

Chapter 1

Enterprise Risk Management

A description of ERM is provided, with subsequent chapters providing:

- Financial perspectives
- Accounting perspectives
- Supply chain perspectives
- Information system perspectives
- Disaster management perspectives

Types of risk are reviewed

- In terms of opportunity
- Types of business risks
- Strategic risks

A risk management framework is reviewed

The concept of enterprise risk management (ERM) developed in the mid-1990s in industry, with a managerial focus. There are over 80 risk management frameworks reported worldwide, to include that of the Committee of Sponsoring Organizations of the Treadway Commission (COSO) 2004. COSO is a leading accounting standards organization in the U.S. ERM is a systematic, integrated approach to managing all risks facing an organization.¹ It focuses on board supervision, aiming to identify, evaluate, and manage all major corporate risks in an integrated framework.² It was undoubtedly encouraged by traumatic recent events such as 9/11/2001 and business scandals to include Enron and WorldCom.³ A recent Tillinghast-Towers Perrin survey reported that nearly half of the insurance industry used an ERM process (with another 40 percent planning to do so), and 40 percent⁴ had a chief risk

officer.⁵ But consideration of risk has always been with business, manifesting itself in medieval coffee houses such as Lloyd's of London, spreading risk related to cargos on the high seas.

The field of insurance developed to cover a wide variety of risks, related to external and internal risks covering natural catastrophes, accidents, human error, and even fraud. Financial risk has been controlled through hedge funds and other tools over the years, often by investment banks. With time, it was realized that many risks could be prevented, or their impact reduced, through loss-prevention and control systems, leading to a broader view of risk management.

Contingency management has been widely systematized in the military, although individual leaders have practiced various forms for millennia. Systematic organizational planning recently has been observed to include scenario analysis, giving executives a means of understanding what might go wrong, giving them some opportunity to prepare reaction plans. A complicating factor is that organization leadership is rarely a unified whole, but rather consists of a variety of stakeholders with potentially differing objectives.

Enterprise risks are inherently part of corporate strategy.⁶ Thus consideration of risks in strategy selection can be one way to control them. ERM can be viewed as top-down by necessity for this reason. For example, currency risk arises because a company chose to involve itself in international activity. Divestment (and incorporation) often arises from desires to obtain legal protection as a means to reduce risk. An example was the formation of Alyeska Pipeline Service Company in 1970 to build and service the Alaska pipeline.

The book will look at risk management from five perspectives, each of which will be treated in a chapter in Part I. These perspectives are financial, accounting, supply chain, information system, and disaster management.

1.1 What is ERM?

Enterprise risk can include a variety of factors with potential impact on an organizations activities, processes, and resources. External factors

can result from economic change, financial market developments, and dangers arising in political, legal, technological, and demographic environments. Risks can arise over time, as the public may change their views on products or practices such as:⁷

Automobile safety	Barbie dolls	Big box chain stores
Clothing from Third World factories	Corporate-owned farms	Disposable packaging
Executive salaries	Food additives	Furs
Hydroelectric dams	Logging	Nuclear power
Spanking	Sugar	Toy guns

Most of these are beyond the control of a given organization, although organizations can prepare and protect themselves in time-honored ways. Internal risks include human error, fraud, systems failure, disrupted production, and other risks. Often systems are assumed to be in place to detect and control risk, but inaccurate numbers are generated for various reasons.⁸ Organizations of all types need robust, reliable systems to control risks that arise in all facets of life. Table 1 describes differences between ERM and traditional risk management:

Table 1: Differences between ERM and Traditional Risk Management⁹

Traditional Risk Management	ERM
Risk as individual hazards	Risk viewed in context of business strategy
Risk identification & assessment	Risk portfolio development
Focus on discrete risks	Focus on critical risks
Risk mitigation	Risk optimization
Risk limits	Risk strategy
Risks with no owners	Defined risk responsibilities
Haphazard risk quantification	Monitoring & measurement of risks
“Risk is not my responsibility”	“Risk is everyone’s responsibility”

Tools of risk management can include creative risk financing solutions, blending financial, insurance and capital market strategies.¹⁰ Capital market instruments include catastrophe bonds, risk exchange swaps, derivatives/options, catastrophe equity puts (cat-e-puts), contingent surplus notes, collateralized debt obligations, and weather derivatives.

