

## Everyone's Smart University

### Project(Spring 2021)

|              |                      |               |
|--------------|----------------------|---------------|
| Student Name | Hanan Saud Alqahtani | اسم الطالب    |
| Students I.D | 2021202665           | الرقم الجامعي |

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 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..

## **Risks Surrounding a Project (Training Center)**

### **Introduction:**

Business risk arises from uncertainty about potential future events, while strategic approach involves managing uncertainty. Therefore, reducing the business risks that a business organization may encounter and manage is the essence of the strategic direction and aims to stimulate people's awareness of the possibilities of contemplating the problem. In the future, we will respond to changes in the external environment and balance.

Projects face many commercial risks when carrying out activities, and due to the nature of these projects, these projects have a low ability to bear these risks, so many small and medium companies cannot face the risks they face. They quickly withdrew from the market at the beginning of their establishment.

In this study, a risk matrix was created, its classification, its degree, and the expected benefits through which the project can be located in its operating environment, and the most important factors can be determined by studying the interaction between risks and benefits Relationships, which make the project performance different, and continuously assess the risks it faces and how these risks affect the overall performance.

### **Research Methodology**

Projects will face many risks when conducting business, which will lead to these businesses facing many crises, so business organizations that want to stay in the business and compete effectively in the market must look for ways to survive and adopt them. The strategic approach to business risk management is a way of explaining these risks the organization faces.

#### **Important questions that arise here are: -**

- ✓ How can we develop a strategic approach to business risk management?
- ✓ Is studying business risks sufficient to make a strategic approach through which to manage the risk, or do we need other elements?

- ✓ Are the business risks to the projects are equally important and influence or whether they are classified in terms of their importance and impact when studying?

#### **Research importance:**

Importance appears in two aspects, the first with regard to the use of the strategic approach to manage business risks through the matrix that has been created, second aspect relates to the general trend towards small and medium enterprises because of their great role they play in society through creating job opportunities and providing support for large projects as small projects do not necessarily compete with large projects, but they can act as support organizations for small projects.

#### **Risk Management:**

##### **1) Meaning of risk management:**

An independent job responsible for planning, directing and organizing a measure to reduce, accommodate and control the potential impacts on the organization from the risks that arise as a result of its operations, more precisely, we can define risk management as the systematic application of management policies, procedures and practices and the task of identifying, analyzing, evaluating, treating and controlling risk (Campbell, 2005: 7).

##### **2) Forms of risk in small business:**

There are the numbers of areas or categories of risk related to projects, the categories of risk are specific areas or topics that are taken care of in succession, this will provide an entrance with a structure to verify risk that leads to greater focus within each category and stimulates thinking it increases the chance of identifying a wide range of risks. additionally, the risk classes assist in planning the risk and the communication of risk information by providing a structured approach to identifying the risk.

**Table No. (3) Forms of Business Risks in small and medium enterprises**

| Forms of danger     | Meaning                                                                                                                                           |
|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Financial</b>    | This category includes cash flow, budget requirements, tax liabilities, creditor and debtor management, and other accounting management concerns. |
| <b>Organization</b> | The internal requirements of business and the improvement of the structure,                                                                       |

|                               |                                                                                                                                                                                                                                                                     |
|-------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                               | culture, and personnel issues of the actor operations of the action.                                                                                                                                                                                                |
| <b>Legal</b>                  | This category includes compliance with legal requirements such as legislation, instructions, standards, contracting requirements, and this category extends to the policies, procedures and expectations set by the social environment, clients and the contractor. |
| <b>Processes</b>              | Includes operations activities, resources and support requirements within business processes that result in the successful development and delivery of products and services.                                                                                       |
| <b>Commercial</b>             | This category includes businesses that are linked to the market and business growth, diversification and commercial success, the viability of products and services, and the extent to which they can grow on a customer base basis.                                |
| <b>Safety</b>                 | This category includes achieving safety for everyone associated with the work and includes safety of people, workplace safety, public safety, and the safety of the products and services provided.                                                                 |
| <b>Strategy</b>               | It includes planning and resources required to establish, grow and expand a business.                                                                                                                                                                               |
| <b>Hardware</b>               | This category includes utilization of equipment in operations and includes general equipment operations, ease, fit, wear, and retrofit.                                                                                                                             |
| <b>Security</b>               | General security includes work, assets, and people, and extends to information security, intellectual and technological property rights.                                                                                                                            |
| <b>Reputation</b>             | The threat to reputation is a threat to the organization unfailingly and it depends on the behavior of the organization as a whole and extends to the viability of products and services, the behavior of users and other individuals associated with the work.     |
| <b>Delivery of services</b>   | This category includes the quality of the service provider, the way the service is provided, the interaction after the service is provided.                                                                                                                         |
| <b>Stakeholder management</b> | It includes identifying, establishing, and maintaining appropriate relationships with both external and internal stakeholders.                                                                                                                                      |
| <b>Technology</b>             | Includes implementing, managing, maintaining, and updating technology.                                                                                                                                                                                              |

