FRM Basic Concepts and Theory

The Risk Management Process

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Risk Management: An Introduction

* **DEFINITION**
* Risk management is the process of identifying, assessing and controlling threats to an organization's capital and earnings. These threats, or risks, could stem from a wide variety of sources, including financial uncertainty, legal liabilities, strategic management errors, accidents and natural disasters.
* **Not all risks are so unpredictable or unexpected or difficult to estimate. By closely monitoring the business environment and streamlining internal systems and processes, companies can anticipate the risks associated with changing technology, changing customer tastes, changing interest and currency rates, changing competitive conditions, etc.**

Exhibit.1.1

Major upheavals in recent years		
1971	:	Breakdown of Bretton Woods
1973	:	Oil shock
1987	:	US Stock market crash
1989	:	Crash of the Nikkei Index
1994	:	Mexican Peso crisis
1997	:	Asian currency crisis
1998	:	Russian rouble crisis/collapse of LTCM
2000	:	Dotcom bust
2001	:	WTC terrorist attack
2007	:	Sub Prime Crisis
2008	:	Collapse of Bear Stearns, Lehman, AIG,

risk management systems failed to deliver the goods during the recent crisis. And the price paid by the global economy has been heavy. It is evident that financial institutions and companies need to develop and apply a far more robust and integrated risk management framework that can inspire the confidence of shareholders.

From identifying risk to measuring it and controlling it, the entire risk management process will have to undergo a major overhaul in the coming years.

During 2008-2012, many banks dealt with credit and market risk separately in the build up to the sub prime crisis. The credit risk in case of many sub prime assets became market risk as market indices moved, leading to heavy mark-to-market losses.

An organization wide view of risk management can greatly improve efficiencies, generate synergies and most importantly result in a deeper understanding of risk exposure. Which is why banks like UBS have now started to integrate the management of credit risk and market risk.

Enterprise Risk Management (ERM)

- **why many companies are taking a serious look at Enterprise Risk Management (ERM), which addresses some fundamental questions:**
- **What are the various risks faced by the company?**
- **What is the magnitude of each of these risks?**
- **What is the frequency of each of these risks?**
- **What is the relationship between the different risks?**
- **How can the risks be managed to maximize shareholders‘ wealth?**

Enterprise Risk Management (ERM)

Risk management is the process of identifying, assessing and controlling threats to an organization's capital and earnings. These threats, or risks, could stem from a wide variety of sources, including financial uncertainty, legal liabilities, strategic management errors, accidents and natural disasters.

IT security threats and data-related risks, and the risk management strategies to alleviate them, have become a top priority for digitized companies. As a result, a risk management plan increasingly includes companies' processes for identifying and controlling threats to its digital assets, including proprietary corporate data, a customer's personally identifiable information and intellectual property.

Risk management standards

* Since the early 2000s, several industry and government bodies have expanded regulatory compliance rules that scrutinize companies' risk management plans, policies and procedures. In an increasing number of industries, boards of directors are required to review and report on the adequacy of enterprise risk management processes. As a result, risk analysis, internal audits and other means of risk assessment have become major components of business strategy.

Risk management strategies and processes

* All risk management plans follow the same steps that combine to make up the overall risk management process:

* **Risk identification.**

The company identifies and defines potential risks that may negatively influence a specific company process or project.

* **Risk analysis.**

Once specific types of risk are identified, the company then determines the odds of it occurring, as well as its consequences. The goal of the analysis is to further understand each specific instance of risk, and how it could influence the company's projects and objectives.

* **Risk assessment and evaluation.**

The risk is then further evaluated after determining the risk's overall likelihood of occurrence combined with its overall consequence. The company can then make decisions on whether the risk is acceptable and whether the company is willing to take it on based on its risk appetite.

Risk management strategies and processes

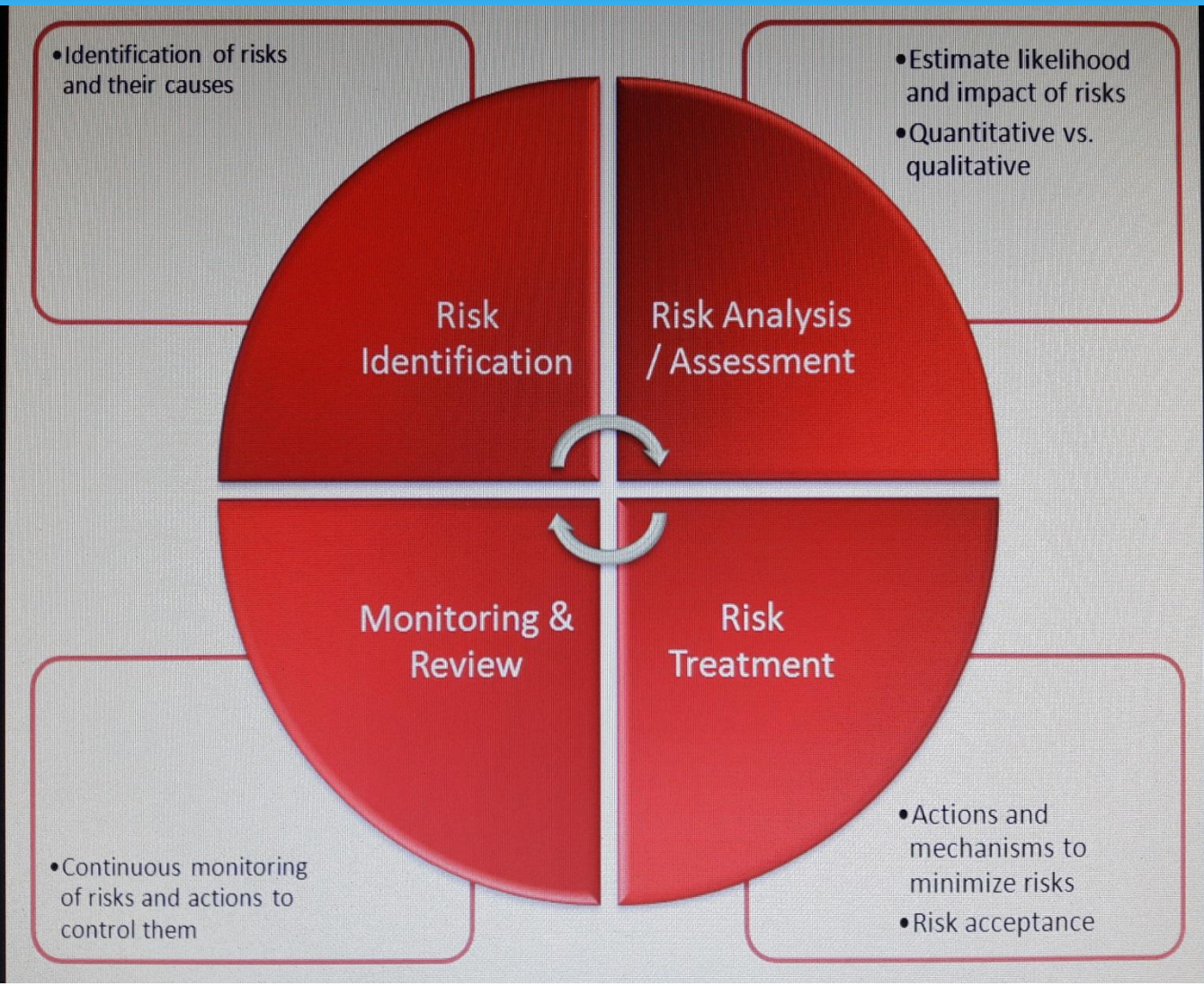
Risk mitigation.

