1 -Overview of Risk Management

**1 – Understanding and Quantifying Risk**

**Objective**: Describe each of the following in the context of risk: Uncertainty, Possibility, Possibility compared with probability

Although risk may intuitively seem undesirable, it can yield both positive and negative outcomes. Opportunities cannot be pursued, and reward cannot be obtained without incurring some risk. Because of this risk/reward relationship, individuals and organizations seek to maximize reward while minimizing the associated risk*. Risk management helps individuals and organizations to avoid, prevent, reduce, or pay for the negative outcomes of risk so that opportunities for reward can be pursued*.

Risk is a term regularly used by individuals in both their personal and professional lives and is generally understood in context. However, property defining risk is often difficult because it can have many different meanings. Risk is defined as the uncertainty about outcomes, with the possibility that some of the outcomes can be negative. Risk can be quantified by knowing the probability of the possible outcomes.

Industry Language – Risk

Risk can be used in many contexts in risk management and insurance and can have any of the following meanings:

* The subject matter of an insurance policy, such as a structure, and auto fleet, or the possibility of a liability claim arising from an insured’s activities
* The insurance applicant (the insured)
* The possibility of bodily injury or property damage
* A cause of loss (or peril), such as fire, lightning, or explosion
* The variability associated with a future outcome

**Uncertainty and Possibility**

The two elements within the definition of risk are:

* Uncertainty of outcome
* Possibility of a negative outcome

**First, risk involves uncertainty about the outcome (what will actually occur), the timing of the outcome (when will it occur), or both the type and timing of the outcome. Example, a person buys a share of stock, the individual may experience a positive outcome if the value increases or a negative outcome if the value decreases.**

**Second, risk involves the possibility of a negative outcome. Possibility means that an outcome or event may or may not occur. Because of the possibility of a negative outcome (injury), risk exists. Example, an individual may be injured while driving to or from work, loading a truck at work etc., the possibility that these events may occur does not mean that they will occur.**

**At least one of the potential outcomes is negative, which means a loss or reduction in value**.

**Possibility and Probability**

Probability – the likelihood that an outcome or event will occur.

**The possibility that something may occur does not indicate its likelihood or occurring. Possibility does not quantify risk; it only verifies that risk is present**. **To quantify risk, one needs to know the probability of the outcome or event occurring.**

Unlike possibility, *probability is measurable and has a value* between zero and one. If an event is not possible, it has a probability of zero, whereas if an event is certain, it has a probability of one. *Probabilities can be stated as a decimal figure or a fraction.*

Example: Consider the possibility that an individual will be injured in an auto accident while driving to or from work tomorrow. That person will not necessarily be injured in an auto accident tomorrow, and the fact that it is possible does not give any indication of its likelihood. The risk exists and has simply been identified. Contrast this with there being a 5% probability that the same individual with be injured in an auto accident while driving to or from work tomorrow. This statement not only indicates that it is possible, it gives the likelihood. The risk has now been not only identified but also quantified.

**Understanding the probability of various outcomes helps focus risk management attention on those risk that can be appropriately managed. Probability can also be used to help decide activities (and associated risks) to undertake and which risk management techniques to use**.

In the previous example:

* If the probability of injury while driving to or from work was 5%, and probability of injury if they took the train to work was 1%, that individual might decide to take the train.
* However, if the risk of auto injury was reduced to 1% by driving a car with airbags, and antilock brakes, and if it was more convenient and quicker to drive, they may decide (cost permitting) to buy a new car with airbags and antilock brakes and drive to work.

**2 – Risk Classifications and Categories**

**Objective**: Explain how classifying and categorizing risk help an organization meet its risk management goals.

Classifying the various types of risk can help an organization understand and manage its risk. The *categories should align with an organization’s objective and risk management goals*.

**Classification can help with assessing risks, because many risks in the same classifications have similar attributes. It also can help with managing risk, *because many risks in the same classification can be managed with similar techniques.* Finally, classification helps with the administrative function of risk management by helping to ensure that *risks in the same classification are less likely to be overlooked***.

The classifications are not mutually exclusive and can be applied to any given risk.

**Pure and Speculative Risk**

**A pure risk is a change of loss or no loss, but no chance of gain.** For example, the owner of a building faces the risk associate with a possible fire loss. The building will either burn or not burn. If the building burns, the owner suffers a financial loss. If the building does not burn, the owner’s financial condition is unchanged. Neither of the possible outcomes would produce a gain. Because there is no opportunity for financial gain, pure risks are always undesirable. Insurable risks are generally classified as pure, objective, and diversifiable.

**Speculative risk involves a chance of gain**. As a result, it can be desirable, as evidence by the fact that every business venture involves speculative risks. Example, and investor who purchases an apartment building to rent to tenants and expects profit from this investment, so it is a desired speculative risk. However, the venture could be unprofitable if rental price controls limit the amount of rent that can be charged.

Certain businesses involve speculative risks, such as these:

* Price risk – uncertainty over the size of cash flows resulting from changes in the cost of raw materials and other inputs.
* Credit risk – although significant for banks and other financial institutions, it can be relevant to any organization with accounts receivable

Financial investments involve a distinct set of speculative risks - Market Risk, Inflation Risk, Interest Rate Risk and Liquidity Risk.