1.2 Types of Risk

Risks can be viewed as threats, but businesses exist to cope with specific risks. Thus, if they encounter a risk that they are specialists in dealing with, the encounter is viewed as an opportunity. Risks have been categorized into five groups:¹¹

1. **Opportunities** – events presenting a favorable combination of circumstances giving rise to the chance for beneficial activity;
2. **Killer risks** – events presenting an unfavorable combination of circumstances leading to hazard or major loss or damage resulting in permanent cessation of operations;
3. **Other perils** – events presenting an unfavorable combination of circumstances leading to hazard of loss or damage leading to disruption of operations with possible financial loss;
4. **Cross functional risks** – common risks leading to potential loss of reputation;
5. **Business process unique risks** – risks occurring within a specific operation or process, such as withdrawal of a particular product for quality reasons.

Opportunities should be capitalized upon in most circumstances. Not taking advantages of opportunities leads to growth of competitors, and thus increased risk. If opportunities are pursued, enterprise strategy can be modified to manage the particular risks involved. Killer risks are threats to enterprise survival, and call for continuous risk treatment, monitoring, and reporting. The other perils require analysis to assess

ownership, treatment, residual risk, measurement, and reporting. Table 2 describes a variety of risk types faced by most organizations:

Table 2: Business Risk Types¹²

External Environment	Business Strategies & Policies	Business Process Execution
Competitors Legal & regulatory Catastrophic loss Medical cost / utilization trends Customer expectations	Strategy & innovation Capital allocation Business / product portfolio Organization structure Organization policies	Planning Process / technology design Technology execution & continuity Vendor / partner reliance Customer satisfaction Regulatory compliance & privacy Knowledge / intellectual capital Change integration
People	Analysis & Reporting	Technology & Data
Leadership Skills / competency Change readiness Communication Performance incentives Accountability Fraud & abuse	Performance management Budgeting / financial planning Accounting / tax information External reporting & disclosure Pricing / margin Market intelligence Contract commitment	Technology infrastructure / architecture Data relevance & integrity Data processing integrity Technology reliability & recovery IT security

This classification was for the healthcare industry, but demonstrates the scope of risks that organizations can face. The idea of enterprise risk management is to identify important risks for the organization, and develop strategies to deal with them.

1.2.1 Strategic risks

Risk strategy defines means of coping with risks, defining approaches to be adopted. If risks are in the organizations area of expertise, they become business opportunities. Risk strategies should establish guidelines to include:¹³

- Organization & responsibilities;
- Organizational risk attitude;
- Ownership for specific risks;
- Methods to be used at each planning level to deal with risk;
- Peer reviewing and benchmarking;
- Encouragement of proactive risk reporting;
- Criteria for risk assessment and definition of critical risks;
- Encouraging effective communication of risks.

If risks are not in areas where the organization has expert ability to cope, they should be defended against. Table 3 gives seven major strategic risk classes identified by a Harvard Business Review paper.

1.2.2 A framework for risk management

Risk management frameworks are designed to enable organizations to systematically cope with these risks. One enterprise operational framework is given below:¹⁴

Step 1: Establish a risk management framework

This step involves identifying evaluating, exploiting, financing, and monitoring risk events with the intent of focusing on value of the enterprise. It is related to establishment of strategic objectives. Top management is responsible to direct and set controls after consulting with stakeholders, and to constantly monitor operations with the intent of reducing risk and prioritizing strategic risks. It is often found beneficial to appoint a chief risk officer as a risk management champion.

Table 3: Strategic Risk Classes and Possible Defenses¹⁵

Strategic Risk	Example	Defense
Industry margin squeeze	Pharmaceuticals Cost escalation – semiconductors Airline deregulation Cycle volatility	<i>Shift the compete / collaborate ratio</i> Supply chain coordination, asset-sharing agreements, collaborative marketing
Technology shift	Loss of patent protection Outdated manufacturing processes	<i>Double bet</i> OS / 2 & Windows Analog & digital cellular
Brand erosion	Perrier contamination Firestone & Ford Explorer GM Saturn	<i>Redefine brand investment scope</i> Redesign service, quality <i>Reallocate brand investment</i> AMEX response to VISA
One-of-a-kind competitor	Wal-Mart	<i>Create new non-overlapping business design</i> Target – Family Dollar Stores
Customer priority shift	Bottled Water – Pepsi & Coke	<i>Early detection</i> <i>Fast & cheap</i> <i>experimentation</i> Capital One
New project failure	Edsel	<i>Smart sequencing</i> Do better-understood, controllable first <i>Develop excess options</i> <i>Stepping-stone method</i> Series of projects
Market stagnation		<i>Generate demand-innovation</i>

Step 2: Risk requirements

The intent is to understand organizational internal and external key stakeholders and their objectives and strategies with respect to risk. Establishment of risk requirements includes assessment, to include analysis and evaluation. Required data needs to be identified, along with the reason for collecting it. Risk exposure is measured through risk models. Two broad measures in enterprise risk management are solvency-related and performance-related. Solvency-related measures focus on financial measures such as value at risk and shortfall risk. Performance-related risk includes cause and effect models to assess the effect of decisions, such as a pro forma projections contingent upon some hazardous event occurring.