During this step, companies assess their highest-ranked risks and develop a plan to alleviate them using specific risk controls. These plans include risk mitigation processes, risk prevention tactics and contingency plans in the event the risk comes to fruition.

Risk monitoring.

Part of the mitigation plan includes following up on both the risks and the overall plan to continuously monitor and track new and existing risks. The overall risk management process should also be reviewed and updated accordingly.


Risk Identification
qualitative Risk analysis
quantitive Risk analysis
Risk response planning
Risk monitoring & control
RISK MANAGEMENT


•Identification of risks and their causes
•Estimate likelihood and impact of risks
•Quantitative vs. qualitative
Risk Identification
Risk Analysis / Assessment
Monitoring & Review
Risk Treatment
•Continuous monitoring of risks and actions to control them
•Actions and mechanisms to minimize risks
•Risk acceptance

* The ISO standards and others like it have been developed worldwide to help organizations systematically implement risk management best practices. The ultimate goal for these standards is to establish common frameworks and processes to effectively implement risk management strategies.
* These standards are often recognized by international regulatory bodies, or by target industry groups. They are also regularly supplemented and updated to reflect rapidly changing sources of business risk.

Risk management approaches

* After the company's specific risks are identified and the risk management process has been implemented, there are several different strategies

* **Risk avoidance**.

While the complete elimination of all risk is rarely possible, a risk avoidance strategy is designed to deflect as many threats as possible in order to avoid the costly and disruptive consequences of a damaging event.

* **Risk reduction**.

Companies are sometimes able to reduce the amount of effect certain risks can have on company processes. This is achieved by adjusting certain aspects of an overall project plan or company process, or by reducing its scope.

Risk management approaches

* **Risk sharing.**
* Sometimes, the consequences of a risk is shared, or distributed among several of the project's participants or business departments. The risk could also be shared with a third party, such as a vendor or business partner.
* **Risk retaining.**
* Sometimes, companies decide a risk is worth it from a business standpoint, and decide to retain the risk and deal with any potential fallout. Companies will often retain a certain level of risk a project's anticipated profit is greater than the costs of its potential risk.

shareholders do not have all the information needed to manage the risks a company faces. Moreover, even if they had, individual shareholders would find it inefficient and expensive to manage risks on their own. The transaction costs would be too high if a large number of small hedging transactions are undertaken. Finally, distress situations are eminently avoidable. During such situations, significant value destruction takes place as the assets of the company trade at unrealistically low prices.

Does risk management really benefit the shareholders?

After all many of the risks a company faces, are specific to it. Portfolio theory argues that shareholders are rewarded only for systematic risk. Unsystematic risk, i.e., risk specific to a company can be diversified away by purchasing shares in a reasonably large number of companies.

If shareholders can manage risk more efficient on their own, by buying shares in various corporations, should companies really manage risk?

* For starters/original inventors, shareholders do not have all the information needed to manage the risks a company faces. Moreover, even if they had, individual shareholders would find it inefficient and expensive to manage risks on their own. The transaction costs would be too high if a large number of small hedging transactions are undertaken. Finally, distress situations are eminently avoidable.

Prudent risk management

Prudent risk management *ensures that the firm's cash flows are healthy so that the immediate obligations and future investment needs of the firm are both adequately taken care of.*

Firms typically run into cash flow problems because they fail to anticipate or handle risks efficiently. These risks include ***market risks*** such as vulnerability to interest rate, stock index, commodity price and exchange rate movements. Then there are ***credit risks*** which arise because of excessive investments in the same asset class or lending to the same customer segment.

They also include ***liquidity risks*** such as liquidity black holes, which result when the entire market shifts to one side, with sellers finding it difficult to find buyers.

Firms may also fail to anticipate *business risks* when the demand suddenly falls or a rival starts taking away market share aggressively with a new business model or technological innovation.

There are various examples of companies failing to manage ***operational risk*** effectively because of poor systems and processes.

* Liquidity gives the comfort to sustain day-to-day operations and more importantly make those vital investments that are needed to sustain the company‘s competitiveness in the long run.
* Sound risk management goes a long way in ensuring that the organization has the required liquidity to function effectively even in bad times.

1.4 Categorising uncertainty

* Organisations face various types of uncertainty. Milliken5 has classified **uncertainty into three broad categories**.
* ***State Uncertainty*:** This refers to the unpredictability of the environment. Causes of state uncertainty are:
  * Volatility in the environment
  * Complexity in the environment
  * Heterogeneity in the environment
* ***Effect Uncertainty:*** This is the uncertainty about the impact of external events on the organization.
* ***Response Uncertainty:*** This refers to the unpredictability of the organization‘s responses to external developments.