Insurance deals primarily with risk of loss, not risk of gain; that is, with pure risk rather than speculative risks. However, the distinction is not always precise – many risks have both pure and speculative aspects.

**Distinguishing between pure and speculative risks if important because risks must often be managed differently. Most insurance policies are not designed to handle speculative risks**.

Example: A commercial building faces pure risk from causes of loss such as fire, they also face speculative risk that the market value of the building will increase or decrease*. To properly manage these investments, the commercial building owner must consider both the speculative and pure risks. Buying insurance (property insurance) or taking other measures to address property loss exposures (fire sprinkler systems). The speculative risk might be managed by obtaining a favorable mortgage and maintaining the property to enhance its resale value.*

**Subjective and Objective Risk**

**Subjective** – the perceived amount of risk based on an individual’s or organization’s **opinion**

**Objective** – the measurable variation in uncertain outcomes **based on facts and data**

When individuals and organizations must make a decision that involves risk, they usually base it on their assessment of the risk. The assessment can be based on opinions, which are subjective, or facts, which are objective.

Because it is based on opinion rather than fact, subjective risk may be quite different from the actual underlying risk that is present. In fact, subjective risk can exist even where objective risk does not. *The closer an individual’s subjective interpretation of risk is to the objective risk, the more effective its risk management plan will likely be*.

**The reasons that subjective and objective risk can differ substantially include these:**

* **Familiarity and Control – (over which they have not control) like considering air travel a higher degree of risk than the likelihood of suffering a serious injury when driving**
* **Consequences over likelihood – People often have two views of low-likelihood, high-consequence events. “It can’t happen to me” which assigns a probability of 0 likelihood to events such as natural disasters, fires, accidents. Or overstating the probability of a low-likelihood event such as a hurricane, tornado and other destructive events. The perception may be enhanced by the increased media coverage to high-severity events.**
* **Risk awareness – Organizations differ in terms of their level of risk awareness and therefore, perceive risks differently. An organization that is not aware of its risks would perceive the likelihood of something happening as very low.**

Both risk management and insurance depend on the ability to objectively identify and analyze risks. However, subjectivity is also necessary because facts are often not available to objectively assess risk.

**Diversifiable and Non-diversifiable Risk**

Diversifiable risk – a risk that affects only some individuals, businesses or small groups

**Diversifiable risk is not highly correlated and can be managed through diversification, or spread of risk**. *Like a fire, which is likely to affect only one or a small number of businesses.*  An insurer can diversify by insuring many buildings in several different locations

Non-diversifiable – a risk that affects a large segment of society at the same time

*Examples of non-diversifiable risks include inflation, unemployment, and national disasters such as hurricanes.* **Non-diversifiable risks are correlated – that is, their gains or losses tend to occur simultaneously rather than randomly**. Example, under certain monetary conditions, interest rates increase for all firms at the same time. If an insurer were to insure firms against interest rate increases, it would not be able to diversify its portfolio, because all of the insured would suffer losses at the same time.

*Systemic risk – the potential for a major disruption in the function of an entire market or financial system*

Systemic risks are generally non-diversifiable. If excess leverage by financial institutions cause systemic risk resulting in an event that disrupts the financial system, this risk will have an effect on the entire economy and, and therefore all organizations. Financial crisis.

**Quadrants of Risk: Hazard, Operational, Financial, and Strategic**

Although no consensus exists about how an organization should categorize its risks, **one approach involves dividing them into risk quadrants:**

* **Hazard risk arise from property, liability, or personnel loss exposures and are generally the subject of insurance***; Property, injury to employees, liability associated with products .* Traditionally managed by risk management professionals
* **Operational risks fall outside the hazard category and arise from people or a failure in processes, systems, or controls, including those involving information technology (IT);** *employee turnover, inability to fined skilled employees, supply chain and information technology related to automated manufacturing process*
* **Financial risks arise from the effect of market forces on financial assets or liability and include market risk, credit risk, liquidity risk and price risk***; foreign exchange rate risk, price for raw materials and supplies*
* **Strategic risks arise from trends in the economy and society, including changes in economic, political, and competitive environments, as well as from demographic shifts;** *competition, economic factors on consumer demand, and political risk from foreign countries where suppliers are located*

*Hazard and operational risks are classified as pure risks, and financial and strategic risks are classified as speculative risks.*

*The focus on the risk quadrants is different from the risk classifications. Classifications of risk focus on some aspect of the risk itself,* the four quadrants of risk focus on the risk source an who traditionally manages it*. Example, the CFO traditionally manages financial risk, and the risk manager traditionally manages hazard risk. Just as a risk can fall into one or more classification, a risk can fall into multiple quadrants.*

Organizations define types of risk differently. Some consider legal risks as operations, and some characterize certain hazard risks as operational. Financial institutions generally use the categories of market, credit, and operational risk (defined as all other risk, including hazard risk*). Each organization should select categories that align with its objectives and processes*

**Chapter Questions**

**The risk of hurricane damage to an office building is a pure risk in that there is not chance of gain from the damage. The risk is both subjective and objective. The building owner may have his or her own idea about the frequency or severity of loss (subjective), and there are objective measures of frequency and severity based on historical data or catastrophe modeling. Hurricane damage to an office building is usually non-diversifiable because hurricane affect many properties simultaneously.**

**The reduction in value of a retirement savings is speculative because there is a chance of loss, no loss, or gain. The risk is both subjective and objective. The investor may have its own expectations (subjective), as well as historical data (objective) on investment returns. The risk is diversifiable because the investor has many investment options to offset the risk of a reduction in retirement savings.**

**A products liability claim against a manufacturer is a pure risk, both subjective and objective and diversifiable. The manufacture can diversity into other products or services to reduce its exposure to products liability claims**.

