



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 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 ادارة المخاطر المناسبة لكل خطر على حدة.

من محتويات المقرر والمصادر الأخرى المتاحة أصبحت تعلم الان 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..

Risk in Land survey project

1. Introduction

The WBS is a valuable method that should be used when identifying risks. The first phase in the risk management process is risk recognition, which establishes the foundation for the rest of the process. A risk management team examines the project to determine potential sources of risk at this point. The textbook emphasizes the importance of focusing on incidents that could have repercussions rather than on goals. The WBS will assist the team in defining and analyzing these risks, and it is a useful tool for pinpointing particular risks. The WBS gives a comprehensive description of the project and lists each and every mission. The risk management team will go through each task in the WBS to find particular incidents that can lead to risks related to each task by looking at the WBS. Using the WBS would ensure that the team covers as many unique areas as possible when it comes to danger. The WBS is the best tool to use if the intention is to focus on specific events. Few documents map out the project in as much detail as the WBS does, so if the goal is to focus on specific events, the WBS is the best tool to use.

2. Literature Review

- **Understanding the Impact of Project Risk Management on Project Performance: An Empirical Study.**

The goal of this study is to comprehend the impact of risk management on project performance. Further it aims to investigate the degree of diffusion of risk management practice in Brazilian companies. The methodological approach involves a survey of 415 projects at different levels of complexity in different industrial sectors in several states of Brazil. The results demonstrate that adopting risk management practices has a significant positive impact on project success. They also show a positive impact from the presence of a risk manager on project success. The study's principal limitations are the methodological choice of non-probability sampling and a questionnaire based on respondent perception. From the practical point of view, paying attention to uncertainties during the project, making use of the risk management techniques and deeply understand the business environment are critical success factors, demanding

attention of project managers and risk managers. The results demonstrate the impact of risk management practices on project success. They also show a positive impact from the presence of a risk manager on project success. Furthermore, it demonstrated the importance of soft skill in risk management.

- **Risk management with Bowtie diagrams**

The Bowtie (Papion) analysis is a qualitative risk assessment methodology that provides a way to effectively communicate complex risk scenarios in an easy-to-understand graphical format and shows the relationship between the causes of unwanted events and escalation potential for loss and damage. Bowtie can display the commands, which prevents the top event from happening first, specific to each threat and also the recovery measures, which are ready to limit the possible effects once the event top has been achieved, specific for each credible result. The purpose of the work is analysis of oil spill scenarios. Research and methodology: 1) Bowtie analysis diagram that focuses on environmental losses and damage resulting from possible scenarios; 2) Threats and control measures for the threats; 3) Recovery and consequences measures. Results: 1) Bowtie risk treatment tools; 2) integrated tools for risk management processes. Conclusions: The main advantages of the approach of adopting the Bowtie in the risk analysis area) provides a solid technique of comprehensive identification of all risk events and promote an understanding of their mutual relations; b) uses a format in the form of an easy-to-understand scheme to communicate the cause relationships and the underlying effect of more complex risk scenarios.

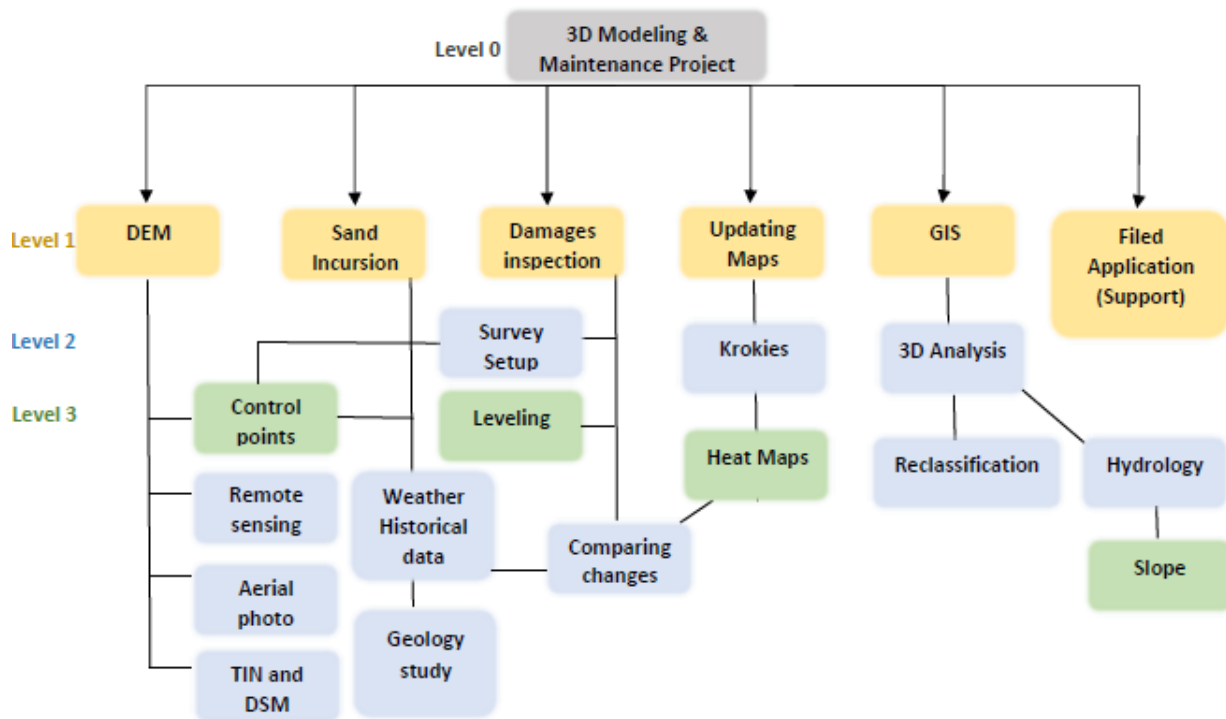
- **The advantage of project risk management tools**