#### **Risk Matrix and the expected return**

This matrix illustrates the risk the project is exposed to in carrying out its business and the expected return effect from these businesses. Where risk means that the actual outcome may differ from the expected outcome, this situation occurs when we are not sure of the results of a certain activity or certain events, that is, we are not sure of what will happen in the future, therefore, risks arise from the principle that a certain activity may lead to more than one result in the future.

As for the return, it is the return resulting from the implementation of the business the investment return may be real or expected, and its measurement depends on cash flows, so calculating the actual return, historical data are known with certainty, and the expected return is dependent on the uncertain future, and future cash flows are involved in this field, therefore, the relationship between risk and reward can take nine forms, as shown in the following figure:

| Risks                                              |                                                                 |                                                       |        |
|----------------------------------------------------|-----------------------------------------------------------------|-------------------------------------------------------|--------|
| High                                               | Medium                                                          | Low                                                   |        |
| Risk (3) (Reduce risk)                             | Calculated risk (2) (Reduce risk)                               | Ideal (1) (Maintain current status)                   |        |
| Game of Luck (6) (reduce risk and increase return) | Reservation (5) (increase yield)                                | Rational (4) (increased return)                       |        |
| Nightmare (9) (Switch to New Business)             | Challenge (8) (increase the return with the same level of risk) | Undifferentiated (7) (Improvement in expected return) | Return |
|                                                    |                                                                 |                                                       |        |
|                                                    |                                                                 |                                                       |        |

**Figure (1) Matrix analysis of return and risks**

**A) Cell No. (1) Idealism:** Where the project (training center) is in an ideal location, as it achieves the highest return with the lowest possible risk, so the goal will be to maintain the current situation and continuing to enter businesses that achieve this equation, preserving the current situation does not mean that the organization will not work or offer something new, because the business environment is dynamic and the organization should mobilize all its energy in order to maintain this ideal situation.

**B) Cell No. (2) calculated adventure:** In this cell, the project (training center) is in a location that allows it to achieve a high rate of return and medium risk, therefore, its goal will be to work to reduce the level of risk and move to the ideal position cell, and this cell is characterized by the calculated adventure due to the deterioration of the situation and its transformation into cell No. (3) risk or cell No. (5) reservation or reservation No. (6) a game, the high return is a guarantor. Take the risk.

**C) Cell No. (3) the risk:** The project (training center) is in a risky location as it achieves the highest return with the highest risk, so its goal is to work to reduce risks and move to cell No. (2) adventurous and calculated, as continuing in this site for a long period may lead to deterioration the situation and the transition to cell No. (6) game of chance or cell No. (5) conservation. Thus, the organization will be forced to bear additional risks or to decrease the return it gets from the work it practices.

**D) Rational cell (4):** As for here, the project (training center) is in a location that achieves medium returns and low risks. Therefore, the low risk of the work that it carries out encourages the organization not to enter into new businesses that may involve risk. Therefore, the organization here does not tend to enter new business, but it works. To improve or maintain the return, as rational behavior tends not to sacrifice the current returns. Therefore, the organization aims to move to cell No. (1) the ideal situation that matches in terms of orientation with the rational behavior or cell No. (2) the calculated adventure, considering that the additional risks that will bear it, it will result in high yield.

**C) Cell No. (5) Reservation:** And the project (Training Center) is in a conservative location as it achieves an average return with medium risk, so its goal here will be to work on improving the return and moving to cell No. (1) the ideal situation or cell No. (2) the calculated adventure and that this approach can connect The organization to cell No. (3) to take risks in order to improve the return in light of which the organization will bear additional risks, which leads to the final result of increasing the return and the risk together, so the organization must be careful when making its options at this point as the excessive adoption of risks in order to improve The return can lead the organization to cell No. (6) a game of luck or cell No. (9) a nightmare due to the lack of achievement of the required return or being in cell No. (8) the challenge, which may lead to its success again and restore its balance and that this cell represents a point An

equilibrium that is resorted to in the event of the organization's deterioration, and through it, the systems can arrange their work in a way that enables them to remain in the business world.