**3 – Enterprise Risk Management**

**Objective**: Compare the concepts of enterprise risk management and traditional risk management

The concept of enterprise risk management (ERM) was developed as a way to manage all of an organization’s risk, including operational, financial, and strategic risk.

*Traditional risk management is concerned with an organization’s pure risk, primarily hazard risk.* In practice, there is no clear dividing line between risk management and ERM, with the terms often used interchangeably.

**ERM Definitions**

The evolving similarity of the concepts of risk management and ERM is demonstrated in the International *Organization for Standardization (ISO) definition of risk management in ERM terms: “coordinated activities to direct and control an organization with regard to risk.” The ISO definition of risk as “the effect of uncertainty on objectives” also reflects an ERM approach to risk and risk management*.

There are many similar definitions of ERM, including one from the Committee of Sponsoring Organization of the Treadway Commission: “the culture, capabilities, and practices, integrated with strategy-setting and performance, that organizations rely on to mange risk in creating, preserving, and realizing value”.

**The various definitions of ERM all include the concept of managing an organization’s risk to help that organization meet its objectives. This link between management of an organization’s risk and its objectives is a key driver in deciding how to assess and treat risk.**

**Theoretical Pillars**

**Whether the source of a risk is financial, hazardous, operational, or strategic, risks managed separately are not the same as they are when managed together. Three main theoretical concepts explain how ERM works:**

* **Interdependency**
* **Correlation**
* **Portfolio theory**

The silo type of management that is typical of traditional risk management ignores any interdependencies and assumes that a financial risk is unrelated to a hazard risk. Events are statistically independent if the probability of one event occurring does not affect the probability of a second event occurring. However, the traditional assumption of independence may not always be valid – and when it is not, the result may be inefficient treatment of an organization’s portfolio of risk.

*Correlation increases risk, while uncorrelated risks can provide a balance or hedge*. Example, all of an organization’s suppliers are locating in an earthquake-prone region, there is a significant correlation among suppliers in the organization’s supply-chain risk.

The third concept that makes ERM work well is the portfolio theory. In an ERM context, *a portfolio is a combination of risks*. The portfolio theory assumes that risk includes both individual risks and their interactions. Example, and airline may experience an increased portfolio risk from increased fuel prices. This increase may affect not only the airline’s costs but also consumer demand. The effect of rising gas prices on consumers’ available disposable income could reduce the demand for air travel and constrict the airline’s ability to offset its higher costs with higher prices. An airline that successfully hedged against rising oil prices may be able to take advantage of these circumstances to increase its market share.

**Organizational Relationships**

Under the traditional risk management organizational model, there is a risk manager and a risk management department to manage hazard risk. This traditional function mainly provides risk transfer such as insurance, for the organization. Larger organizations typically include a claims management function and safety and loss prevention in the risk management department.

In ERM, the responsibility of the risk management function is broader and includes all of an organization’s risks, not just hazard risk. Additionally the entire organization at all levels becomes responsible for risk management as the ERM framework encompasses all stakeholders.

**The board of a public company has the ultimate responsibility for oversight of the organization’s risks. The Dodd-Frank Act requires that certain types of financial companies appoint board risk committees. A board risk committee may consist of the full board, the audit committee, or a dedicated risk committee. In addition, some public companies have formed an executive level committee to assist the board in its risk oversight function. The executive-level committee might be chaired by a Chief Risk Officer (CRO), who reports to both the CEO and the board risk committee.**

**As facilitator the CRO engages the organization’s management in a continual conversation that establishes risk strategic goals in relationship to the organization’s strengths, weaknesses, opportunities, and threats (SWOT). The stakeholders in the organization include employees, management, the board of directors, and shareholders. External stakeholders include customers, regulators, and the community.**

**The CRO’s responsibility includes helping the enterprise to create a risk culture in which managers of the organization’s divisions and units, and eventually employees, become risk owners**. In the fully integrated ERM organization, identifying and managing risk becomes part of every job description and project. Successful risk management of strategic objectives becomes a measure on all evaluations.

**Implementation**

It is essential to have senior management’s commitment in a midsize to large organization to successfully implement an ERM program. The risk management professionals must have access to data from all organizational areas and levels to identify and assess the organization’s risks. The risk management process to mange those risks must be integrated throughout the organization. To accomplish this, risk managers must have authority to make and enforce necessary changes, often against significant resistance.