Oliver Williamson, well known for his work on transaction cost economics and the 2009 Economics Nobel Prize winner has drawn a distinction among *environmental / external uncertainty*, *organizational/internal uncertainty* and *strategic uncertainty*.

Environmental uncertainty arises due to random acts of nature and unpredictable changes in consumer preferences.

Organizational uncertainty refers to the lack of timely communication among decision-makers, each of whom has incomplete information. This leads to lack of coordination and consequently, poor decisions.

Strategic uncertainty is created by misrepresentation, non-disclosure and distortion of information and results in uncertainty in the relations a firm has with suppliers, customers and competitors.

What is the Risk Management process?

The Risk Management Process consists of

a series of steps that, when undertaken in sequence, enable continual improvement in decision-making.

Steps of the Risk Management Process?

Step 1. Communicate and consult.

Step 2. Establish the context.

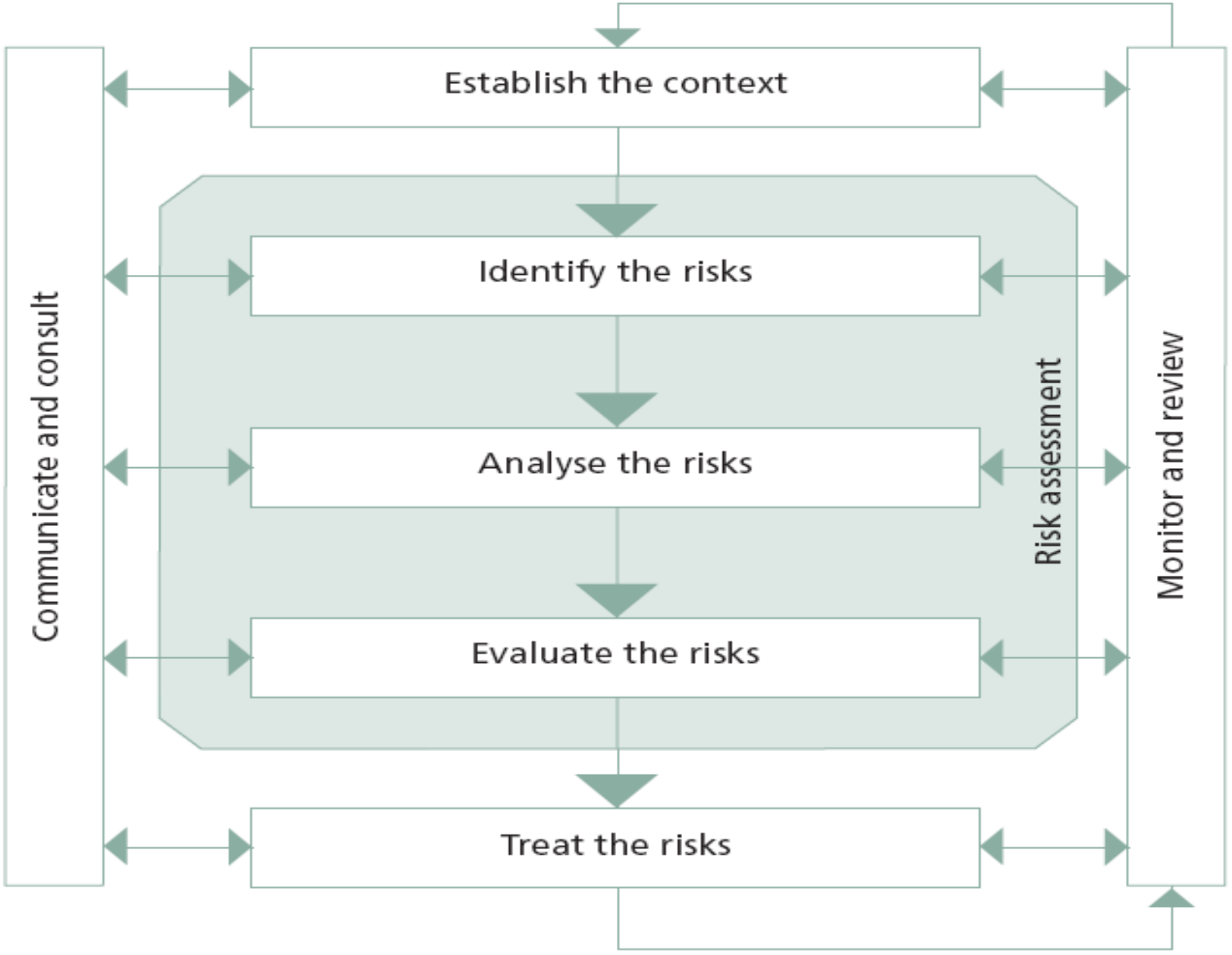
Step 3. Identify the risks.

Step 4. Analyze the risks.

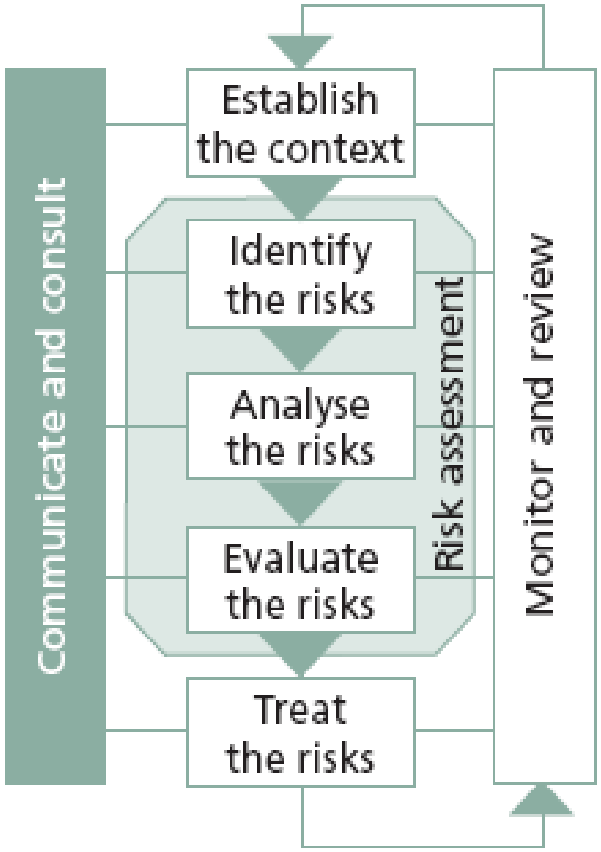
Step 5. Evaluate the risks.