Step 3: Identify the flow of information

Threats and opportunities need to be reported. An accurate and detailed flowchart of information flow as well as the software and hardware needed by each department or location is needed, along with identification of skilled personnel required to operate them.

Step 4: Feasibility analysis

Alternative means of obtaining risk management software should be identified. The cost of the proposed system is estimated, along with system purpose and users. The ability to cope with increased work load also needs to be considered.

Step 5: Buy or lease

After feasibility analysis, decisions need to be made.. There are many companies offering customized packages for specific aspects of risk management, to include financial management, insurance risk, project risk, and risks in specific industries.

After risks are treated, residual reporting of treatment effectiveness is needed, monitoring the effectiveness of treatments.

1.3 Current Status

The Conference Board published results of a survey of 271 risk management executives from North America and Europe.¹⁶ Respondents of organizations with long ERM experience indicated that ERM had significantly added higher levels of value to organizations than did those respondents belonging to organizations that had implemented ERM more recently. Benefits cited were better-informed decisions (86 percent of experienced ERM organizations; 58 percent of all others), greater management consensus (83 percent of experienced, 36 percent of all others), and increased management accountability (79 percent of experienced, 34 percent of all others). Those organizations that had fully implemented ERM were better able to accomplish strategic planning, and had a stronger ability to understand and weigh risk tradeoffs.

There has been significant recent research into the use of ERM,¹⁷ to include reports of the uses of ERM by Canadian risk and insurance management companies.¹⁸ One study reported results of a survey of 52 companies with respect to risk management practices.¹⁹ Results of a survey of 123 organizations found the following variables positively related to ERM implementation: presence of a chief risk officer, board independence, top management support, presence of a Big Four auditor, entity size, and the industries of banking, education, and insurance.²⁰ All studies indicate a great deal of interest in ERM, with less than 20 percent of surveyed organizations not interested in it. The formal implementation of ERM is clearly growing, driven in part by risk management professional organizations.

Stroh (2005) reviewed the process of ERM at UnitedHealth Management (UHM). UHM is a large, diversified company dedicated to making the healthcare system work better. HRM serves the healthcare industry with benefits, services, and analytic tools aimed at improving clinical and financial performance. UHM viewed ERM as a discipline embedded within the organizational philosophy, meant to identify business risk factors, assess their severity, quantify them, and mitigate them while capitalizing on upside opportunities. A pyramid of risks was given as in Table 4:

Table 4: Risks by Level²¹

Top level	Strategic business risk	Decompose strategic risks / opportunities Mitigation / acceleration plan Assure leadership that top risks are in sight
2 nd level	Market / business environment risk	Internal risk sensing (identify potential issues early & alert management) External risk sensing (peer, industry, market monitoring)
3 rd level	Financial performance risk	Identify gaps in management plans to achieve financial targets Test / verify assumptions behind key decisions
4 th level	Operational risk	Develop baseline, audit plan to link strategic & tactical risks Provide advisory services to develop operational controls
5 th level	Compliance and financial reporting risk	Partner with external audit General & regular financial controls

ERM was viewed as providing UHM a framework for discipline, a methodology enabling management to effectively deal with uncertainty and associated risks.

1.4 Conclusions

We have given a brief initial description of ERM. That process begins by identifying risks specific to an organization. There are many types of risk that can affect a business (or any organization for that matter). A systematic approach to risk can lead to more rational organizational management.

While risk needs to be managed, taking risks is fundamental to doing business. Profit by necessity requires accepting some risk. ERM seeks to provide means to recognize and mitigate risks, and provides tools to rationally manage these risks. Businesses exist to cope with specific

risks efficiently. Uncertainty creates opportunities for businesses to make profits.

There are many perspectives to enterprise risk management. We will review financial, accounting, supply chain operations, information system, and disaster planning perspectives in chapters to follow in this section. Then in part 2 we will present some modeling methods that can support decision making in the enterprise risk management decision arena. Part 3 will conclude the book with cases of modeling applied to risk management applications.

Endnotes

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