Effective communication is essential to a successful ERM program. The CEO should meet with the senior managers of each organizational function to discuss the purpose and goals of ERM and the importance of management support. A task force composed of representatives from each function to work with the CRO and/or risk professional can help achieve buy-in from key stakeholders.

**An organization with a fully integrated ERM program develops a communication matrix that moves information throughout the organization. Communications include dialogue and discussions among the different units and levels within the organization. The establishment of valid metrics and the continuous flow of cogent data are a critical aspect to this communication process. The metrics are carefully woven into reporting structures that engage the entire organization, including both internal and external stakeholders**.

**Impediments**

**An impediment to successfully adopting ERM is technological deficiency. For ERM to succeed, people have to receive relevant information**. Management needs information on all organizational risks in a timely and concise manner – for example, a dashboard highlighting the critical risks affecting the organization’s ability to meet its objectives.

Some risk management functions are able to use existing internet technology systems to produce this information, while others require new systems. The risk management information system (RMIS) of a broker or insurer could provide a starting point for a system to be tailored to the organizations ERM program.

**Perhaps the single largest impediment to successful implementation of ERM is the organizational culture of entrenched silos**. The risk management function traditionally purchased insurance and had claims oversight. The human resource function typically managed employee benefits and absences. The financial function managed prices; credit; investments, including hedges; and exchange rates. The operations function managed the core business operations, such as manufacturing or distribution. The safety function was separate or part of either risk management or operations. Information technology was a separate function or part of finance. Each of theses functions typically had its own management structure.

*In the new ERM culture, risk management is integrated throughout the organization*. In many organizations, this involves operations managers taking responsibility for risk management within their areas of responsibility. In large organization there may be a risk committee or task force headed by the CRO that includes representatives of each major function within the organization. To achieve accountability, many organizations charge back the gains and costs associated with risk management to the responsible function.

Chapter Questions:

**A traditional risk management approach would be to apply risk control techniques in the manufacture and distribution of this product and to purchase liability insurance to transfer some of the liability exposure related to consumers’ use of the product. An ERM approach would, in addition to risk control and risk transfer techniques, also address the reputational risk related to products liability and the potential loss of business income if a particular product is removed from the market.**

**4 – The Changing Risk Management Environment**

**Objective**: Illustrate how big data is changing the risk management environment

**Traditional risk assessment techniques focus on root cause analysis (RCA), which identifies a loss’s predominant caus**e. The inherent weakness of this approach is obvious – RCA can only look backward. Plus, it might not identify all root cause and the relate events that contribute to a loss and can only be performed periodically.

Today, however, a universe of data about past events can empower decision making that is further refined through data about previously imperceptible risk factor. Examples may include a worker’s dangerous package-lifting technique, the presence of a hazardous chemical in the air at a factory, or the catastrophic intersection of seemingly disconnected financial transactions as they unfold in real time. **The ways that technology and risk management intersect to achieve this can seem complex, but the basics are simple: The Big Data revolution is fueled by the Data Capture, Data Storage and Data Analytics**

**Data Capture**

**Data capture is enabled primarily by smart products that sense their environment, process data, and communicate with other smart products and smart operations through the internet of things (LoT**). These interactions generate the data to which advances analytics can be applied. The availability and sophistication of smart products and the LoT’s continued growth have led to an explosion of risk management innovation. Examples:

* An accelerometer – measures acceleration, motion, and tilt, can generate data about fleet vehicles, such as operator acceleration and braking, and detect excessive vibration in an industrial machine that is about to explode.
* Wearable exoskeletons – wearable robots, can significantly reduce stress on the wearer’s body when he or she is exerting force or lifting objects. Sensors that monitor each step or other movement of the user and transmit data that allows the mechanism to provide assistive movement.
* A closed-loop system, which integrates feedback into existing outcome data to establish the continuous input and output of data and information, collects detailed data about supply chain assets. This allows for immediate identification of discrepancies and interruptions as well as timely actions that can prevent or reduce supply chain losses.

**Data Storage**

The decision making value of data produced by smart products, the LoT, and other data-capturing technology can be undermined by its volume, velocity, and veracity – more and faster is not necessarily better. Cloud computing enable the storage and sharing of vast amounts of data. But what if there was a way to ensure that the data used for risk management analysis was from a trusted source and independently verified. That is the premise underlying the data storage and sharing medium known as the blockchain.

Blockchain is a virtual distributed ledger that maintain a list of dynamically updated data records (blocks). The records are not actually recorded in the ledger, however, until the veracity of data within them is confirmed and verified through a consensus process called mining. This verification process removes intermediary validation and establishes trust without the use of a centralized authority.

After a blockchain is confirmed and the data within it is verified through mining, the block is time stamped and added to the preexisting blocks in the chain – hence the term “Blockchain”. The blockchain is encrypted and protected against tampering and revision.