Step 6. Treat the risks.

Step 7. Monitor and review.


Establish the context
Identify the risks
Analyse the risks
Evaluate the risks
Treat the risks
Risk assessment
Communicate and consult
Monitor and review

Step 1.Communicate and consult



-Communication and consultation aims to identify who should be involved in assessment of risk (including identification,analysis and evaluation) and it should engage those who will be involved in the treatment, monitoring and review of risk.

-As such, communication and consultation will be reflected in each step of the process described here.

-As an initial step, there are two main aspects that should be identified in order to establish the requirements for the remainder of the process.

-***These are communication and consultation aimed at:***

A- Eliciting risk information

B-Managing stakeholder perceptions for management of risk.

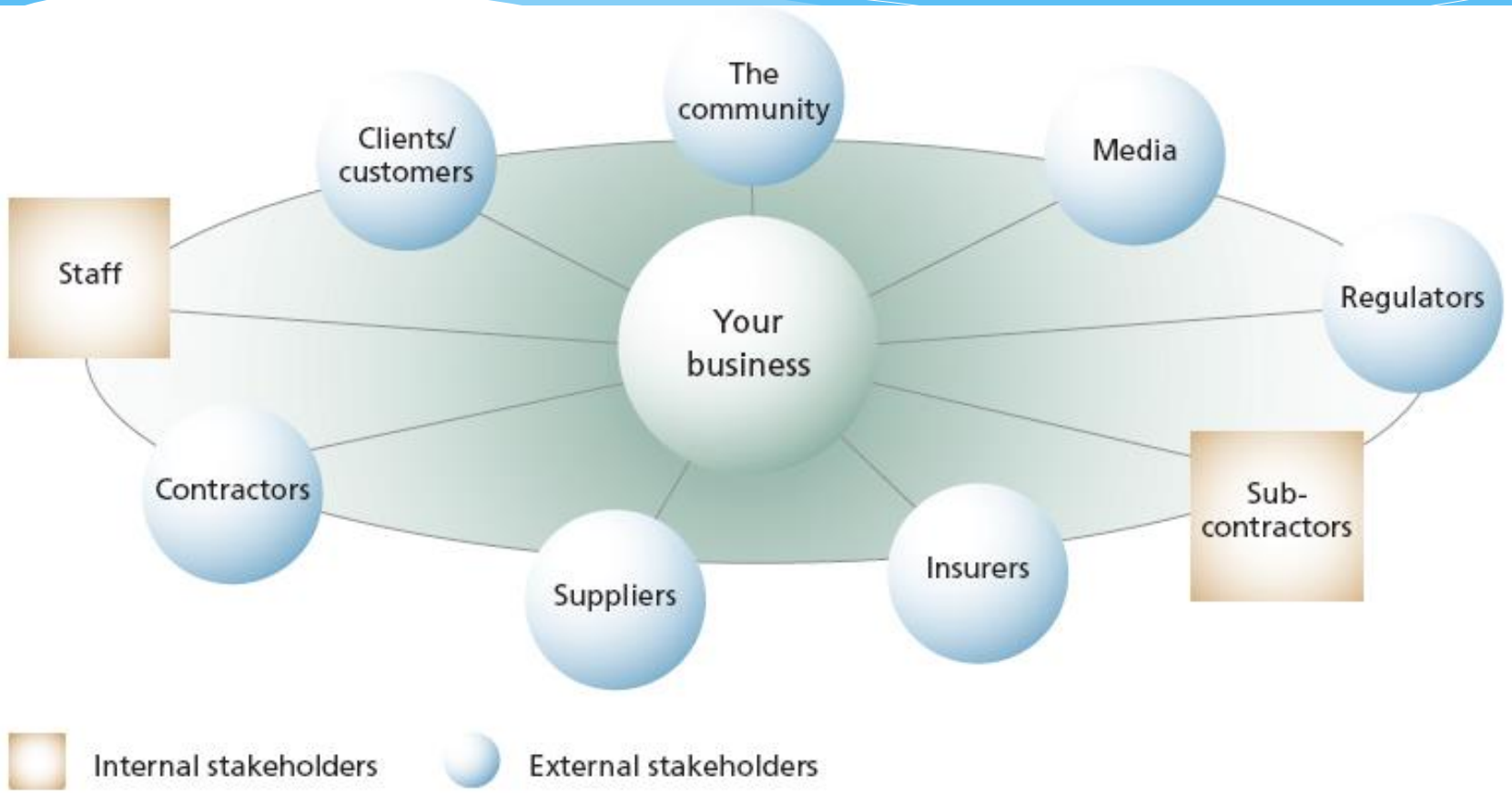
A- Eliciting risk information

-Communication and consultation may occur within the organization or between the organization and its stakeholders.

-It is very rare that only one person will hold all the information needed to identify the risks to a business or even to an activity or project.

-It therefore important to identify the range of stakeholders who will assist in making this information complete.