**E) Cell No. (6) Game of Luck:** The project (training center) is in a location that achieves medium return with high risk, so the general position of the organization is unbalanced, and the goal of the organization must be to move to cell No. (5) reservation to achieve a state of balance as a start to thinking about correcting the situation of the organization as the organizations here It can descend quickly and may find itself in cell No. (9) the nightmare, so organizations should not rely on their fortune too much or risk more than one activity, and when choosing this cell, the organization must ensure that the period of stay in it is the least possible. And to maintain the successful activities carried out.

**F) Cell No. (7) is not distinguished:** Here the project (training center) is in a location that achieves a low return with a low risk, so the business organization must work to increase the return, which leads to the transformation of the rational cell No. (4) or bear some risks and increase the return at the same time and thus be in cell No. (5) reservation.

**Q) Cell No. (8) Challenge:** In this cell, the project (training center) is in a location that achieves a low return with a medium risk. Therefore, the organization faces a challenge in which it must succeed, which is to increase the return in order to be able to bear the risks to which it is exposed and turn into cell No. (5) reservation, and that lack of success In this challenge he leads the organization directly to cell No. (9) the nightmare.

**D) Cell No. (9) Nightmare:** In this cell, the project (training center) is at the site of the nightmare as it achieves the lowest return with a very high risk, so the organization must work to reduce the risk and increase the return in order to be able to get out of this impasse as soon as possible and switch to cell No. (5) reservation and if You were not able to do that, because the most appropriate solution here is to neglect these businesses and abandon them and start new ones.

**Risk Matrix variables and the expected return:** It is clear from the name and the previous presentation of the risk and expected return matrix that it consists of two variables, the risk and the expected return, and it will be said here that how to determine

the risk and the expected return in order to be able to result in determining the location of the project (training center) in the matrix.

#### A) Mechanism for identifying risks in Risk Matrix and the expected return:

After the types of risks to which the project is exposed (Training Center) have been clarified, here the risks are identified in each category and the degree of importance of this risk and the degree of its impact on the project so that we can finally identify the overall position of the project, is the project facing low, medium, or high risks? And the following table explains that.

| Risk calculation mechanism for the risk-return matrix for the project<br>(training center) |                                |            |                    |                  |
|--------------------------------------------------------------------------------------------|--------------------------------|------------|--------------------|------------------|
| T                                                                                          | Subject                        | Importance | Impact Score (1-4) | Final evaluation |
| <b>First</b>                                                                               | <b>Financial elements</b>      |            |                    |                  |
| 1                                                                                          | X                              | 0.15       | 3                  | 0.45             |
| 2                                                                                          | Y                              | 0.05       | 1                  | 0.05             |
| 3                                                                                          | Z                              | 0.04       | 1                  | 0.04             |
| <b>Second</b>                                                                              | <b>Organizational elements</b> |            |                    |                  |
| 1                                                                                          | X                              | 0.20       | 3                  | 0.06             |
| 2                                                                                          | Y                              | 0.12       | 3                  | 0.36             |
| 3                                                                                          | Z                              | 0.06       | 2                  | 0.12             |
| <b>Third</b>                                                                               | <b>Element's operations</b>    |            |                    |                  |
| 1                                                                                          | X                              | 0.04       | 2                  | 0.08             |
| 2                                                                                          | Y                              | 0.02       | 1                  | 0.02             |
| 3                                                                                          | Z                              | 0.05       | 1                  | 0.05             |
| <b>Fourthly</b>                                                                            | <b>Technological elements</b>  |            |                    |                  |
| 1                                                                                          | X                              | 0.18       | 3                  | 0.54             |

|              |   |             |   |             |
|--------------|---|-------------|---|-------------|
| 2            | Y | 0.07        | 2 | 0.14        |
| 3            | Z | 0.02        | 1 | 0.02        |
| <b>Total</b> |   | <b>100%</b> |   | <b>2.47</b> |

Column of elements in the table shows the categories of the elements that most affect the project (training center) and that represent a threat to the survival of the project in the business world and each class contains in turn a group of elements, as for the importance column, through which the degree of importance is distributed among the elements so that the sum of the importance of all the elements is 100% and the third column represents the degree of influence and the degree of influence of each element is calculated, noting that the degree must range between (1-4) and the last column shows the final evaluation. The organization has the following steps explain how to calculate the score.

- 1) Determine the risk categories that most affect the project activity, and then determine the risk elements in each category.
- 2) Determine the translation of the significance of each element of the risk categories.
- 3) Determining the degree to which each component is entitled, provided that the grade is between (1-4).
- 4) Extract the product of step No. (2) with step No. (3).
- 5) Extracting the final evaluation total by adding the scores obtained in Step No. (4).
- 6) Determine the rank in which the organization is located (from (1) to (1.99) = low, from (2) to (2.99) = medium, from (3) to (4) = high).