**The risk management applications of this blockchain are a by-product of the medium’s immutability; security; transparency; scalability; and ability to facilitate the sharing of verified, quality data.** For example, a supply changing linking disparate entities across a continent could be connected through a blockchain-enabled data base. This virtual ledger could record sensor enhanced data about inventory levels, weather, labor conditions, and other relevant data related to the welfare of the supplier’s products collected from radio frequency identification (RFID) sensors and other sources at each link in the chain and shared among all participants. The supplier could use the data not only to monitor conditions in real time – potentially staving off losses – but also to inform ongoing analysis of its products, processes, and employment practices to continually refine its management of supply chain and other risks.

**Data Analytics**

**The collection, storage, and sharing of data empowers real-time risk management for organizations that use data gleaned from sensors to react immediately to hazardous situations**.

Collected and stored data can also be used to reveal forward-thinking risk management strategies when that data is organized and analyzed through methods that use artificial intelligence, such as machine learning and data modeling. **Insurers and risk managers can improve their business results through data-driven decision making in an ever-increasing variety of ways such as these**:

* **Automating decisions making for improved accuracy and efficiency – automated quotes**
* **Organizing large volumes of new data - information provided by telematics**
* **Discovering new relationships in data – workers who never had an injury**
* **Exploring new sources of data – text mining to analyze claim adjuster notes – to identify or early prediction of high severity claims (Text mining obtaining information through language recognition)**
* **Develop new products – predictive modeling of hazards, complex interactions of contributing factors. Parametric insurance, that pays a predetermined amount to the insured if a particular set of parameters occur, such as hurricane wind speed**

**5 – Risk Management Benefits**

**Objective**: Describe the benefits of risk management and how it reduces the financial consequences of risk for individuals, organizations, and society

Risk management involves the efforts of individuals and organizations to efficiently and effectively assess, control, and finance risk in order to minimize the adverse effects of losses or missed opportunities. Properly managing risk reduces its negative financial consequences and benefits individuals, organizations, and society.

**An organization with an effective risk management program should experience smaller expected losses (less frequent or less severe) and experience less residual uncertainty than a comparable organization that does not practice good risk management. For example, an organization that installs a state-of-the-art security system would expect to have fewer thefts (and therefore lower expected losses) and a better sense of security (less residual uncertainty).**

For individuals and families, risk management is usually an informal series of efforts, not a formalized process. Individual or personal risk management may be viewed as part of the financial planning process that encompasses broader matters such as capital accumulation, retirement planning, and estate planning.

In small organizations, risk management is not usually a dedicated function, but one of many tasks carried out by the owner or senior manager. In many larger organizations, the risk management function is conducted as part of a formalized risk management program. A risk management program is a system for planning, organizing, leading, and controlling the resources and activities that an organization needs to protect itself from the adverse effects of accidental losses.

**Risk Management Benefits**  **Component**

|  |  |  |
| --- | --- | --- |
|  | **Lower Expected Losses** | **Less Residual Uncertainty** |
| Individuals | Preserve financial resources | Reduces anxiety |
| Organizations | Preserves financial resources  Makes and organization more attractive as an investment opportunity | **Reduces deterrence effect** |
| Society | Preserves financial resources | Improves allocation of productive resources |

**Reducing the Financial Consequences of Risk**

The overall financial consequence of risk for a given asset or activity is the sum of here costs: (1) the cost of the value lost because of actual events that cause a loss, (2) the cost of the resources devoted to risk management for that asset or activity, and (3) the cost of residual uncertainty. However, because it is difficult to assign a specific value to the cost of residual uncertainty, it is also difficult to assign a specific value to the cost of residual uncertainty, it is also difficult to establish a benchmark against which the performance of the risk management program can be assessed. As a result, organization typically evaluate a subset of costs that form part of the financial consequence of hazard risk and refer to this subset of costs as the **cost of risk – the total cost incurred by an organization because of the possibility of accidental loss.**

**For a particular asset or activity, the cost of risk can be broken down in this way:**

* **Cost of losses not reimbursed by insurance or other external sources**
* **Cost of insurance premiums**
* **Cost of external sources of funds – for example, the interest payment to lenders or the transaction costs associate with noninsurance indemnity**
* **Cost of measure to prevent or reduce the size of potential losses**
* **Cost of implementing and administering risk management**

By reducing the long-term, overall cost of risk and devoting a minimum of resources to the actual process of managing risk without interfering with normal activities*, risk management helps an individual or an organization to be more productive, promotes safety, and* *enhances profitability*.

**Benefits to individuals**

**Risk management benefits individuals through preserving financial resources by reducing an individual’s expected losses (**by purchasing liability insurance for the home and auto) to bear the financial consequences of substantial risk.

**The second benefit is that it reduces the residual uncertainty associated with risk**. Risk averse. Risk aversion means that, all else being equal, individuals prefer certainty to uncertainty, or less risk to more risk. If given the choice between the 100 % certainty of paying $100 or a 20% chance of paying $500 (and, therefore, an 80% chance of paying nothing), a risk adverse individual would choose the 100% certainty of paying $100.

**Benefits to Organizations**

Organizations have more resources than individuals and therefore are better equipped to bear risk. Consequently, organizations do not exhibit the same degree of risk aversion as individuals. Organizations usually choose to manage their risk, because they too, benefit from preserving their financial resources.