B-Managing stakeholder perceptions for management of risk



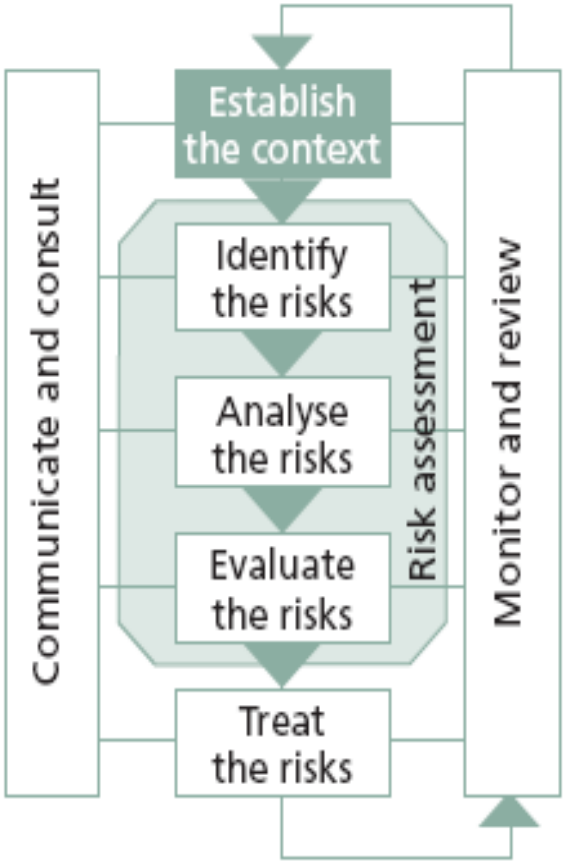
Tips for effective communication and consultation

- Determine at the outset whether a communication strategy and/or plan is required

- Determine the best method or media for communication and consultation

- The significance or complexity of the issue or activity in question can be used as a guide as to how much communication and consultation is required: the more complex and significant to the organization, the more detailed and comprehensive the requirement.

Step 2. Establish the context



provides a five-step process to assist with establishing the context within which risk will be identified.

1-Establish the internal context

2-Establish the external context

3-Establish the risk management context

4- Develop risk criteria

5- Define the structure for risk analysis

1- Establish the internal context

-As previously discussed, risk is the chance of something happening that will impact on objectives.

As such, the objectives and goals of a business, project or activity must first be identified to ensure that all significant risks are understood.

This ensures that risk decisions always support the broader goals and objectives of the business. This approach encourages long-term and strategic thinking.

In establishing the internal context, the business owner may also ask themselves the following questions:

- Is there an internal culture that needs to be considered? For example, are staff Resistant to change? Is there a professional culture that might create unnecessary risks for the business?
- What staff groups are present?
- What capabilities does the business have in terms of people, systems, processes, equipment and other resources?

2. Establish the external context

* This step defines the overall environment in which a business operates and includes an understanding of the clients' or customers' perceptions of the business. An analysis of these factors will identify the strengths, weaknesses, opportunities and threats to the business in the external environment.

* ***A business owner may ask the following questions when determining the external context:***

- What regulations and legislation must the business comply with?
- Are there any other requirements the business needs to comply with?
- What is the market within which the business operates? Who are the competitors?
- Are there any social, cultural or political issues that need to be considered?

Tips for establishing internal and external contexts

-Determine the significance of the activity in achieving the organization's goals and objectives

- Define the operating environment

- Identify internal and external stakeholders and determine their involvement in the risk management process.

3- Establish the risk management context

- Before beginning a risk identification exercise, it is important to define the limits, objectives and scope of the activity or issue under examination.

- For example, in conducting a risk analysis for a new project, such as the introduction of a new piece of equipment or a new product line, it is important to clearly identify the parameters for this activity to ensure that all significant risks are identified.

Tips for establishing the risk management context

- Define the objectives of the activity, task or function
- Identify any legislation, regulations, policies, standards and operating procedures that need to be complied with
- Decide on the depth of analysis required and allocate resources accordingly
- Decide what the output of the process will be, e.g. a risk assessment, job safety analysis or a board presentation. The output will determine the most appropriate structure and type of documentation.

4. Develop risk criteria

Risk criteria allow a business to clearly define unacceptable levels of risk. Conversely, risk criteria may include the acceptable level of risk for a specific activity or event. In this step the risk criteria may be broadly defined and then further refined later in the risk management process.

Tips for developing risk criteria

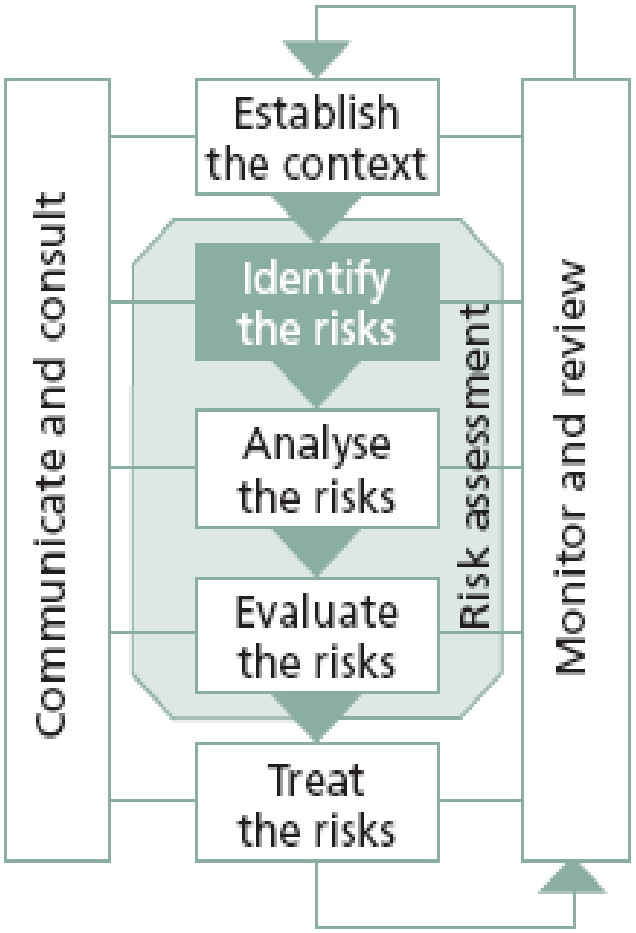
- Decide or define the acceptable level of risk for each activity
- Determine what is unacceptable
- Clearly identify who is responsible for accepting risk and at what level.

