



## TOOLS AND TECHNIQUES FOR RISK IDENTIFICATION AND ASSESSMENT

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**Abstract** Most risk management programs begin by identifying the risks that threaten a company. It is well known that prevention is better than cure and therefore, this technique is meant to identify threats before they occur. There are many tools and techniques that are used in identifying potential risks to the firm or products/services. This tools and techniques are used to ensure that all possible risks are identified within the company.

### Keywords

Risk, tools, techniques,  
risk assessment,  
companies  
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### 1. Introduction

Every business, no matter the scope or complexity, is going to meet many inherent risks. The type, number and severity of the threats will differ depending on a diversity of aspects, such as the business's dimension, its associated constituent pieces, the number of employees, and so on. Therefore, any company must have integrated a risk management programme in order to manage the risks that can appear.

Risk management and risk management techniques have become an important and required skill within most industries. The management of risk is an indispensable part of any company.

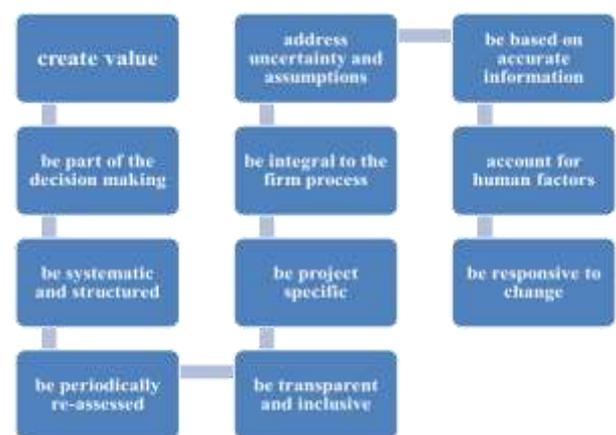
Risk is defined as *the probability that an event might occur and will impact an organization's accomplishment of objectives*.

There are many types of risk in a company, depending on its activity, such as IT risk, financial risk, operational risk, network security risk, and personnel risk. To address risks more efficiently, firms could use a risk management approach that controls potential events or situations.

Risk management is a systematic process of making a realistic evaluation of the true level of risks to your business. According to Business Dictionary we can define risk management as: *“the process of identification, analysis, assessment, control, and avoidance, minimization, or elimination of unacceptable risks”*.

Any type of risk assessment, no matter the condition, is all the time a combination of both art and science, combined with the person's particular individual experience and knowledge. Because risks are, in and of themselves, intangibles and their classification can be rather daunting.

Figure 1. Principles of risk management



(Source: The International Organization for Standardization)

Risk management is a five step process that work simultaneously. These steps are to be followed for having a good risk management:

1. Risk Identification,
2. Risk Analysis,
3. Risk Control,
4. Risk Transfer,
5. Risk Review.

### 2. The process of risk identification

The step of identifying risks requires a broad approach. This part of the process, like all others, needs to be inclusive and must involve management, staff, members, volunteers and other stakeholders. Often the best way to get things progressing is by providing a chance for everyone to come with ideas.

People must remember that there are no rights or wrong risks – they should all be identified.

Identifying risks requires performing two key activities: *recognizing the source of the risks and opportunities* and *searching out and identifying both the risks and opportunities*.

The objectives of risk identification are to detect and categorize risks that could affect the project and document these risks. The result of risk identification is a list of risks. What is done with the list of risks depends on the nature of the risks and the project.

A number of documents and tools are available to support the risk identification process. Table 1 provides an example of project-specific documents, programmatic documents, and techniques available for risk identification.

*“What makes the identification process interesting is that the market place is in a constant state of flux. The risks identified to a business last week will not be entirely the same as the risks identified to the same business next week. For global businesses there is greater immediacy, where the risks and opportunities identified yesterday may well be different to those identified tomorrow”* (Chapman J. Robert, *Simple Tools and Techniques for Enterprise Risk Management*).