Risk management plays an important role on the success of the any project. There are several techniques, which are available to help different phases of risk management process. This paper presents a survey to identify the necessary tools, which are mostly implemented and related to the success of any project management, and more specifically with effective project risk management. The response data was

studied to determine which tools are more used in the organizations, which could yield a better project management performance.

3. Methodology

This research will use the WBS that created in APM project to identify all the risk for each work package then we will analyze the impact and the preparation that need to be done to control this risk and its impact and cost.



1. List of risk

This will identify all the risk that will facing each work package by brainstorming.

Risk	Related work package
No license for Software	Heat map, reclassification, hydrology, and 3D analysis
No cooperate from other sources	Control point, remote sensing, aerial photo, TIN, DSM, and weather historical data
Work injuries	Control point, leveling, 3D analysis

Poor computer power	Control point, remote sensing, aerial photo, TIN, DSM, weather historical data, Control point, remote sensing, aerial photo, TIN, DSM, and weather historical data
Team conflicts	Leveling, control point and krockies
Poor experience	All analysis and calculations
Low accuracy	All analysis and calculations

2. Identifying the probability and impact for each risk (low = 0.30, medium = 0.31 to 0.70, high = 0.71 to 1)

Risk	Probability	impact
No license for Software	0.15	1
No cooperate from other sources	0.50	0.82
Work injuries	0.66	0.95
Poor computer power	0.12	0.62
Team conflicts	0.11	0.44
Poor experience	0.18	0.16
Low accuracy	0.71	0.97

To develop a strategy to minimize the effects, assess the severity. We used the Risks Matrix and Bow-Tie to calculate the magnitude.

Probability	0.71 to 1	Medium	High	High
	0.31 to 0.70	Low	Medium	High
	0 to 0.30	Low	Low	Medium
		0 to 0.30	0.31 to 0.70	0.71 to 1
		Impact		

Risks	Probability	Impact	Severity	Plane	Mitigate Action
No license for Software	0.15	1	Medium	Check all license that needed frequently	Contact with IT
No cooperate from other sources	0.50	0.82	High	Make the contact to other organization in formal format with the management only	The first contact will be only from higher Management
Work injuries	0.66	0.95	High	Make sure all the equipment and site are accessible and clear	PTS course
Poor computer power	0.12	0.62	Low	testing all PCs that needed frequently	Contact with IT to format them frequently
Team conflicts	0.11	0.44	Low	Check with filed supervisor frequently	Create a team structure for the team

Poor experience	0.18	0.16	Low	Make interviews	Contact with HR and agree on Stander
Low accuracy	0.71	0.97	High	Testing all the team on the resulted calculation	Recruit 3 Quality Experts

Now we can calculate the EVM for each risk

Risk	Probability (P)	Cost impact (IC)	Risk Contingency (P*IC)
No license for Software	0.15	800,000 SR	120,000 SR
No cooperate from other sources	0.50	200,000 SR	100,000 SR
Work injuries	0.66	50,000 SR	33,000 SR
Poor computer power	0.12	250,000 SR	30,000 SR
Team conflicts	0.11	30,000 SR	3,300 SR
Poor experience	0.18	20,000 SR	3,600 SR
Low accuracy	0.71	1,000,000 SR	715,000 SR

4. Discussion

We will see the outcome of the risk mitigation strategy and how to reduce the risk. It's important to remember that we should be mindful of all risks, but we shouldn't waste time on risks that are green in color; instead, we should concentrate on risks that are orange or red in color because they have a higher likelihood and a greater impact. Also, we can see that the most important factor is the accuracy of the work and it has a huge effect and losing almost all the project budget. So we need a the plan to reduce its impact and control the accuracy result.

5. References

- Understanding the Impact of Project Risk Management on Project Performance: An Empirical Study
https://www.researchgate.net/publication/260775307_Understanding_the_Impact_of_Project_Risk_Management_on_Project_Performance_An_Empirical_Study
- Risk Matrix Basics https://www.researchgate.net/publication/305889949_Risk_Matrix_Basics
- Risk management with Bowtie diagrams
https://www.researchgate.net/publication/327730575_Risk_management_with_Bowtie_diagrams
- The advantage of project risk management tools
https://www.researchgate.net/publication/322512970_The_advantage_of_project_risk_management_tools