5. Define the structure for risk analysis

* Isolate the categories of risk that you want to manage. This will provide greater depth and accuracy in identifying significant risks.
* The chosen structure for risk analysis will depend upon the type of activity or issue,

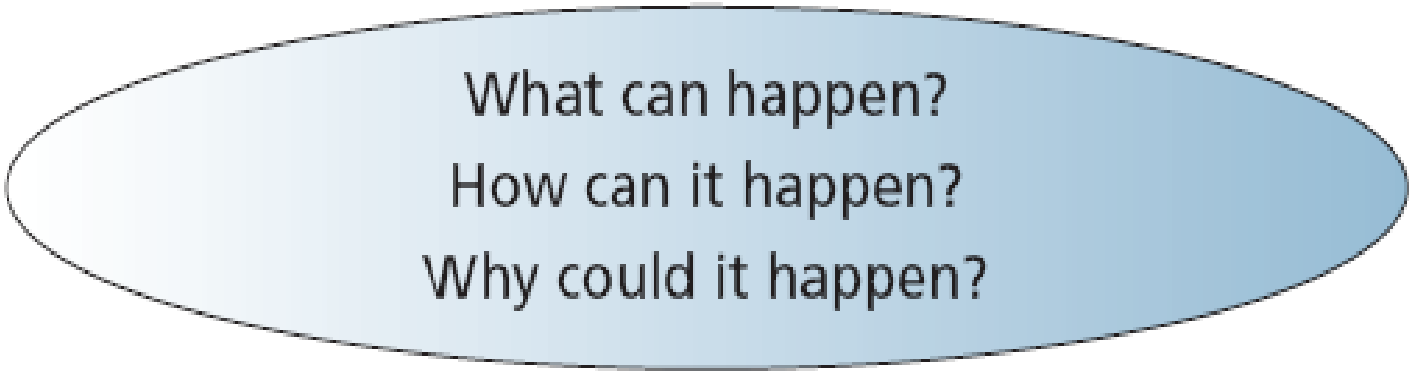
  its complexity and the context of the risks.

Step 3. Identify the risks



* Risk cannot be managed unless it is first identified. Once the context of the business has been defined, the next step is to utilize the information to identify as many risks as possible.

* The aim of risk identification is to identify possible risks that may affect, either negatively or positively, the objectives of the business and the activity under analysis. Answering the following questions identifies the risk:



* *There are two main ways to identify risk:*

1- Identifying retrospective risks

Retrospective risks are those that have previously occurred, such as incidents or accidents. Retrospective risk identification is often the most common way to identify risk, and the easiest. It's easier to believe something if it has happened before. It is also easier to quantify its impact and to see the damage it has caused.

There are many sources of information about retrospective risk. These include:

- Hazard or incident logs or registers
- Audit reports
- Customer complaints
- Accreditation documents and reports
- Past staff or client surveys
- Newspapers or professional media, such as journals or websites.

2-Identifying prospective risks

* Prospective risks are often harder to identify. These are things that have not yet happened, but might happen some time in the future.

* Identification should include all risks, whether or not they are currently being managed. The rationale here is to record all significant risks and monitor or review the effectiveness of their control.

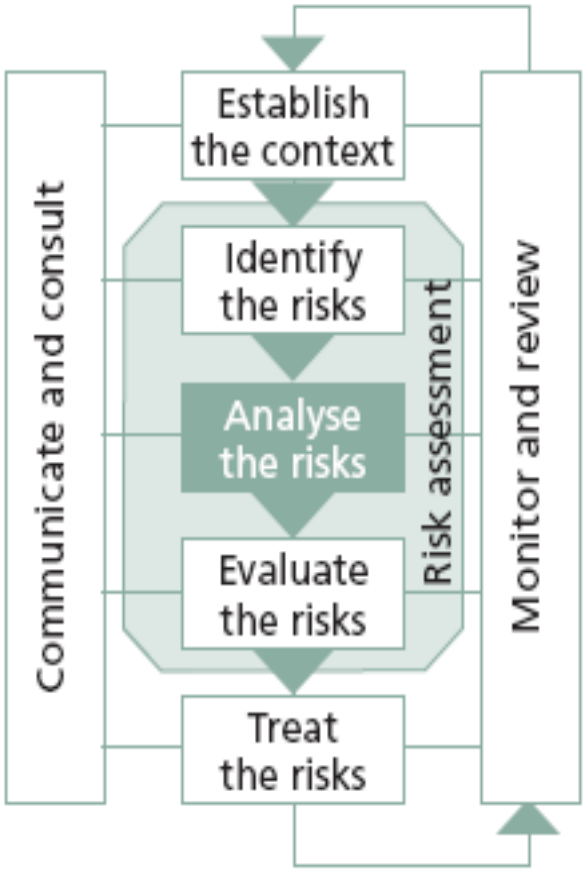
Methods for identifying prospective risks include:

- Brainstorming with staff or external stakeholders
- Researching the economic, political, legislative and operating environment
- Conducting interviews with relevant people and/or organizations
- Undertaking surveys of staff or clients to identify anticipated issues or problems
- Flow charting a process
- Reviewing system design or preparing system analysis techniques.

Tips for effective risk identification

* Select a risk identification methodology appropriate to the type of risk and the nature of the activity
* Involve the right people in risk identification activities
* Take a life cycle approach to risk identification and determine how risks change and evolve throughout this cycle.

Step 4. Analyze the risks



* During the risk identification step, a business owner may have identified many risks and it is often not possible to try to address all those identified.
* The risk analysis step will assist in determining which risks have a greater consequence or impact than others.

What is risk analysis?

* Risk analysis involves combining the possible consequences, or impact, of an event,

* with the likelihood of that event occurring. The result is a ‘level of risk’. That is:

Risk = consequence x likelihood

Elements of risk analysis

The elements of risk analysis are as follows:

1. Identify existing strategies and controls that act to minimize negative risk and enhance opportunities.
2. Determine the consequences of a negative impact or an opportunity (these may be positive or negative).
3. Determine the likelihood of a negative consequence or an opportunity.
4. Estimate the level of risk by combining consequence and likelihood.
5. Consider and identify any uncertainties in the estimates.