**Preservation of financial resources adds value to the organization and make is a safer and more attractive investment**, because shareholders or other investors want to know that their equity is safe and will generate future income and creditors seek assurance that the money they have loaned the organization will be repaid with interest. Risk management can protect the financial resources necessary to satisfy these parties and other stakeholders.

**The protection that risk management affords an organization’s financial resources can, in turn, provide confidence that capital is protected against future costs such as property loss, interruption of future income, liability judgements, or loss of key personnel. This sense of confidence is attractive both to suppliers and customers.** As a result, suppliers may be more willing to allow the organization to buy on credit, and customers may purchase more products or services the organization offers.

**Risk management also can reduce the deterrence effect of risk; that is, it can improve and organization’s capacity to engage in business activities by minimizing the adverse effects of risk**. The organization can plan for its future with less uncertainty about potential outcomes. The fear of possible future losses tends to make senior management reluctant to undertake activities or investments it considers too risky, thereby depriving the organization of their associated benefits.

By making losses less frequent, less severe, or more predictable, risk management can alleviate management’s fears about potential losses. This increases the feasibility of activities such as research and development, joint ventures, or investment in other organizations, which previously appeared to risky.

**Benefits to Society**

Society also faces a cost of risk, as well as uncertainty about future losses. Its cost of risk is slightly different from individuals or organizations. **Risk management benefits society in the same ways that is does individuals and organizations, by lowering expected losses and reducing residual uncertainty.**

A nation’s economy has limited resources with which to produce goods and services. When a fire demolishes a factory or an earthquake destroys a highway, that economy’s overall productive resources are reduced. A significant portion of a nation’s productive resources is devoted to preventing, repairing, or compensating for the results of losses.

When losses are possible, some portion of the economy’s resources must be devoted to risk management for the benefit of society as a whole. Minimizing the resources consumed in running an economy is the same to an organization minimizing the administrative costs of its risk management department.

**By reducing residual uncertainty, risk management also improves the allocation of productive resources.** Risk management makes those who own or run an organization more willing to undertake risky activities, because they are better protected against losses that those activities might have produced. *This makes executives, workers, and suppliers of financial capital more able to pursue activities that maximize profits; returns on investments; and, ultimately, wages. Such shifts increase productivity within an economy and improve the overall standard of living.*

**6 – Risk Management Objectives and Goals**

**Objective**: Summarize various objectives and goals for organizations to manage risk

*A structured, logical, and appropriate program is the foundation on which an organization’s entire risk management effort rests.*

The support of an organization’s senior management is essential to an effective risk management program. To gain that support, a risk management professional should design a program with objectives and goals that align with the organization’s overall objectives. In some circumstances, a trade-off will be necessary.

**Risk Management Objectives**

**Each organization should align its risk management objectives with its overall objectives. Common objectives for risk management are balancing risk and reward and supporting decision-making. These objectives should reflect the organization’s risk appetite and the organization’s internal and external context.** Objectives can emphasize certain goals, such as business continuity, protection or reputation, or growth. Example of an Organization’s Risk Management objectives:

Mission and Objectives of Risk Management

The mission is to promptly identify, measure, manage, report and monitor risks that affect the achievement of our strategic, operational, and financial objectives. That includes adjusting the risk profile in line with the groups stated risk tolerance to respond to new threats and opportunities in order to optimize returns.

Our major Enterprise Risk Management objectives are to:

* Protect the capital base by monitoring that risks are not taken beyond the groups risk tolerance
* Enhance value creation and contribute to an optimal risk-return profile by providing the basis for an efficient capital deployment
* Support the groups decision-making process by providing consistent, reliable and timely risk information
* Protect our reputation and brand by promoting a sound culture of risk awareness and disciplined and informed risk taking

Risk management objectives can emphasize certain goals in order to align the risk management program with the organization’s risk philosophy and to help the organization meet its overall objectives.

**Risk Management Goals**

The risk management program should have goals to manage the risks that an organization will faces. These goals should be incorporated into the risk management framework and the process designed to meet a particular organization’s objectives. These are typical risk management goals:

**Tolerable uncertainty**

**A typical risk management goal is tolerable uncertainty, which means aligning risks with the organization’s risk appetite** (“the total exposed amount that an organization wishes to undertake on the basis of risk-return trade-offs for one or more desired and expected outcomes”. **Managers want to be assured that whatever might happen will be within the bounds of what was anticipated and will be effectively addressed by the risk management program.**

**Risk management programs should use measurements that will align with the organization’s overall objectives and take into account the risk appetite of senior management**. For example, value at risk (VaR) can be used to analyze various financial portfolios with different assets and risk factors. VaR can be calculated quickly and easily to determine risk actor returns on a portfolio. Value at risk is a threshold value such that the probability of loss on the portfolio over the given time horizon exceeds this value, assuming normal markets and no trading in the portfolio.

**Legal and Regulatory Compliance**

**An important goal for risk management programs is to ensure that the organization’s legal obligations are satisfied. Such legal obligations are typically based on these items:**

* **Standard of care that is owed to others**
* **Contracts entered into by the organization**
* **Federal, state, provincial, territorial, and local laws and regulations**

A risk management professional has an essential role in helping the organization manage regulatory risk and the potential for liability.

