training and Meeting	Hire new staff and workforce	Quality of project activities	Human resource manager
Project team members conflicts	Negotiation and trade off between members	Individual meetings with team members.	unkind criticism between members	Leader of team
Wrong logical planning of activities	WBS sequence Scheduling	Redesign activities sequence	Call from top management	Project Manager
Estimation errors	More detailed, accurate data collection	Use pad estimation.	High differences between estimations	Project Mnager Time and Cost Estimators.

Conclusion

The risk management must conceptually correspond to the structure: risk-content risk management-the effect of risk management and strategically determine the greatest threats in the company's development, clarify ways to reduce them and justify quantitatively the choice of a strategy for future development, taking risk into account.

References:

1. João Walter Saunders Pacheco do Vale, Marly Monteiro de Carvalho 2016, Risk and uncertainty in projects management
2. Investigating the Application of Risk Management in Greek IT Companies, echnological Educational Institute of Thessaloniki Department of Informatics
3. Dr Ruth Murray-Webster, editor, *APM Body of Knowledge 7th edition*
4. https://www.mindtools.com/pages/article/newPPM_78.htm
5. <https://www.slideshare.net/EldenizBayramov/shoppingmallproject>