#### **B) The mechanism for calculating the expected return in the risk matrix and the expected return of the project (Training Center):**

Important step here is knowing whether the return that the organization will get is high, medium, or low in order to be able to identify this, the expected return of the organization can be compared with the returns that have been achieved in the past, or the expected return can be compared with the return achieved by competitors.

Expected return can be studied through a set of elements that are related to revenues and financial indicators such as (Market share, sales, profit margin), where by studying these we can be a clear model of the expected return.

| Mechanism for calculating the expected return effect of the risk and expected return matrix |               |            |                    |                  |
|---------------------------------------------------------------------------------------------|---------------|------------|--------------------|------------------|
| T                                                                                           | Subject       | Importance | Impact Score (1-4) | Final evaluation |
| 1                                                                                           | Market share  | 0.55       | 4                  | 2.2              |
| 2                                                                                           | Sales         | 0.30       | 4                  | 1.2              |
| 3                                                                                           | Profit margin | 0.15       | 2                  | 0.3              |
|                                                                                             | <b>Total</b>  | 100%       |                    | 3.7              |

From the table that is the first column it represents the elements that will contribute to giving an idea of the expected return, while the second column represents the relative importance of these elements, while the third column represents the degree of impact, the higher the expected returns, the higher the score is given, or whenever the achieved return is greater than the competitors, a higher score is given, and the last column represents the final evaluation, and by adding the scores obtained by each component, we reach the final score.

Ranks in which our project is located are determined as follows (from (1) to (1.99) = low, from (2) to (2.99) = medium, from (3) to (4) = high).

And after identifying each of the business risks, which amounted to (2.47),

Expected return, which amounted to (3.7) we clearly see that the organization achieves a high return with a medium risk that is, it is located in cell No. (2) a calculated adventures the organization is exposed to some risks in order to obtain a high rate of return, therefore, the organization must pay attention to the elements of great importance and influence in the beginning, as it is possible by controlling a small number of elements to reduce the risks, which leads the project to control it and reduce its negative effects towards improving the position of the organization.

### Conclusions

1. Risk matrix is guided and expected return decision-making process by providing a reference that can contribute to increasing the effectiveness of administrative decisions.
2. Concepts of risk management contribute to rapid response to the environment by preparing for possible changes in the environment.
3. Lead risk matrix expected return to diagnosing potential crises is obtained and knowing the element through which these crises can be avoided.
4. Advance risk matrix expected return is a number with possible alternatives for each situation, which gives the strategy more flexibility in dealing with the risks expected to occur.
5. strategic approach to risk management contributes to determining the strategic direction and through that, organizations can direct their resources towards achieving this trend.
6. In general, small projects are affected by the strategic content, especially the personality of the project owner and the values he carries.
7. implementation of strategic management generally results in small projects that achieve high performance rates compared to projects that do not adopt the concept of management and strategic direction in their work.

### References:

1. Campbell (2005) "Risk Management Guide for Small Business," Global Risk Alliance Pty Ltd Jointly With NSW Department of State and Regional Development.
2. Gimenez, F (1996) "MILES AND SNOWS STRATEGY MODEL IN THE CONTEXT OF SMALL FIRMS" Associate professor of Strategic Management at Department de Administraco, University Estadual de Maring.
3. HAILEY, J (19910 "THE SMALL BUSINESS SECTOR IN DEVELOPING ECONOMIES", Enterprise Group Canfield School of Management Canfield Institute of Technology Canfield, U.K.
4. Hattem, T (2003) "Small Business Management Entrepreneurship and Beyond" Second Edition, Houghton Mifflin Company, New York.

5. Lazenby, k (2000) "ENTEENPRENEURIAL STRATEGIC MANAGEMENT: AN APPROACH FOR SMALL BUSINESS GROWTH", Department of Business Management University of the Orange Free State Bloemfontein.
6. Lobontiu, G (2002) "Strategies and Strategic Management in Small Business" Department of Management, Politics and philosophy Copenhagen Business School.
7. Paul Burns and Jim Dewhurst. (1996) "Small Business and Entrepreneurship" (2 ND Edition). Macmillan Business.
8. Schrier, D &Hallin, L & Johnson, k (2005) "A profile of small business in British Columbia the British Columbia Ministry of Labor and Citizens.
9. Stephen F. (2000) "The Role of Customer Service in Small Business Strategic Planning" Austin State University.
10. Wheelmen T & Hunger J, (2002) "Strategic management and Business Policy" 8, publication by Pearson Prentice Hall INC in United States of America.