**Survival**

For risk management purposes, an organization can be viewed as a structured system of resources such as financial assets, machinery and raw materials, employees, and managerial leadership. The organization generates income for its employees and owner by producing goods or services that meet others’ needs. Many risks can threaten the survival of an organization. Traditionally, hazard risk which could destroy and organization’s facilities or cause injury to employees or customers was viewed as the major threat to an organization’s survival. Risk management professionals use techniques such as loss control and risk transfer to manage hazard risks.

The risk that organizations face are much broader than hazard risk. These risks include financial risks, competition, supply-chain risks, and technology. **Survival or an organization depends on identifying as many risks as possible that could threaten the organization’s ability to survive and managing those risks appropriately. It also depends on anticipating and recognizing emerging risks**, such as those related to climate change. The financial value of the company may not be maximized if the organization is funding a great deal in loss prevention devices and safety features to ensure the survival of the business, that are not needed.

**Business Continuity**

Continuity of operations is a key goal for many private organizations and an essential goal for all public entities. Although survival requires that no risk occurrence (no matter how severe) permanently shut down an organization, *the goal of continuity of operations is more demanding. To be resilient, and organization cannot interrupt its operations for any appreciable time.* When an organization’s senior management sets business continuity as a goal, its risk management professional must have a clear, detailed understanding of the specific operations for which continuity is essential and the maximum tolerable interruption interval for each operation.

**These are the steps an organization should take to provide business continuity and, therefore, resiliency:**

* **Identify activities whose interruptions cannot be tolerated**
* **Identify the types of accidents that could interrupt such activities**
* **Determine the standby resources that must be immediately available to counter the effects of those accidents**
* **Ensure the availability of the standby resources at even the most unlikely and difficult times**

**Earnings Stability**

Rather than strive for the highest possible level of current profits (or, for not-for-profit organizations, surpluses) in a given period, some organizations emphasize earnings stability over time*. Striving for earning stability requires precision in forecasting fluctuations in asset values; liability values; and risk management costs, such as costs for insurance*.

**Profitability and Growth**

An organization’s senior management might have established a minimum amount of profit (or surplus) that no event should reduce. **To achieve that minimum amount, risk management professionals must identify the risks that could prevent this goal from being reaches, as well as the risks that could help achieve this goal within the context of the organization’s overall objectives**. Example, an organization concerned that a disaster preventing a key supplier from delivering parts will cause a supply-chain risk could develop a back-up plan that might not only avoid this risk but also provide an opportunity to sell the backup parts to other companies.

An organization might measure profitability for its various unit on a risk adjusted basis. Example, high-risk investments require higher expected profits to account for the risk involved. By measuring profit on a risk-adjusted basis, the organization can efficiently deploy its capital.

Most organizations set goals for growth. *Emphasizing growth* – for example, enlarging an organization’s market share, the size and scope o its activities or products, or its assets – *might have two distinct opposing effects on its risk management program: the reduction of the potentially negative consequences or risk versus supporting the organization’s entrepreneurial risk-taking. Those effects depend on managers’ and owners’ tolerance for uncertainty. It is essential that risk managers understand growth goals in the context of senior managements risk appetite.* Risk managers should also advise senior management of the potential risk in different growth strategies that the organization considers.

**Social Responsibility**

Social responsibility s a goal for many organizations. It includes the organization’s ethical conduct as well as the philanthropic commitments that the owners of the organization have made to the community and society as a whole*. Beyond the altruistic interest of the organization’s owners, many organizations justify pursuing the objective of social responsibility because such activities enhance the organization’s reputation*. Risk management professionals should consider an organization’s societal commitments when developing its risk management plan.

**Economy of Risk Management Operations**

*Risk management should operate economically and efficiently; that is, an organization generally should not incur substantial costs for slight benefits gained. Risk management programs should be operated economically and efficiently*.

*One way to measure the economy of a risk management program is through benchmarking, in which an organization’s risk management costs are compared with those of similar organizations*. The Risk and insurance management Society (RIMS), a global organization of risk management professionals, conducts an annual benchmarking survey in partnership with Advisen, that organizations can use to compare their cost of hazard risk with other organizations in their industry. The benchmark survey combines expenditures for risk assessment, risk control, and risk financing, as well as the administrative costs of risk management programs.

**Trade-Offs Among Goals**

**Although an organization’s risk management objectives and goals are inter-related, sometimes they are not consistent with one another.**

* **To obtain tolerable uncertainty, the risk management professional may have to advise senior management that a growth goal may not be achievable without adjusting either the risk appetite or the growth strategy.**
* **Legality and social responsibility goals may conflict with the economy of operations goal. Some externally imposed legal obligations, such as safety standards dictated by building codes are non-negotiable. Those costs are unavoidable**
* **Social Responsibility, such as charitable contributions, may be negotiable. However, while meeting social responsibility may raise costs in the short term, it can have worthwhile long-term benefits that make the costs acceptable**.

In working with others regarding the trade-offs among organizational goals, a risk management professional must consider the likely effects of alternative risk treatment techniques and the costs and benefits of each. The interests and concerns of the various groups affected should also be considered.