Table 1. Risk identification tools and techniques

| Project-specific documents  | Programmatic documents   | Techniques   |
|---|--|--|
| <ul style="list-style-type: none"> <li>project description</li> <li>work breakdown structure</li> <li>cost estimate</li> <li>design and construction schedule</li> <li>procurement plan</li> <li>listing of team's issues and concerns</li> </ul> | <ul style="list-style-type: none"> <li>historic data</li> <li>checklists</li> <li>final project reports</li> <li>risk response plans</li> <li>organized lessons learned</li> <li>published commercial databases</li> <li>academic studies</li> </ul> | <ul style="list-style-type: none"> <li>brainstorming</li> <li>scenario planning</li> <li>expert interviews</li> <li>nominal group methods</li> <li>Delphi methods</li> <li>Crawford slip methods</li> <li>influence or risk diagramming</li> </ul> |

Source: FHWA.com

### 3. The process of risk assessment

The purpose of the risk assessment step is to offer an idea of the probability and impact of the risks and opportunities identified, if they will materialize.

The benefits of this activity are that assessment offers an order of pain or gain for each risk and presents the opportunities.

There are many risk assessment tools and techniques available to help enterprises assess their risks. The choice of technique will be determined by the

workplace conditions, like the number of employees, the type of work activities, the particular features of the workplace and any specific risks.

The most common risk assessment tools are checklists, which are a useful tool to help identify hazards. Other kinds of risk assessment tools include: guides, guidance documents, handbooks, brochures, questionnaires, and “interactive tools”. These tools can be either generic or branch/risk-specific.

Once the risks have been identified it is necessary to assess the possible impact of those risks. Minor risks that may be acceptable are separated from major risks that must be managed immediately.

Risk assessment techniques can include both qualitative and quantitative methods. The goal of the assessment is to identify and describe the risks associated with a decision problem and to analyze the potential impacts of the risk.

Table 2. Risk Analysis Tools & Techniques

| Qualitative  | Quantitative   |
|--|--|
| <ul style="list-style-type: none"> <li>Risk probability and Impact assessment</li> <li>Probability and Impact Matrix</li> <li>Risk Data Quality Assessment</li> <li>Risk Categorization</li> <li>Risk Urgency Assessment</li> <li>Expert Judgment</li> </ul> | <ul style="list-style-type: none"> <li>Data Gathering &amp; Representation Techniques</li> <li>Quantitative Risk Analysis &amp; Modeling Techniques</li> <li>✓ Sensitivity Analysis</li> <li>✓ Expected Monetary Value (EMV) Analysis</li> <li>✓ Decision Tree Analysis</li> <li>✓ Tornado Diagrams - Monte Carlo Analysis</li> <li>Expert Judgment</li> </ul> |

Source: free-management-ebooks.com

Qualitative risk analysis is the process of assessing the impact and probability of identified risks. This process prioritizes risk according to their possible consequence on firm's objectives. Qualitative risk analysis is one way to determine the importance of addressing particular risks and managing risk reactions.

Quantitative risk analysis process has the purpose to analyze numerically the possibility of each risk and its result on objectives. This procedure uses techniques such as Monte Carlo simulation and decision analysis.

Quantitative risk analysis usually follows qualitative risk analysis. The qualitative and quantitative risk analysis processes can be used independently or together. Deliberations of time and budget disposal and the need for qualitative or quantitative reports about risk and impacts determine which methods are better to use.

After the risk has been identified and assessed, it is developed a risk mitigation plan, which is a plan to reduce the impact of an unexpected event. The risk mitigation plan captures the risk mitigation approach for

each identified risk event and the taken actions to reduce or eliminate the risk.

#### 4. Conclusions

Most of the companies are realizing risk management programs to support them in identifying companywide risks and potential threats.

The risk identification process detects and classifies risks that might affect the business. Risk identification is unceasing and risks must repeatedly be involved into the procedure. The tools and techniques must represent the foundation of the risk identification process.

Risk assessment includes evaluating the various acknowledged risks to determine the levels of threat modeled by a certain identified component and to quantify the risk in order to evaluate the level of avoidance or control that is required by that risk.

#### References

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