Types of analysis

Three categories or types of analysis can be used to determine level of risk:

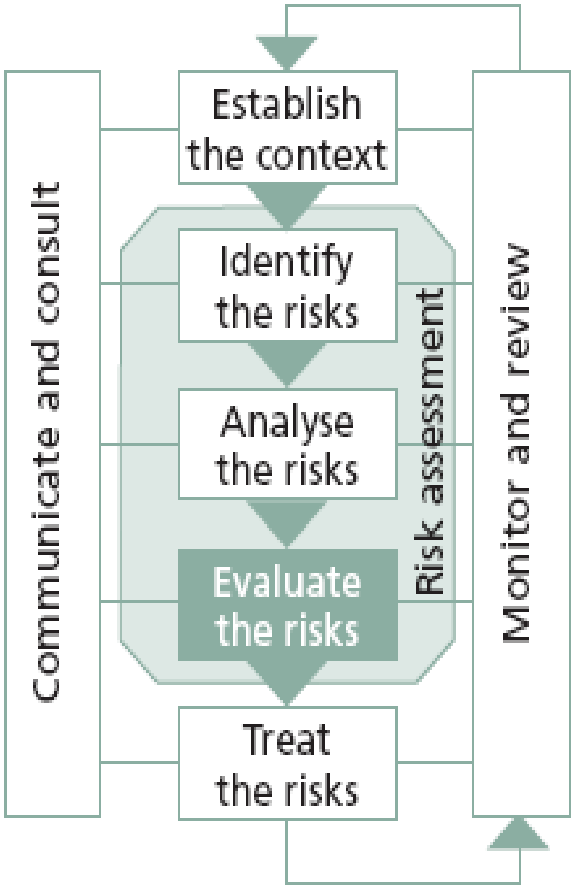
- Qualitative
- Semi-quantitative
- Quantitative.

- The most common type of risk analysis is the qualitative method. The type of analysis chosen will be based upon the area of risk being analyzed.

Tips for effective risk analysis

- Risk analysis is usually done in the context of existing controls – take the time to identify them
- The risk analysis methodology selected should, where possible, be comparable to the significance and complexity of the risk being analyzed, i.e. the higher the potential consequence the more rigorous the methodology
- Risk analysis tools are designed to help rank or priorities risks. To do this they must be designed for the specific context and the risk dimension under analysis.

Step 5. Evaluate the risks



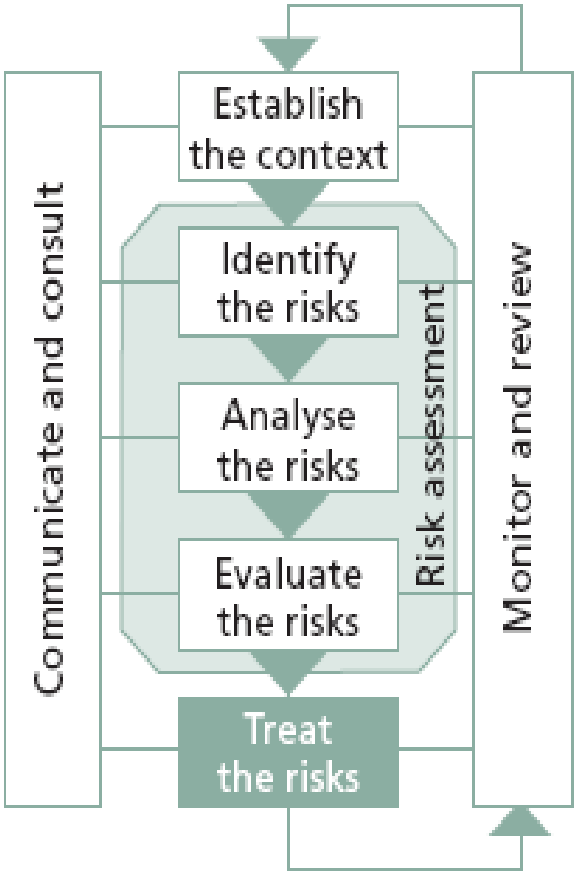
* Risk evaluation involves comparing the level of risk found during the analysis process with previously established risk criteria, and deciding whether these risks require treatment.
* The result of a risk evaluation is a prioritized list of risks that require further action.
* This step is about deciding whether risks are acceptable or need treatment.

Risk acceptance

A risk may be accepted for the following reasons:

- The cost of treatment far exceeds the benefit, so that acceptance is the only option (applies particularly to lower ranked risks)
- The level of the risk is so low that specific treatment is not appropriate with available resources
- The opportunities presented outweigh the threats to such a degree that the risks justified
- The risk is such that there is no treatment available, for example the risk that the business may suffer storm damage.

Step 6. Treat the risks



* Risk treatment is about considering options for treating risks that were not considered acceptable or tolerable at Step 5.

* Risk treatment involves identifying options for treating or controlling risk, in order to either reduce or eliminate negative consequences, or to reduce the likelihood of an adverse occurrence. Risk treatment should also aim to enhance positive outcomes.

* ***Options for risk treatment:***

identifies the following options that may assist in the minimization of negative risk or an increase in the impact of positive risk.