The way in which a risk management department is structures, how it cooperates with other departments, and how it handles communication of information are all relevant in enabling risk management professionals to respond to the goals and concerns of the organization and of affected parties.

**7 – The Risk Management process**

**Objective**: Describe each of the steps in the risk management process

An organization’s success depends largely on how well it manages risks, and not just when it’s confronted with major events. Prudent organizations don’t wait for such external factors to implement the risk management process, because its six steps are designed to be executed continuously.

**Step 1: Identifying Loss Exposures**

A wide variety of methods can be sued to identify the loss exposures that threaten an organization’s goals. **Using different methods allows organizations to avoid overlooking important loss exposures**. Example, loss history documents may not reveal the possibility of loss related to flood, but a flood insurance rate map or cause of loss checklist does.

**Step 2: Analyzing Loss Exposures**

**Analyzing loss exposures involves estimating the likely significance of the possible losses identified in step 1 along with four dimensions:**

* **Loss frequency – number of losses within a specific time period**
* **Loss severity – the amount, in dollars, of a loss for specific occurrence**
* **Total dollar losses – the total dollar amount of losses for all occurrences during a specific time period**
* **Timing – when losses occur and loss payments are made**

*Analyzing loss exposures is expensive. The cost of risk includes the cost of acquiring risk-related information used in loss forecasts, estimates of future cash flows, and other planning activities. In some cases, this information can actually reduce losses*. Reviewing these dimensions enables the development of loss projections and the prioritization of loss exposures so resources can be properly allocated.

*Together, the first and second steps constitute the process of assessing loss exposures and therefore the most important steps in the risk management process*. Once a loss exposure has been assessed, the best way to manage it becomes immediately apparent.

**Step 3: Examining the Feasibility of Risk Management Techniques**

**Loss exposures can be addressed through risk management techniques that entail risk control and risk financing:**

* **Broadly speaking, risk control techniques minimize the frequency or severity of losses or make losses more predictable**
* **Risk financing techniques generate funds to finance losses that risk control techniques cannot prevent. Risk Transfer is a risk financing technique**

Risk management techniques are not usually used in isolation. *Unless the loss exposure is avoided, organizations typically apply at least one risk control technique and one risk financing technique to each of their significant loss exposures. The risk control technique alters the estimated frequency and severity of loss and the financing technique pays for losses that occur despite the controls*.

**Step 4: Selecting the Appropriate Risk Management Techniques**

**Most organizations choose risk management techniques by using financial criteria.** However, an organization’s value may also stem from ethical and other nonfinancial considerations:

* Financial considerations – compare the potential costs of loss exposures left completely untreated with the costs of possible risk management techniques when considering if it is economical. Cost benefit analysis considers the technique’s effect on the frequency, severity, and timing relative to an estimate of the after-tax costs involved in apply the risk management techniques.
* Non-financial considerations – data based on objective risk factors usually is not the only criterion considered in determining the appropriate risk management techniques. The organization may place a great deal of value on maintaining operations or peace of mind.

**Step 5: Implementing the Selected Risk Management Techniques**

Implementing risk management techniques may involve: Purchasing loss reduction devices; Contracting for loss prevention services; funding retention programs; Implementing and continually reinforcing risk control programs; Selecting agents or brokers, insurers, third party administrators, and other providers for insurance programs; Requesting insurance policies and paying premiums

Implementing risk management techniques does not necessarily end with initial implementation of the selected technique. Example, if they were to purchase a building, it almost certainly will also decide to purchase property insurance. However, additional details, such as the exact placement of the fire extinguishers, the term sand cost of insurance and noninsurance contract revisions, which insurer to use, the timing of insurance premium payment, or the actual deposit of funds for a retention program to cover deductibles, must be addressed as the program is implemented.

**Step 6: Monitoring Results and Revising the Risk Management program**

**Once implemented, a risk management program must be monitored and revised to ensure that it is achieving expected results and to accommodate changes in loss exposures and the availability or cost effectiveness of alternative risk management techniques**. Monitor and revising the risk management program requires 4 steps:

* Establishing standards of acceptable performance – consider the results and activities. Focuses on actual achievement of goals, regardless of the effort required to achieve them (for example a declining in frequency or severity of employee injuries), while an activity standard focuses on efforts made to achieve a goal regardless of actual results and necessary to obtain a complete picture of the success or failure of a risk management program.
* Comparing actual results with these standards – A proper standard includes specifications for how results or performance will e measured, such as target activity levels or results, or at lease desired directions of change (decrease in worker accidents)
* Correcting substandard performance or revising standards that prove to be unrealistic – substandard performance does not necessarily indicate that performance is the problem, it may just be inappropriate. The program should change when loss exposures change. Similarly, the standards by which the program is evaluated must be re-examined and possible altered if the environment within the program operates also changes.
* Evaluating standards that have been substantially exceeded. – performance should meet or exceed standard. If performance substantially exceeds a standard, then determining why is crucial. One reason may be the superior skills of the employees or employees involved in implementing the standard. Another is that the standard is not sufficiently demanding. These should be revised to more accurately reflect the performance potential of the employees and the organization.