1- Avoid the risk

2- Change the likelihood of the occurrence

3- Change the consequences

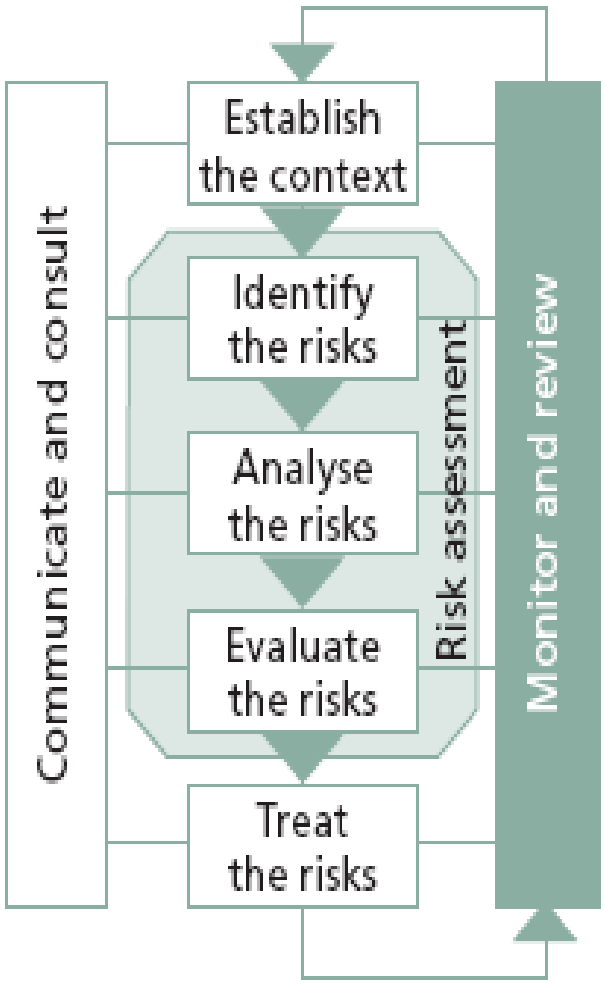
4- Share the risk

5- Retain the risk

Tips for implementing risk treatments

- The key to managing risk is in implementing effective treatment options
- When implementing the risk treatment plan, ensure that adequate resources are available, and define a timeframe, responsibilities and a method for monitoring progress against the plan
- Physically check that the treatment implemented reduces the residual risk level
- In order of priority, undertake remedial measures to reduce the risk.

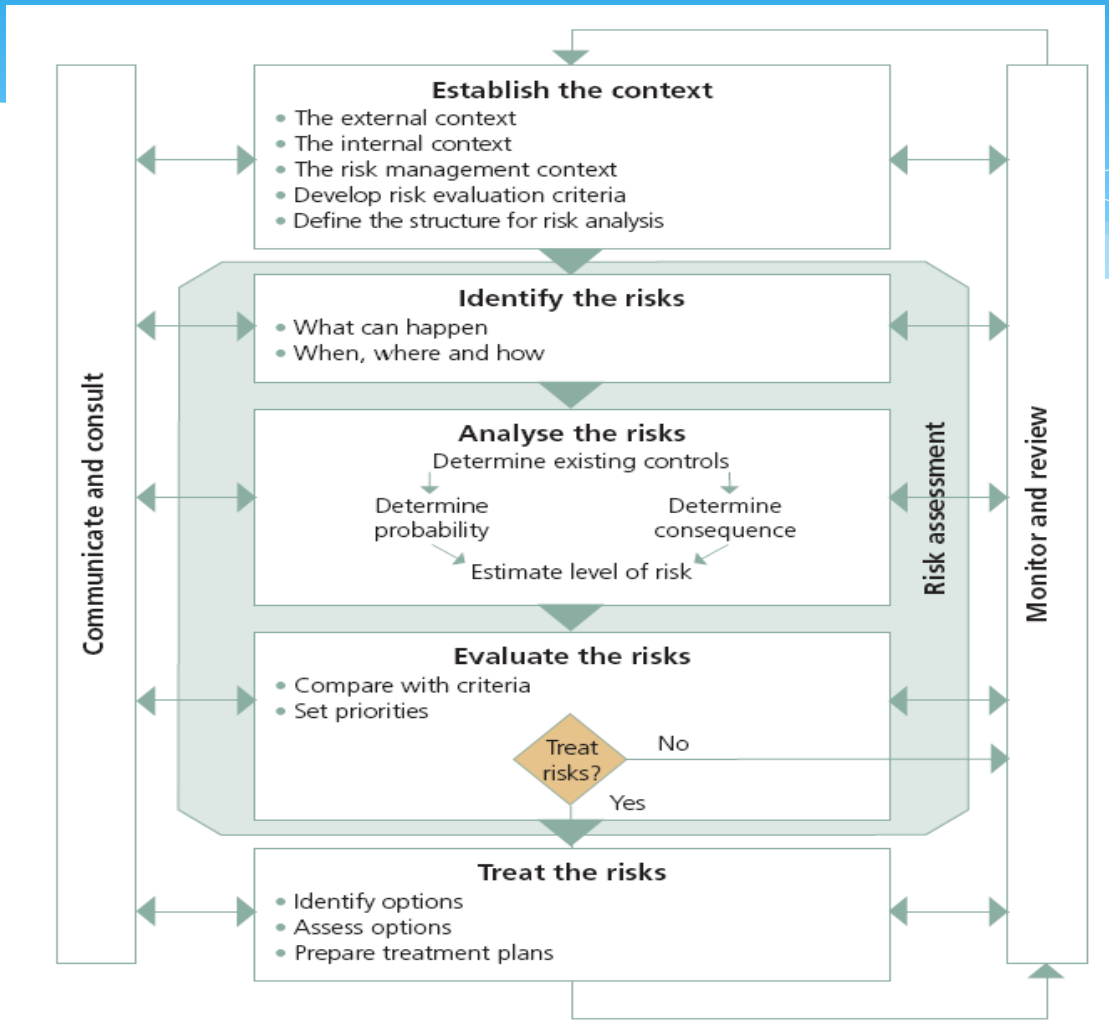
Step 7. Monitor and review



* Monitor and review is an essential and integral step in the risk management process.
* A business owner must monitor risks and review the effectiveness of the treatment plan, strategies and management system that have been set up to effectively manage risk.

* **Risks need to be monitored periodically to ensure** changing circumstances do not alter the risk priorities. Very few risks will remain static, therefore the risk management process needs to be regularly repeated, so that new risks are captured in the process and effectively managed.
* A risk management plan at a business level should be reviewed at least on an annual basis. An effective way to ensure that this occurs is to combine risk planning or risk review with annual business planning.

Summary of risk management steps



Discussion

and

Q & A